HEALTH
IN MONTGOMERY COUNTY
2008-2016

A Surveillance Report on Population Health

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A Publication of the
Montgomery County Department of Health and Human Services
Public Health Services
Office of Planning and Epidemiology

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April 2018

Suggested citation: Montgomery County, Maryland, Department of Health and Human Services, Office of Planning and Epidemiology. Health in Montgomery County, 2008-2016: A surveillance report on population health. Rockville, Maryland. 2018.

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Acknowledgements:

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Hospitalization – Maryland Health Services Cost Review Commission
Cancer – Maryland Cancer Registry
Infectious Diseases – Infectious Disease Bureau, Maryland Department of Health
Behavioral Risk Factor Surveillance System (BRFSS) – Maryland Department of Health
Youth Risk Behavior Survey (YRBS) – Maryland Department of Health

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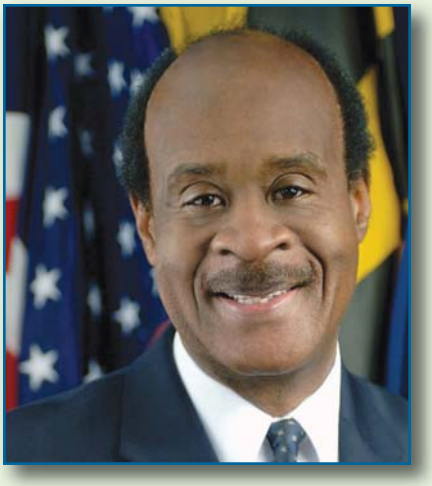
County Executive's Message



Dear Friends:

On behalf of the residents of Montgomery County, I am pleased to present the Montgomery County Department of Health and Human Services' (DHHS) first health status report. This report offers a comprehensive view of the community's health status and highlights how the health of our residents compares to state and national benchmarks. The data included in this report will help guide the county's public health related efforts to address the health needs of our county and prioritize relevant strategies to address the most prevalent health concerns within Montgomery County.

It gives me great pleasure to highlight that we have been named the healthiest county in Maryland for the past several years. Montgomery County has made significant strides in not only providing a cadre of innovative, cutting edge care, but ensuring that those services are accessible and affordable to all our residents. Important work remains to address the disparities in outcomes within our county, particularly as it relates to chronic disease management and access to care.

I congratulate DHHS on providing a host of services to address health outcomes. In addition, I would like to thank the DHHS staff, County agencies, our partner organizations, and our dedicated and engaged residents for their commitment to promoting health and wellness throughout our community. We remain committed to ensuring that Montgomery County is the healthiest place to live in the state and country.

Sincerely,

Isiah Leggett

Isiah Leggett
County Executive

DHHS Director's Message

Dear Friend:

I am so proud to share with you our report Health in Montgomery County 2008-2016. This is the result of hard from our senior epidemiologist Dr. Liu and his team in Public Health Services under the leadership of our health officer Dr. Gayles. Our county has long been a thought leader and innovator in supporting our residents' health and social service needs. We have been focused on analyzing and understanding social determinants of health in the context of the health and well-being of our residents. As a community that is now36% foreign born and 54% ethnic minority, understanding the health conditions and outcomes as they impact our various populations has become an urgent task.

When we review the data in the annual county health rankings we have been very deliberate to not lull ourselves into a false sense of confidence. While we may rank as the healthiest Maryland county, there are many troubling trends that point to disparities in outcomes for several sub-populations. These disparities range from disease specific outcomes to economic and quality of life outcomes and could pertain to health conditions such as asthma, diabetes, hypertension, mortality and morbidity rates stratified by age, sex, race and ethnic subpopulations. We also want to track and study the impact of poverty and wealth on our life expectancy rates and other indicators such as transit oriented development to name a few. We must work to address these disparate outcomes and strive to be the healthiest county for all residents. The intent of this document is to provide a deeper look into various health conditions and data related to demographics, health outcomes, access and utilization.

This report serves as a companion to the County's Community Health Needs Assessment that can also be accessed at www.healthymontgomery.org or on the county's website – www.montgomerycountymd.gov/hhs. Our intent is to embed health in all our policies and thereby have a comprehensive and holistic approach to our efforts at improving the health of our community.

I hope you as residents, advocates, providers and partners will join with us in this important effort. This report creates the baseline for this work. I hope you will also provide us with input on how well the report answered your specific questions or if there are other data points you would like to see included. The Department looks forward to our continued shared efforts in becoming the healthiest county in Maryland and in the nation for all of our residents!

Sincerely,

Uma S. Ahluwalia

Health Officer's Message

The mission of our health programs is to promote and ensure the health and safety of the residents of Montgomery County, striving to maintain a track record of being one of the healthiest communities in the state and nation. One of the core principles of achieving this mission is collecting and analyzing health status and utilization information, and sharing that information with the different populations we serve, including county residents, internal and external partners, and policy makers.

The annual report highlights where our county stands in comparison to state and national health outcome benchmarks across a diverse set of health conditions. While we do fare better than the state and national averages for many of these benchmarks (e.g. life expectancy), the data suggests several concerning trends, including increases in sexually transmitted infections, tuberculosis rates, substance use (e.g. opioid use and overdoses), and utilization of emergency rooms for management of chronic diseases (e.g. diabetes). There are also numerous gaps and disparities in outcomes, including infant mortality, and mortality associated with chronic diseases, such as heart disease and cancer. The annual report serves to further the deeper conversations to understand the root causes driving these disparate outcomes. Our goal is to utilize the data to enhance our many successful current health programs, and develop new, innovative and effective programs that are directly applicable to meeting public health needs of Montgomery County.

Regards,

Travis A. Gayles, MD, PhD

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Executive Summary

Overall, health outcomes in Montgomery County have performed better than state and national averages. Nevertheless, a close examination of the overall averages reveals several health conditions with increasing trends, and disparities by race/ethnicity, age, sex, and geographic area warrant special attentions. It is critical to highlight these areas, to target efforts and resources to meet the evolving needs of a changing population in the County. The major findings of health topics examined in this report are summarized below.

Demographics, Social Determinants, and Health Care Access

(1) The County's population is becoming more diverse over time; the NH-Black and Hispanic populations have increased while the NH-White population is decreasing.
(2) In 2016 an increasing percentage of families living in poverty in the County; however, the County's overall level (4.7%) is lower than Maryland's (6.8%) and much lower than that of the U.S. (11.0%); the Hispanic and NH-Black groups had the highest levels.
(3) The overall percentage of individuals without health insurance in the County has decreased over time, which is similar to Maryland and the U.S.

Vital Statistics

(1) Births to adolescent mothers in the County are decreasing over time, the County's rates are consistently lower than those in Maryland and the U.S; Hispanics had the highest rates.
(2) The leading causes of death in the County were cancer (24%), heart disease (22%), cerebrovascular disease (5%), accidents (4%), and chronic lower respiratory disease (3%).
(3) The County had decreasing rates of overall mortality, the death rates were consistently lower than that in Maryland and the U.S.

Maternal and Infant Health

(1) The County had an overall decreasing trend in the percentage of births with late or no prenatal care; the County percentage is consistently lower than that in Maryland.
(2) Low birth weight in the County has been consistently lower than that in Maryland and the U.S (7.2%, 8.6%, and 8.2% of births, respectively in 2016); NH-Black had the highest percentage.
(3) The infant mortality rate in the County is consistently lower than that in Maryland and the U.S (5.3, 6.7, and 5.9/1,000 births respectively in 2015); NH-Black had the highest rates.

Chronic Disease

(1) Though heart disease mortality had decreased in the County, heart disease related ER visits rates increased; however, the County had lower rates of mortality and ER visit than in Maryland. NH-Blacks had the highest mortality and ER visit rates.
(2) Overall cancer incidence and mortality rates are decreasing in the County. County rates are lower than those in Maryland and the U.S.
(3) While diabetes mortality showed a decreasing trend in the County, diabetes related ER visits rates increased. The County had lower mortality and ER visit rates than Maryland. NH-Blacks had the highest mortality and ER visit rates.

Infectious Disease

(1) Tuberculosis rates in the County were consistently higher than in Maryland and the U.S. (7.1, 3.7, and 2.9/100,000 respectively in 2016); Asian/PI had the highest rates.
(2) Though the rates of sexually transmitted infections of chlamydia, gonorrhea, and syphilis were consistently lower than in Maryland and the U.S., the rates in the County increased over time; NH-Blacks and person ages 20-24 (25-44 for syphilis) had the highest rates.
(3) HIV rates in the County decreased over time and were consistently lower than in Maryland but higher than the U.S. (14.5, 18.6, and 10.8/100,000 respectively in 2016). NH-Blacks had the highest rates.

Behavioral Health

(1) Though consistently lower than in Maryland, mental health related ER visit rates in the County increased over time; NH-Blacks and persons ages 18-34 had the highest rates.
(2) Though substance abuse related ER visit rates were consistently lower than in Maryland, the substance abuse related ER visit rates and drug induced mortality rates in the County increased over time. NH-Whites and persons ages 18-34 had the highest rates.
(3) Though suicide related hospitalization and ER visit rates were consistently lower than in Maryland, the ER visit rates in the County increased. Persons ages 18-34 and 5-17 had the highest suicide related hospitalization and ER visit rates respectively.

Injury

(1) Overall injury hospitalization and ER visit rates decreased in the County. County rates were consistently lower than in Maryland.
(2) Motor vehicle related mortality and hospitalization rates decreased in the County, County rates were consistently lower than in Maryland; NH-Blacks and persons ages 18-34 had the highest ER visit rates.
(3) Firearm related mortality and ER visit rates decreased in the County, County rates were consistently lower than in Maryland; those ages 18-34 had the highest hospitalization and ER visit rates.

Environmental Health

(1) The percentage of children with high blood lead level (5-9 ug/dL) in the County was much lower than in Maryland (0.8% and 1.5% respectively in 2016).
(2) Though there was a decreasing trend of PM2.5 in the County, the particulate matter level in the County was similar to that in Maryland but consistently higher than the U.S.
(3) Drinking water quality in the County meets all required EPA standards.

Introduction

Montgomery County is the most populous county in Maryland with a population estimate of more than 1 million in 2014 from the U.S. Census. It would be the 10th most populous city in the U.S. if it were a city. Montgomery County is one of the most affluent counties in the country [1] and has the highest percentage (29.2%) of residents over 25 years of age who hold post-graduate degrees. In 2011, it was ranked by Forces as the 10th richest in the country, with a median household income of $92,213 [2]. Montgomery County has a very diverse population and there is an increasing trend towards becoming more diverse over time. In 2014, there were 47.0% Non-Hispanic White. 18.6% Non-Hispanic Black, 15.0% Asian/Pacific Islander, and 18.3% Hispanic or Latino based on the estimate from U.S. Census. Of the County's population, 32.6% were born outside the U.S.

Montgomery County has had the highest overall health outcomes ranking in Maryland since 2014, based on the County Health Rankings by the Robert Wood Johnson Foundation [3]. However, ongoing efforts are needed to make improvements in the areas of access to health care, health inequities, and unhealthy behaviors. Healthy Montgomery is the County's community health improvement process that brings together County government agencies, elected officials, hospital systems, minority health initiatives/program, advocacy groups, academic institutions, community-based service providers, the health insurance community, and other stakeholders to achieve optimal health and well-being for County residents [4]. Six priority areas, including behavioral health, cancer, cardiovascular health, diabetes, maternal and infant health, and obesity were identified by Healthy Montgomery for priority-setting purposes. This report includes all the priority areas identified by Healthy Montgomery, in addition, it comprehensively covers all the major public health areas not addressed in Healthy Montgomery.

This report is organized into three major sections:

(1) the summary of all mortality, hospitalization, and ER visits by year, sex, race/ethnicity, and age;
(2) health area-specific statistics, and
(3) the appendices. Here are the features of this report:

- A section on prevention is included to illustrate the importance of prevention at different levels to reduce disease burden.
- Comparison of disease rates by sex, race/ethnicity, age (where appropriate), and geographic areas are included to illustrate the disparities of risks associated with disease burden.

- Trends in disease burden over time are examined by health topic, to illustrate the effectiveness of prevention and intervention programs.
- Primary Care Service Areas (PCSA) are used to illustrate geographic variations in hospitalizations and ER visits due to selected health conditions. PCSAs are geographic areas that are self-sufficient markets of primary care, designed in a manner such that the majority of patients living in these areas use primary care services from within the area. This ensures that any geographic targeting of policies and resources reach the patients for whom they are meant.
- Comparisons of disease rates between sub-county areas (i.e. Census Tract, Zip Codes, PCSA, etc.) and the County overall through Geographic Information System (GIS) mapping are available to identify potential risks of diseases associated with different life styles and possible environmental/occupational exposures.
- Comparison of disease rates between the County, Maryland and U.S. are made where appropriate.
- Information from the 2015 Maryland Behavioral Risk Factor Surveillance System (BRFSS) and 2013-14 Youth Risk Behavior Survey (YRBS) is included to provide information on both risky and health-prompting behaviors, as well as prevalence estimates of certain health conditions.
- Information from the Healthy People 2020 is included to provide a benchmark for the progress made and areas for ongoing efforts.
- A section on "Frequently Asked Questions" is included to provide answers to widely received inquiries from the public.
- Technical notes are included in the appendices to provide information on methodological issues.
- Definitions and ICD-9/10 CM codes for mortality and hospitalization associated with each health condition are provided.
- Sources of additional information are included in the appendices.

Department of Health and Human Services

The Department of Health and Human Services is responsible for public health and human services that help address the needs of our community's most vulnerable children, adults and seniors. DHHS has more than 130 programs and delivers services at more than 20 locations, with more locations throughout schools. DHHS's core services protect the community's health, protect the health and safety of at risk children and vulnerable adults and address basic human needs including food, shelter and clothing. The five main service areas of DHHS include Aging and Disability Services, Behavioral Health and Crisis Services, Children, Youth and Family Services, Public Health Services, and Special Needs Housing. Additionally, the Office of Community Affairs provides direct services through several programs. DHHS has more than 1,700 employees and provides services to more than 120,000 clients annually (1 in every 8 residents).

Office of Planning and Epidemiology

DHHS Public Health Services entails Cancer Screening Programs, Communicable Diseases and Emergency Preparedness, Community Health Services, Health Care for the Uninsured, Planning and Epidemiology, Licensure and Regulatory Services, and School Health Services.

The Office of Planning and Epidemiology serves as the expert in planning and analytic epidemiology within DHHS and is responsible for community health needs assessment, program evaluations, disease surveillance and outbreak investigations, health statistics and data management, epidemiology and biostatistics, ongoing development and maintenance of a population data warehouse, and special research projects in collaboration with internal and external partners and academic institutions.

Prevention

Many types of health conditions may be prevented, and considerable progress continue to be made to improve the quality of life and survival for people with these conditions. revention strategies are based on the natural history of the disease development and are categorized into three levels of intervention.

Primary prevention – is to limit the occurrence of health conditions by controlling exposure to risk factors or increasing an individual's resistance to them (e.g., through physical exercises). The first step is to identify the relevant exposures and to assess their impact on the risk of developing disease in the population. For example, consuming recommended fruits and vegetables and exercising may help reduce cholesterol and prevent cardiovascular diseases. Maternal smoking during pregnancy may increase risks for preterm birth, low birth weights, and certain birth defects.

This report includes County-specific information from the 2015 Maryland Behavioral Risk Factor Surveillance System (BRFSS) survey and 2013-14 Youth Risk Behavior Survey (YRBS) and whenever possible and appropriate.

This icon indicates data from the Maryland Behavioral Risk Factor Surveillance System (BRFSS) survey in 2015, a survey of Maryland residents to assess risk behaviors and attitudes pertinent to health outcomes.

* Some results of this survey are limited by the low response rate. Although the demographic profile of respondents correlated well with the sample's characteristics, the results may be considered representative of the respondents only.

Secondary prevention – refers to detection of diseases at an early stage when intervention is more effective than at the time of usual diagnosis and treatment. Early detection and intervention can reduce or eliminate the complications related to the condition, including death. Screening represents an important component of secondary prevention. Prenatal visits provide strategic opportunities to identify adverse birth outcomes early and employ appropriate interventions to reduce the consequences of health conditions.

Tertiary Prevention – aims at improving the prognosis and quality of life of affected individuals by offering them the best available treatment and rehabilitation programs.

The goal of prevention is to reduce the associated morbidity and mortality. It is important to set up long-term objectives for achieving these goals through various prevention and health promotion activities. Through comparing results with Healthy People 2020, a program of a nationwide health-promotion and disease-prevention goals set by the United States Department of Health and Human Services, it provides information on progress made and areas for ongoing efforts. Objectives from the Healthy People 2020 are included in this report whenever possible and appropriate.

This icon indicates goals of Healthy People 2020 from the CDC National Center for Health Statistics.

Mortality

Table 1. Leading Cause of Deaths by Year, Montgomery County, 2014-16

	2014		2015		2016		2014-16	
	%	Rank	%	Rank	%	Rank	n (%)	Rank
Cancer	23.6	1	23.8	1	23.5	1	4,146 (23.7)	1
Heart Disease	22.9	2	22.3	2	22.0	2	3,925 (22.4)	2
Cerebrovascular Disease	5.1	3	4.9	3	5.1	3	881 (5.0)	3
Accident	3.5	4	3.5	4	3.6	4	615 (3.5)	4
Chronic Lower Respiratory Disease	3.4	5	3.4	5	3.3	5	589 (3.4)	5
Alzheimer's Disease	2.6	7	2.9	6	2.8	6	481 (2.7)	6
Influenza & Pneumonia	2.8	6	2.8	7	2.4	7	471 (2.7)	7
Diabetes Mellitus	2.4	9	2.3	9	2.4	7	416 (2.4)	8
Septicemia	2.6	7	2.5	8	1.9	9	409 (2.3)	9
Nephritis	1.5	10	1.9	10	1.6	10	291 (1.7)	10
All Other Causes	29.7		29.7		31.4		30.3	

Fig. 1. Leading Cause of Deaths, Montgomery County, 2014-16

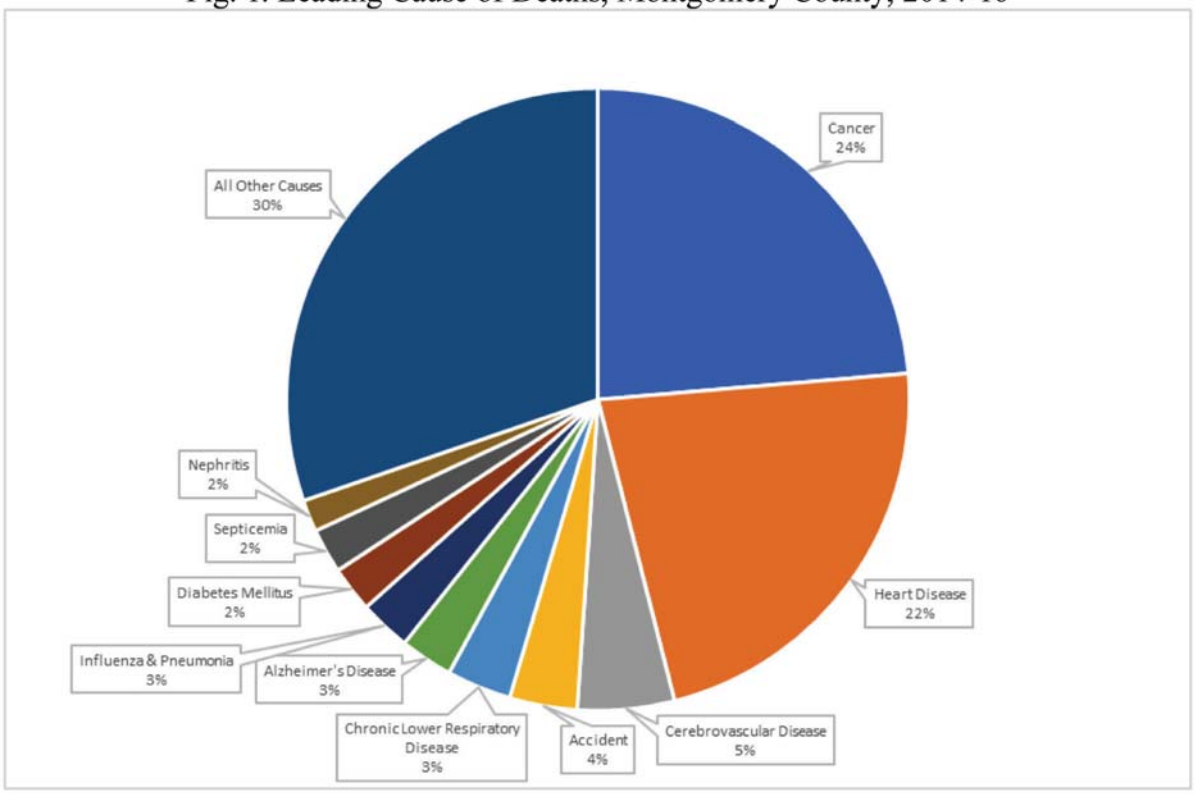


Table 2. Leading Cause of Deaths* by Sex, Montgomery County, 2014-16

	Male		Female	
	%	Rank	%	Rank
Cancer	23.5	2	23.8	1
Heart Disease	24.4	1	21.6	2
Cerebrovascular Disease	3.7	4	5.5	3
Accident	4.4	3	2.5	6
Chronic Lower Respiratory Disease	3.0	5	3.7	4
Alzheimer's Disease	1.8	7	3.6	5
Nephritis	1.9	6	1.4	7
Diabetes Mellitus	0.5	8	0.6	8
Influenza & Pneumonia	0.2	9	0.2	9

* based on list of leading causes for overall population only

Fig. 2. Leading Cause of Deaths by Sex, Montgomery County, 2014-16

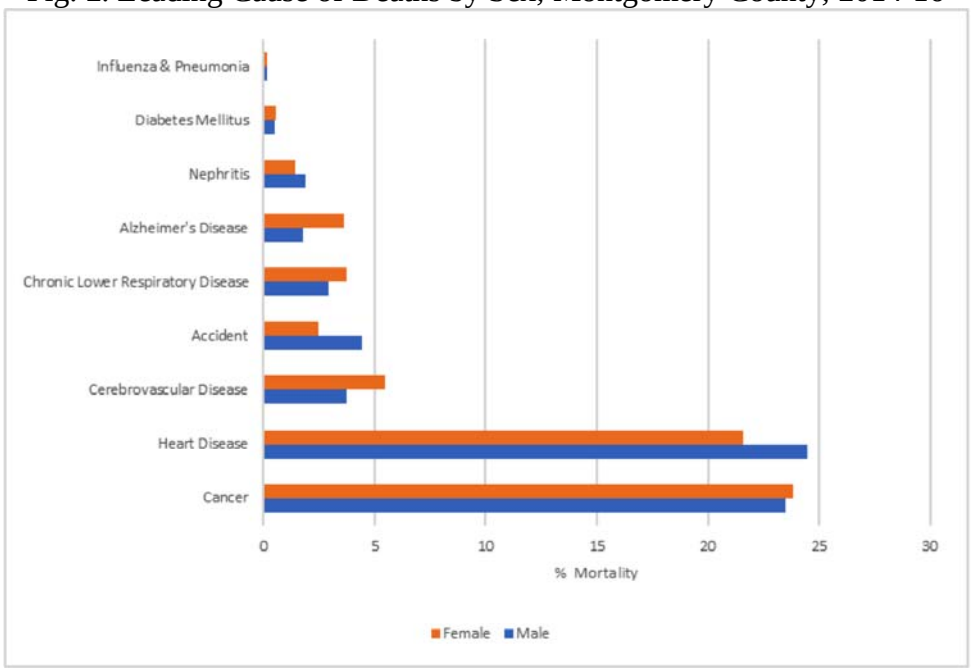


Table 3. Leading Cause of Deaths* by Race/Ethnicity, Montgomery County, 2014-16

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Cancer	22.7	2	24.7	1	29.4	1	24.1	1
Heart Disease	24.0	1	23.2	2	19.0	2	16.0	2
Cerebrovascular Disease	4.4	3	4.2	3	6.9	3	5.0	4
Accident	3.1	5	2.9	4	3.2	4	8.3	3
Chronic Lower Respiratory Disease	3.9	4	2.7	5	1.5	7	0.9	7
Alzheimer's Disease	3.1	5	1.7	7	1.8	6	2.3	5
Nephritis	1.4	7	2.6	6	1.9	5	1.6	6
Diabetes Mellitus	0.5	8	0.9	8	0.3	8	0.7	8
Influenza & Pneumonia	0.2	9	0.2	9	0.1	9	0.1	9

* based on list of leading causes for overall population only

Fig. 3. Leading Cause of Deaths by Race/Ethnicity, Montgomery County, 2014-16

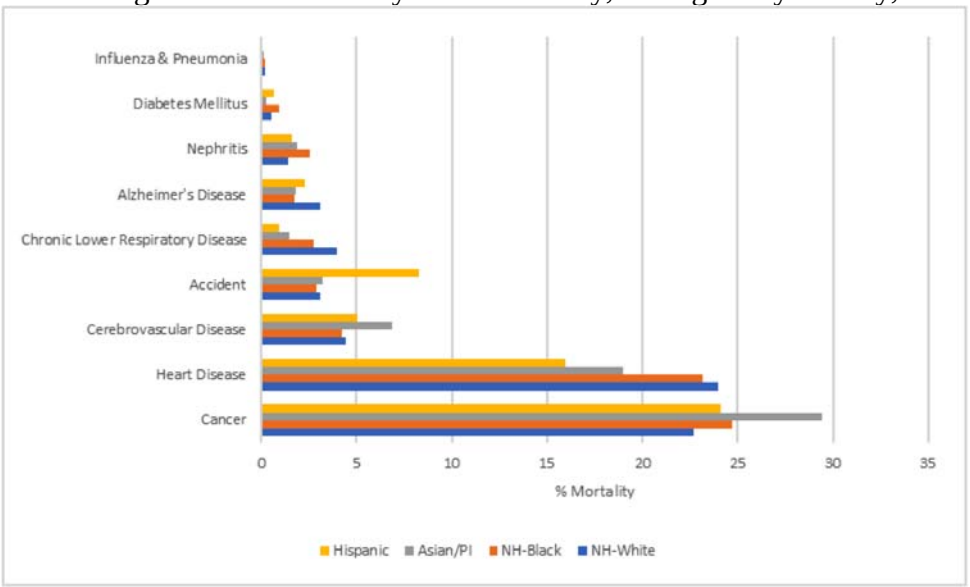
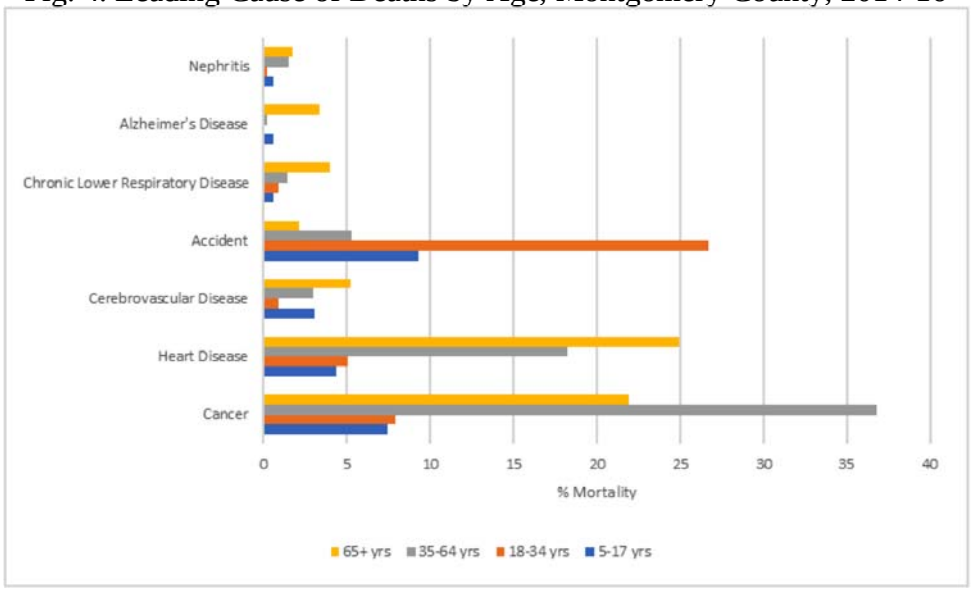


Table 4. Leading Cause of Deaths* by Age, Montgomery County, 2014-16

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Cancer	7.5	2	7.9	2	36.8	1	21.9	2
Heart Disease	4.3	3	5.1	3	18.2	2	24.9	1
Cerebrovascular Disease	3.1	4	0.9	4	3.0	4	5.2	3
Accident	9.3	1	26.7	1	5.3	3	2.1	6
Chronic Lower Respiratory Disease			0.9	4	1.5	5	4.0	4
Alzheimer's Disease							3.4	5
Nephritis					1.5	5	1.8	7
Diabetes Mellitus								
Influenza & Pneumonia								

* based on list of leading causes for overall population only, percent less than 0.9 are not shown

Fig. 4. Leading Cause of Deaths by Age, Montgomery County, 2014-16



Hospitalization

Table 5. Leading Cause of Hospitalization by Year, Montgomery County, 2014-16

	2014		2015		2016		2014-16	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	18.5	1	15.2	1	9.5	2	14.5	1
Heart Disease	12.8	2	12.9	2	14.7	1	13.4	2
Mental Health	5.8	3	6.3	3	6.2	3	6.1	3
Cerebrovascular Disease	3.9	4	3.6	4	3.2	6	3.6	4
Diabetes Mellitus	3.3	5	3.4	5	3.6	4	3.6	4
Cancer	2.8	6	2.9	6	3.3	5	3.0	6
Chronic Lower Respiratory Disease	2.7	7	2.3	7	2.1	7	2.4	7
Substance Abuse	1.7	8	1.7	8	1.5	8	1.6	8
Suicide	0.6	9	0.5	9	0.4	9	0.5	9
All Other Causes	47.9		51.2		55.5		54.9	

Fig. 5. Leading Cause of Hospitalization, Montgomery County, 2014-16

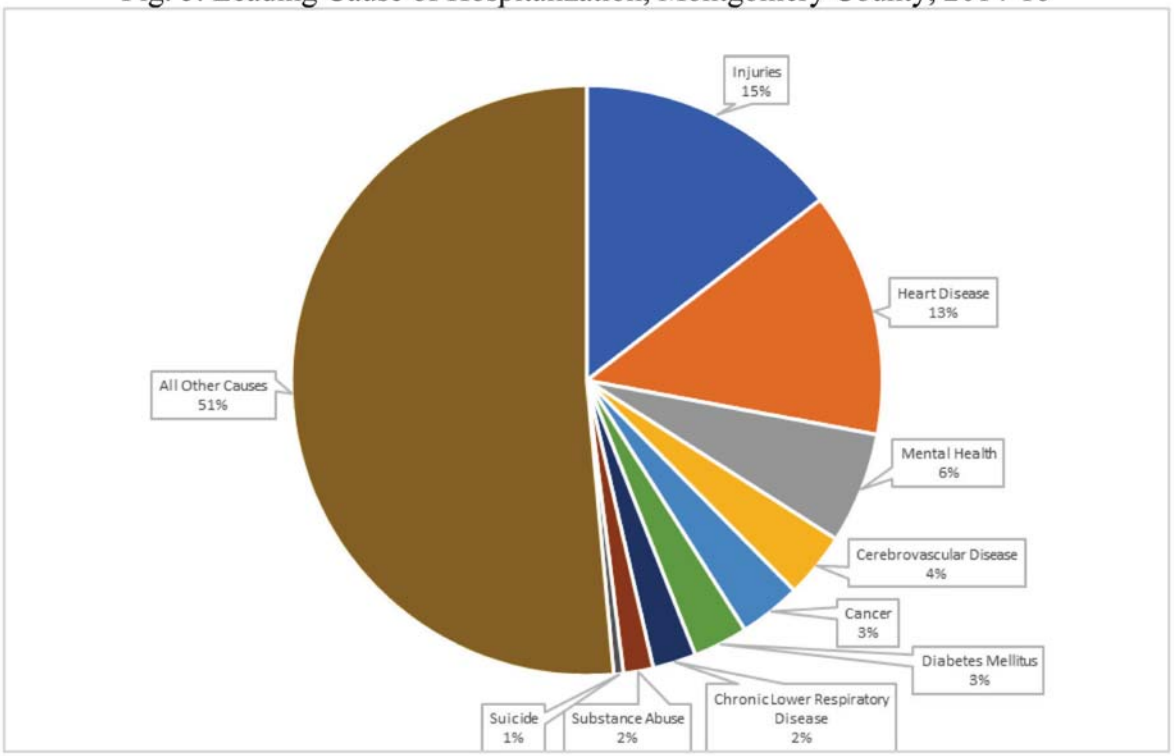


Table 6. Leading Cause of Hospitalization* by Sex, Montgomery County, 2014-16

	Male		Female	
	%	Rank	%	Rank
Injuries	16.5	2	13.2	1
Heart Disease	17.1	1	11.0	2
Mental Health	6.8	3	5.6	3
Cerebrovascular Disease	4.2	4	3.1	4
Cancer	4.0	5	3.1	4
Diabetes Mellitus	3.8	6	2.5	6
Chronic Lower Respiratory Disease	2.3	8	2.4	7
Substance Abuse	2.6	7	1.0	8
Suicide	0.5	9	0.5	9

* based on list of leading causes for overall population only

Fig. 6. Leading Cause of Hospitalization by Sex, Montgomery County, 2014-16

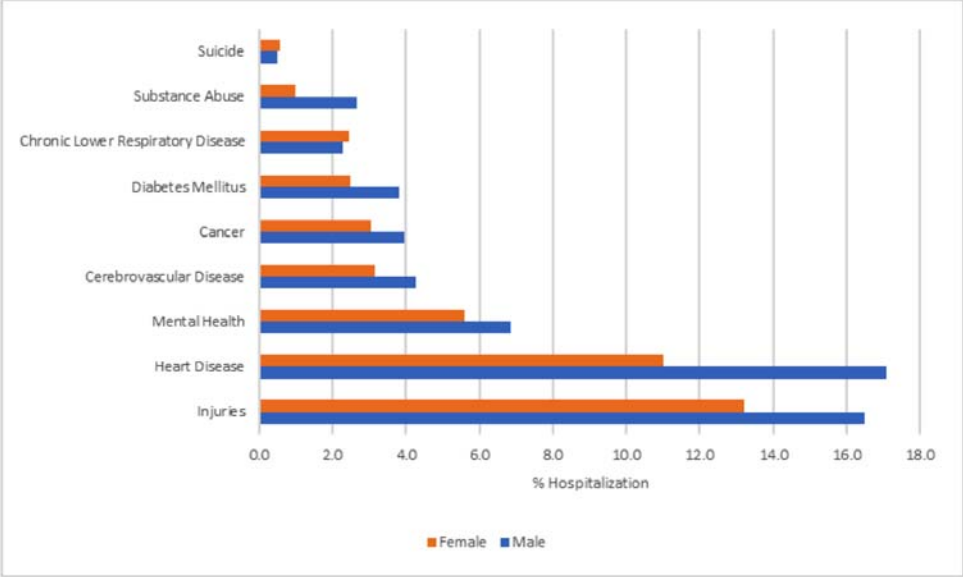


Table 7. Leading Cause of Hospitalization* by Race/Ethnicity, Montgomery County, 2014-16

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	17.7	1	11.7	2	10.7	1	12.8	1
Heart Disease	15.8	2	13.3	1	10.5	2	11.5	2
Mental Health	6.4	3	6.5	3	2.9	5	5.6	3
Cerebrovascular Disease	4.0	4	3.7	5	3.7	4	3.4	5
Cancer	4.0	4	3.1	6	3.8	3	2.0	7
Diabetes Mellitus	2.7	6	3.9	4	2.7	6	4.2	4
Chronic Lower Respiratory Disease	2.6	7	2.6	7	1.6	7	3.1	6
Substance Abuse	2.0	8	1.1	8	0.5	8	2.0	7
Suicide	0.6	9	0.4	9	0.3	9	0.7	9

* based on list of leading causes for overall population only

Fig. 7. Leading Cause of Hospitalization by Race/Ethnicity, Montgomery County, 2014-16

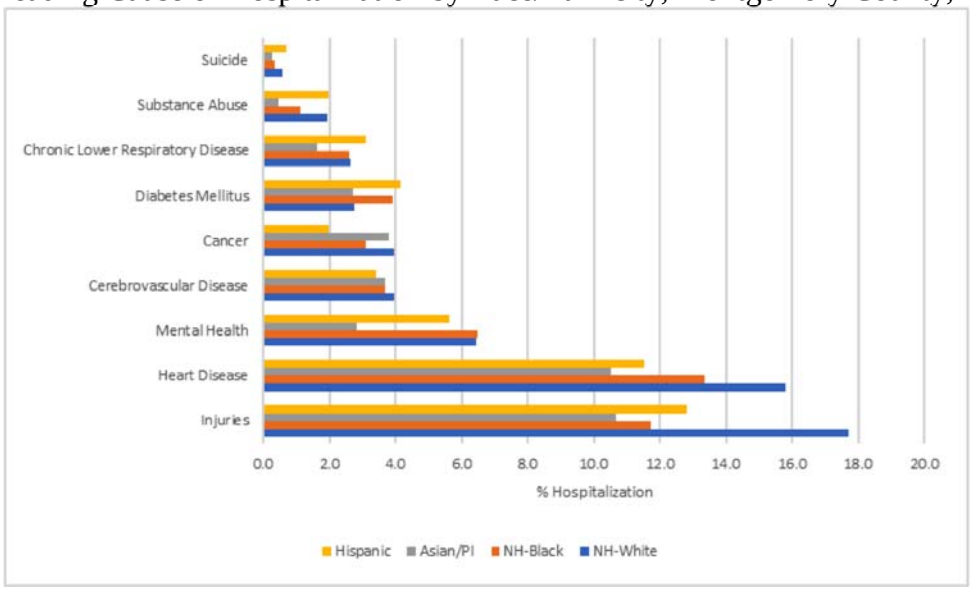
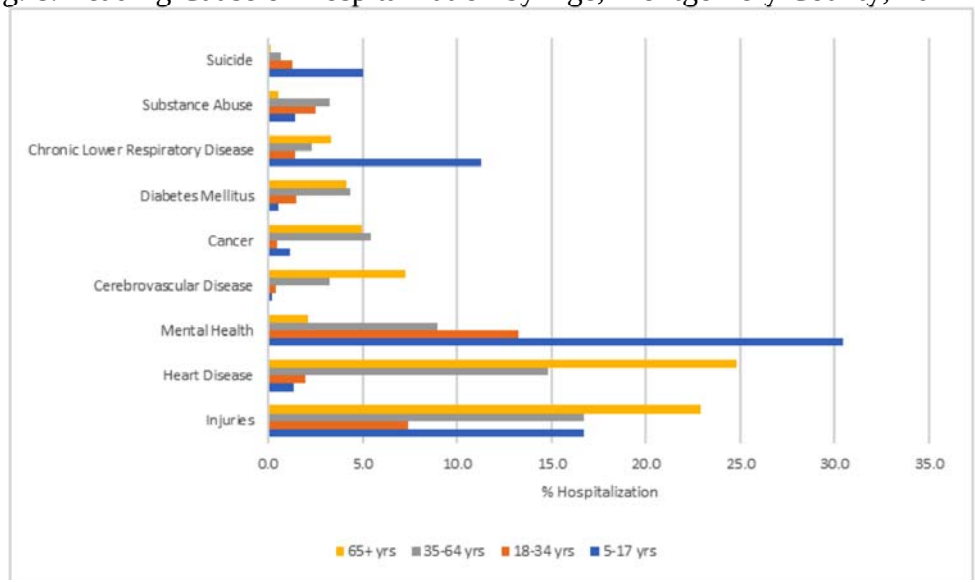


Table 8. Leading Cause of Hospitalization* by Age, Montgomery County, 2014-16

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	16.7	2	7.4	2	16.7	1	22.9	2
Heart Disease	1.3	6	2.0	4	14.8	2	24.8	1
Mental Health	30.4	1	13.2	1	9.0	3	2.1	7
Cerebrovascular Disease	0.2	9	0.4	9	3.2	7	7.3	3
Cancer	1.2	7	0.5	8	5.4	4	4.9	4
Diabetes Mellitus	0.5	8	1.5	5	4.4	5	4.1	5
Chronic Lower Respiratory Disease	11.3	3	1.4	6	2.3	8	3.4	6
Substance Abuse	1.4	5	2.5	3	3.3	6	0.5	8
Suicide	5.0	4	1.3	7	0.7	9	0.1	9

* based on list of leading causes for overall population only

Fig. 8. Leading Cause of Hospitalization by Age, Montgomery County, 2014-16



ER Visit

Table 9. Leading Cause of ER Visit by Year, Montgomery County, 2014-16

	2014		2015		2016		2014-16	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	28.4	1	25.1	1	22.7	1	25.4	1
Heart Disease	7.0	2	8.5	2	9.3	2	8.2	2
Mental Health	4.8	3	5.5	3	6.9	3	5.8	3
Chronic Lower Respiratory Disease	3.6	4	3.8	4	4.0	4	3.8	4
Substance Abuse	2.0	5	1.9	6	1.7	6	1.8	5
Diabetes Mellitus	1.8	6	2.1	5	2.2	5	2.0	6
Cerebrovascular Disease	0.3	7	0.3	7	0.2	7	0.3	7
Suicide	0.2	8	0.2	8	0.2	7	0.2	8
All Other Causes	51.9		52.6		52.8		52.4	

Fig. 9. Leading Cause of ER Visit, Montgomery County, 2014-16

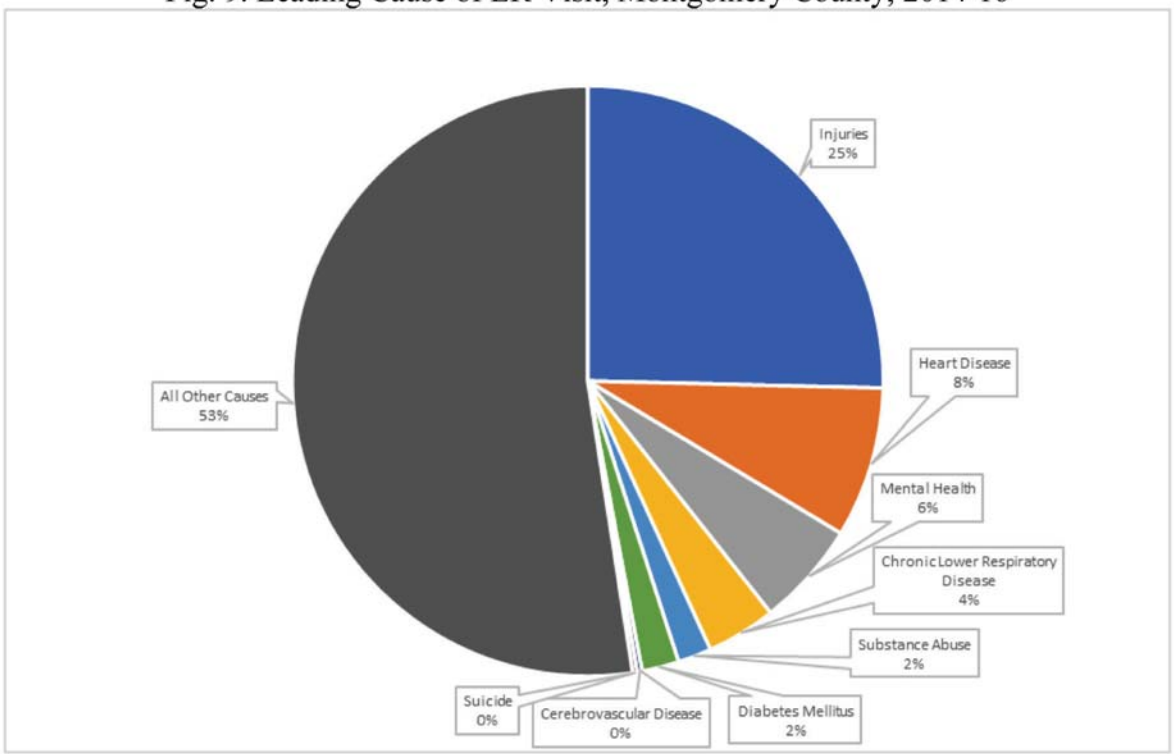


Table 10. Leading Cause of ER Visit* by Sex, Montgomery County, 2014-16

	Male		Female	
	%	Rank	%	Rank
Injuries	29.0	1	22.6	1
Heart Disease	8.4	2	8.1	2
Mental Health	5.9	3	5.7	3
Chronic Lower Respiratory Disease	4.0	4	3.6	4
Substance Abuse	2.8	5	1.1	6
Diabetes Mellitus	2.2	6	1.9	5
Cerebrovascular Disease	0.3	7	0.3	7
Suicide	0.2	8	0.3	7

* based on list of leading causes for overall population only

Fig. 10. Leading Cause of ER Visit by Sex, Montgomery County, 2014-16

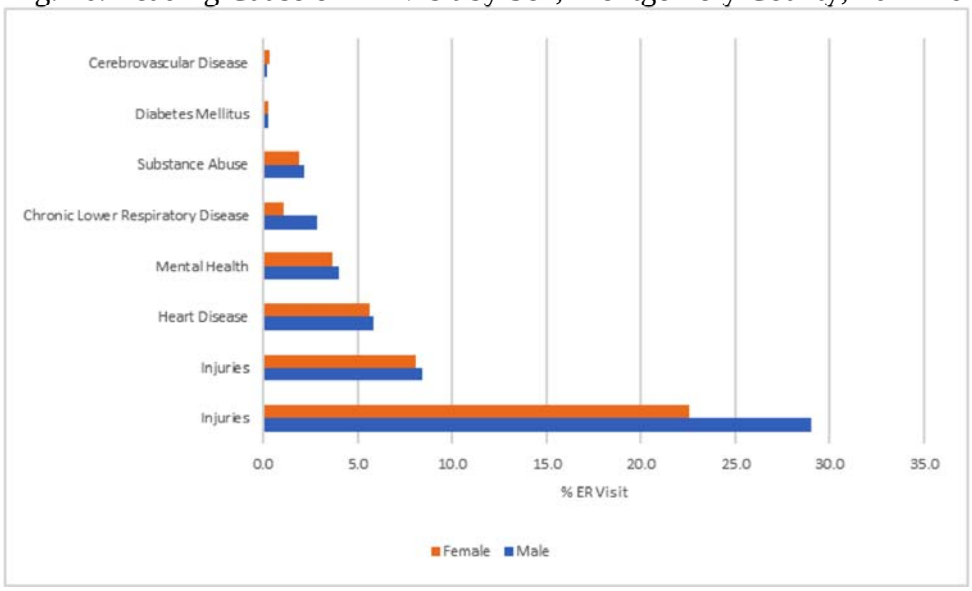


Table 11. Leading Cause of ER Visit* by Race/Ethnicity, Montgomery County, 2014-16

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	28.8	1	21.2	1	25.6	1	39.4	1
Heart Disease	9.2	2	8.7	2	8.8	2	8.2	2
Mental Health	6.8	3	5.2	3	4.5	3	7.1	4
Chronic Lower Respiratory Disease	3.3	4	4.7	4	3.0	4	7.3	3
Substance Abuse	2.1	5	1.6	6	0.9	6	2.5	6
Diabetes Mellitus	1.8	6	2.5	5	2.4	5	3.1	5
Cerebrovascular Disease	0.3	7	0.2	7	0.4	7	0.2	8
Suicide	0.3	7	0.2	7	0.2	8	0.4	7

* based on list of leading causes for overall population only

Fig. 11. Leading Cause of ER Visit by Race/Ethnicity, Montgomery County, 2014-16

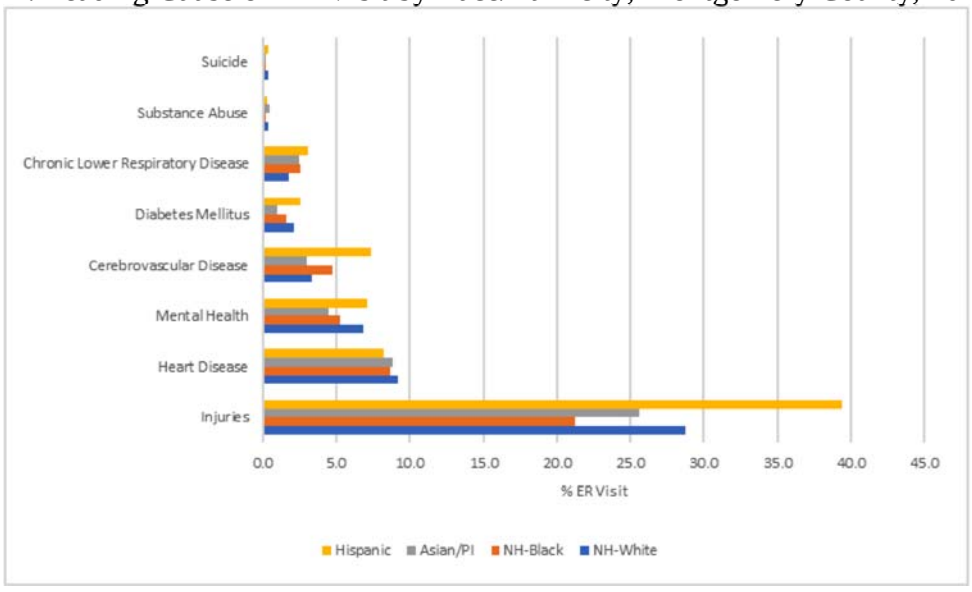
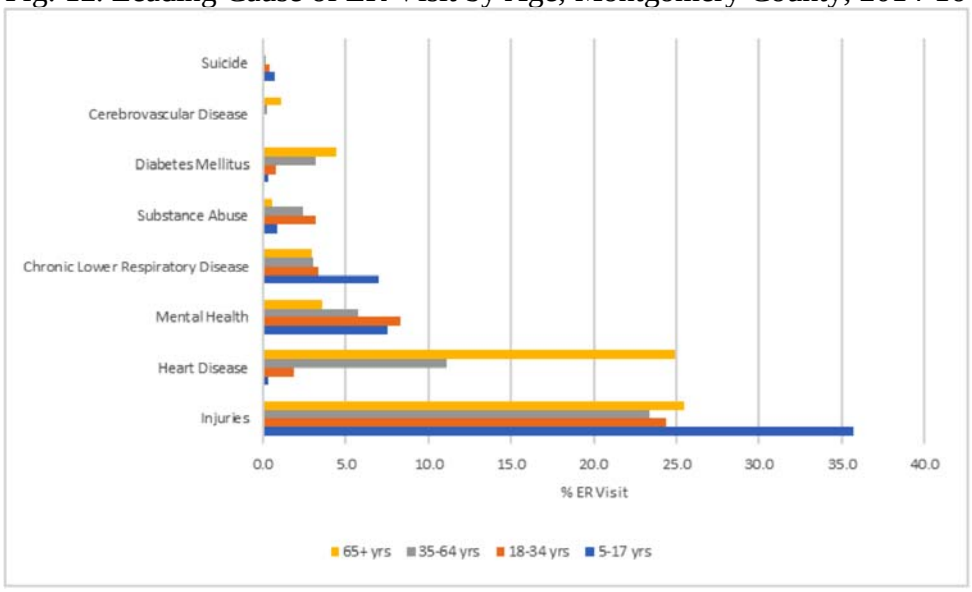


Table 12. Leading Cause of ER Visit* by Age, Montgomery County, 2014-16

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	35.7	1	24.4	1	23.4	1	25.4	1
Heart Disease	0.3	6	1.8	5	11.1	2	24.9	2
Mental Health	7.5	2	8.3	2	5.8	3	3.5	4
Chronic Lower Respiratory Disease	7.0	3	3.3	3	3.1	4	3.0	5
Substance Abuse	0.8	4	3.2	4	2.4	6	0.5	7
Diabetes Mellitus	0.3	6	0.8	6	3.1	4	4.4	3
Cerebrovascular Disease	0.1	8	0.1	8	0.3	7	1.1	6
Suicide	0.7	5	0.4	7	0.1	8	0.1	8

* based on list of leading causes for overall population only

Fig. 12. Leading Cause of ER Visit by Age, Montgomery County, 2014-16



I Demographics, Social Determinants, and Health Care Access

The demographic composition of a population has a great impact on health. Changes in population size, age, race and ethnicity affect the health-care resources needed, the cost of care provided, and the conditions associated with each population group. Risks associated with health conditions vary across population subgroups with different demographics, along with disease burden. Thus, it is important to examine disease burden and health status of a population by demographic factors. Socioeconomic status (SES) is a combined total measure of an individual's economic and social position in relation to others, based on income, education, and occupation. SES is well known to be associated with the health of a population. The combinations and interplaying relationships of demographic, SES, and health care access play a crucial role in determining the health of a population.

Demographics

• In 2016, the County's population was over 1 million (Table 13).
• The sex distribution in the County is consistent over time and is like that of Maryland and the U.S. (Table 13).
• The County's population is aging over time; the age distribution of the County is similar to that of Maryland and the U.S. (Table 13).
• The County's population is getting more diverse over time; both the NH-Black and Hispanic populations have increased while the NH-White population is decreasing (Table 13).

Table 13. Percent Population Estimates by Selected Characteristics, Montgomery County, Maryland, and U.S., 2012-16

		2012	2013	2014	2015	2016		
		MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
Total						1,043,863		
Sex	Male	48.2	48.2	48.2	48.2	48.4	48.5	49.2
	Female	51.8	51.8	51.8	51.8	51.6	51.5	50.8
Age Group	< 5	6.5	6.5	6.6	6.5	6.4	6.1	6.2
	5-17	17.2	17.1	17.0	17.0	17.0	16.3	16.6
	18-34	21.5	21.5	21.3	21.2	20.9	23.0	23.4
	35-64	41.9	41.7	41.4	41.3	41.1	40.1	38.6
	65+	12.9	13.3	13.7	14.1	14.5	14.6	15.2
Race/Ethnicity	NH-White	47.8	46.7	45.8	44.7	44.5	51.4	61.1
	NH-Black	16.7	17.0	17.4	17.6	17.8	29.3	12.3
	Asian/PI	14.2	14.2	14.7	14.9	14.8	6.2	5.4
	Hispanic	17.9	18.3	18.7	19.0	19.1	9.8	17.8

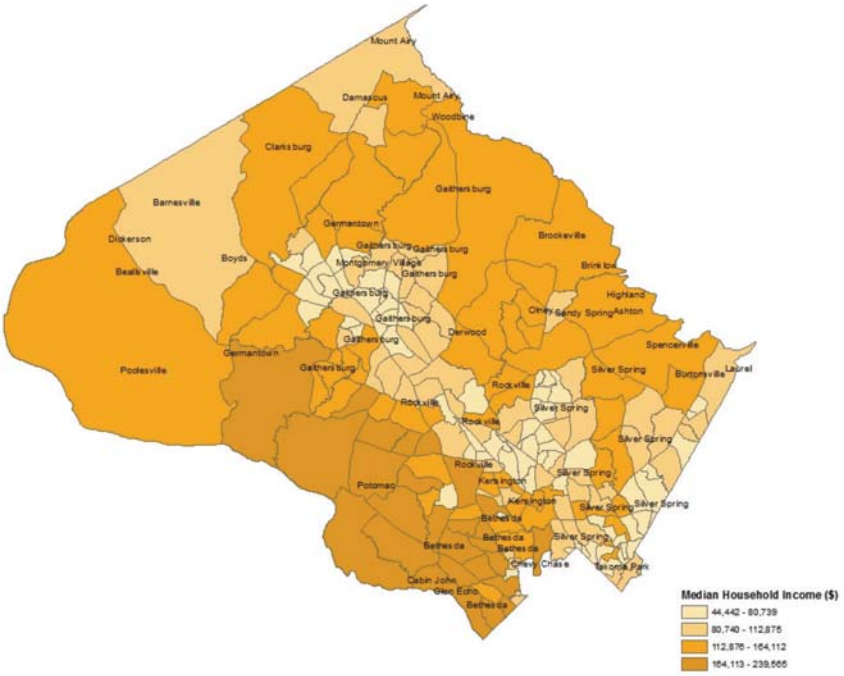
Social Determinants

- There is an increasing trend of percent families below poverty level in the County over time (Table 14).
- Among population subgroups, Asian/PI and Hispanic groups have increasing trends of percent families below poverty level, while NH-Black has decreasing trend; NH-Black and groups have much higher percent than NH-White and Asian/PI (Table 14).
- The overall percent families below poverty level in the County is lower than that in Maryland and much lower than the U.S. (Table 14).

Table 14. Percent Families below Poverty Level by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2012-16

	2012	2013	2014	2015	2016		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	4.4	4.5	4.5	4.6	4.7	6.8	11.0
NH-White	1.9	2.0	1.8	1.8	1.8	4.0	6.9
NH-Black	9.5	9.6	9.3	8.8	8.9	11.6	22.3
Asian/PI	4.0	4.2	4.8	4.7	5.0	5.7	8.9
Hispanic	8.3	9.0	8.7	9.2	9.1	11.5	20.9

Map 1. Median Household Income by Census Tract, Montgomery County, 2016



- The overall unemployment rate in the County has decreased over time and is consistent across all race/ethnicity groups (Table 15).
- The unemployment rate in the County is lower than that of Maryland and the U.S. (Table 15).
- Among race/ethnicity groups, NH-Black and Hispanic groups have higher rates of unemployment than other population subgroups (Table 15).

Table 15. Unemployment Rate by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2012-16

	2012	2013	2014	2015	2016		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	6.2	6.3	6.5	6.1	5.8	6.7	7.4
NH-White	4.3	4.5	4.5	4.2	4.0	5.0	5.9
NH-Black	10.8	10.8	11.4	10.3	9.9	10.2	13.3
Asian/PI	4.7	4.5	4.5	4.6	4.3	4.7	5.7
Hispanic	8.3	8.4	8.1	7.8	7.3	6.5	8.7

- The overall percent individuals with college education or higher in the County has increased over time and is consistent across all race/ethnicity groups (Table 16).
- The percent of individuals with college education or higher in the County is much higher than that in Maryland and the U.S. and is consistent across all race/ethnicity groups (Table 16).
- Among race/ethnicity groups, NH-White and Asian/PI groups have higher percentages of college education or higher than other population subgroups (Table 16).

Table 16. Percent Individuals with College Degree or Higher by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2012-16

	2012	2013	2014	2015	2016		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	59.1	59.2	59.2	59.7	58.1	38.4	30.3
NH-White	68.3	69.0	69.5	70.4	70.7	43.3	33.8
NH-Black	42.2	42.0	42.2	42.1	43.4	27.8	20.0
Asian/PI	64.3	65.0	66.0	66.9	67.5	62.9	52.1
Hispanic	27.8	24.9	25.8	23.0	24.6	20.9	15.3

Health Care Access

- The overall percentage of individuals without health insurance in the County has decreased over time, similar to that in Maryland and the U.S. (Table 17).
- The percentage of individuals without health insurance in the County is similar to Maryland, but higher than the U.S. (Table 17).

Table 17. Percent Individuals without Health Insurance, Montgomery County, Maryland, and U.S., 2010-14

	2010	2011	2012	2013	2014
MoCo	13%	13%	13%	12%	10%
MD	13%	12%	12%	12%	9%
US*	11%	11%	11%	11%	8%

* 10th percentile

8.4% (95% CI: 4.9-12.0) adults age 18+ have no health insurance in Montgomery County, as compared to 8.7% (95% CI: 7.2-10.1) in Maryland

100% of persons with health insurance

- The overall Population/PCP (primary care physician) ratio in the County is consistently lower than Maryland and the U.S (Table 18).
- There is an overall decreasing trend of Population/PCP ratio in the County, similar to Maryland and the U.S. (Table 18).

Table 18. Population/PCP Ratio, Montgomery County, Maryland, and U.S., 2010-14

	2010	2011	2012	2013	2014
MoCo	731	729	741	720	720
MD	1153	1134	1131	1120	1130
US*	1067	1051	1045	1040	1040

* 90th percentile
** Source: County Health Ranking http://www.countyhealthrankings.org/

86.7% (95% CI: 83.1-90.2) of adults age 18+ have a PCP in Montgomery County, as compared to 85.2% (95% CI: 83.6-86.8) in Maryland.

74.5% (95% CI: 70.2 -78.9) of adults age 18+ visited a doctor for a routine checkup within the past year in Montgomery County, as compared to 76.2% (95% CI: 74.4-77.9) in Maryland.

81.3% (95% CI: 76.2 -86.4) of adults age 18+ had a dental visit within the past year in Montgomery County, as compared to 72.1% (95% CI: 69.4-74.7) in Maryland.

83.9% of persons had a usual PCP

II Vital Statistics

Vital Statistics include data from both birth and death certificates operated by the Maryland Department Vital Statistics Administration. Birth and death data include information for all Montgomery County residents, regardless of whether the birth or death occurred in Montgomery County. The 10th revision of the International Classification of Diseases (ICD-10) has been used to code the causes of death reported on death certificates since 1999. More detailed information on characteristics of births is included in the section on Maternal and Infant Health.

Births

- Montgomery County had a decreasing birth rate trend during 2008-2016, following the same trends as Maryland and the U.S.; birth rates in the County are consistently higher than those of Maryland and the U.S. (Fig. 13).
- Among population subgroups, the Hispanic group has the highest birth rate, followed by NH-Black, and NH-White (Fig. 14).
- Adolescent (15-19 yrs. old) birth rates in the County are decreasing over time, following the same trends as Maryland and the U.S; adolescent birth rates in the County are consistently lower than those of Maryland and the U.S. (Fig. 15).
- Among population subgroups, the Hispanic group has the highest adolescent birth rate, followed by NH-Black, and NH-White which is consistent with those of the general population (Fig. 16).

Fig. 13. Crude Birth Rate, Montgomery County, Maryland, and U.S., 2008-16

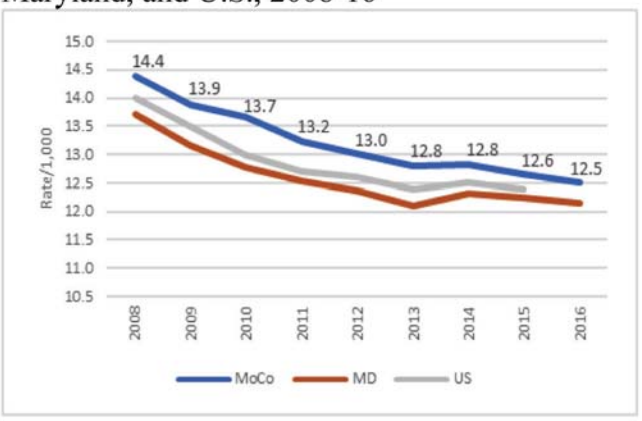


Fig. 14. Birth Rate by Race/Ethnicity, Montgomery County, 2010-16

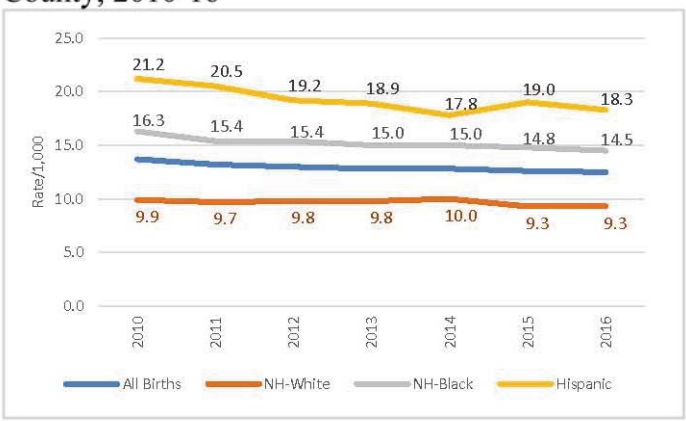


Fig. 15. Adolescent Birth Rate, Montgomery County, Maryland, and U.S., 2008-16

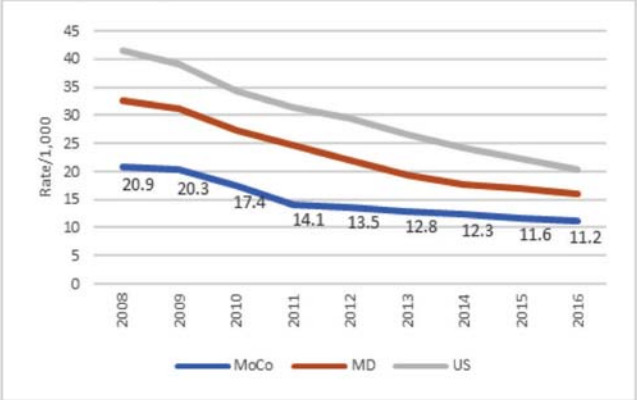
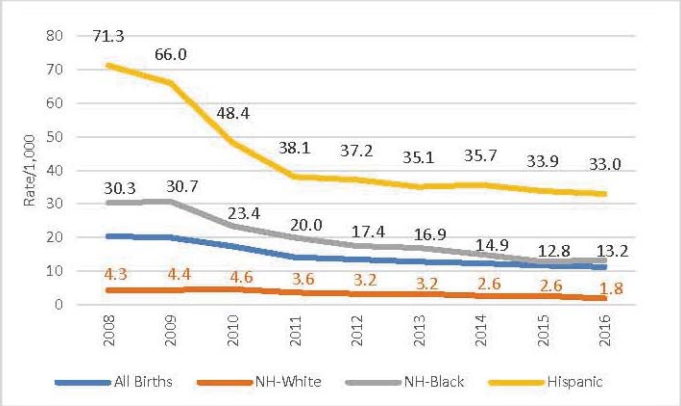


Fig. 16. Adolescent Birth Rate by Race/Ethnicity, Montgomery County, 2008-16



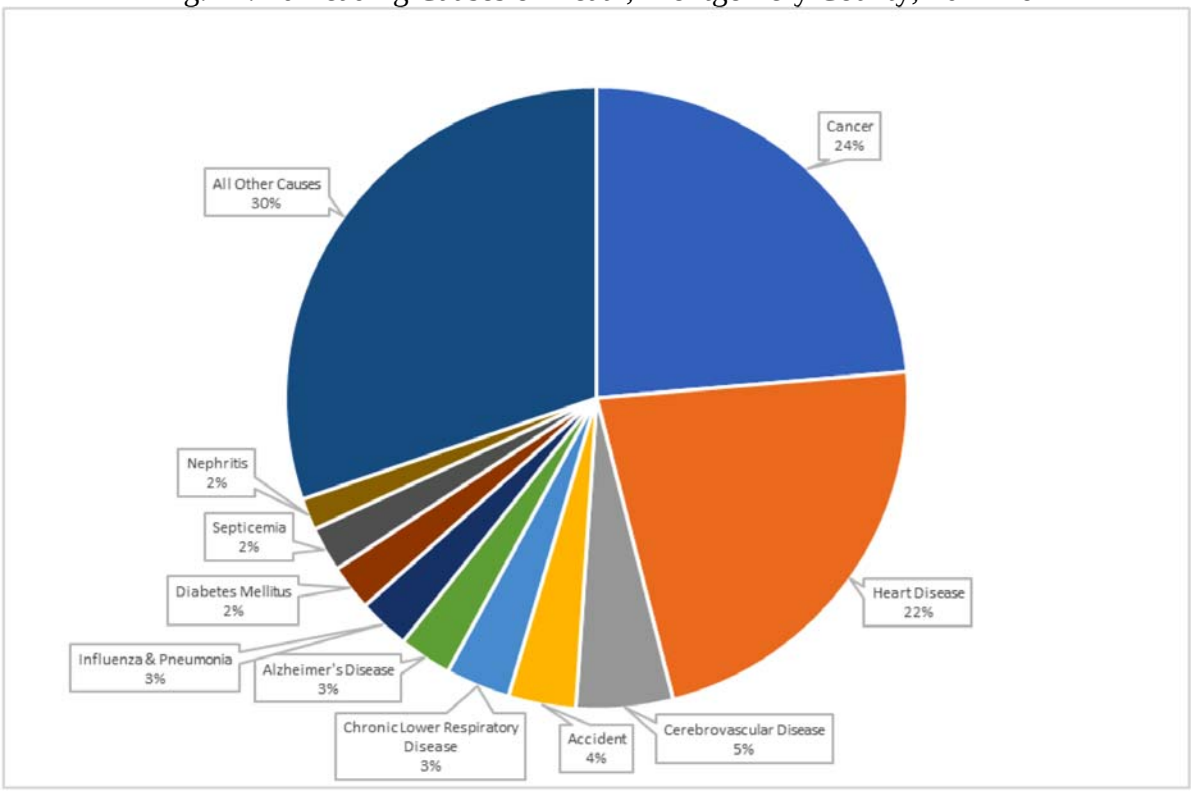
Deaths

Table 19. Leading Causes of Death by Sex and Race/Ethnicity, Montgomery County, 2014-16

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian /PI	Hispanic
All Cause	17,528	8,336	9,192	12,230	2,708	1,464	1,052
Heart Disease	4,099	2,072	2,027	2,985	646	286	169
Cancer	4,146	1,956	2,190	2,777	670	431	254
Cerebrovascular Disease	881	335	546	591	124	109	55
Accidents	615	376	239	389	84	49	88
Chronic Lower Respiratory Disease	589	247	342	482	74	22	10
Diabetes Mellitus	416	207	209	235	108	37	34

- The leading causes of death in Montgomery County 2014-16 were cancer (24%), heart disease (22%), cerebrovascular disease (5%), accident (4%), chronic lower respiratory disease (3%), Alzheimer's disease (3%), influenza & pneumonia (3%), diabetes mellitus (3%), septicemia (2%), and nephritis (2%) (Fig. 17).

Fig. 17. 10 Leading Causes of Death, Montgomery County, 2014-16



- Montgomery County had a decreasing trend in overall mortality rates during 2008-2016, following the same trends in Maryland and the U.S.; overall mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 18).
- Among population subgroups, NH-Black and NH-White had higher overall mortality rates than Hispanic and Asian/PI; males had higher overall mortality than females (Fig. 19).
- Age 65+ had the highest mortality as expected, followed by age 35-64 and age <5 (Fig. 20).

Fig. 18. Age-Adjusted Mortality Rate, All Causes, Montgomery County, Maryland, and U.S., 2008-16

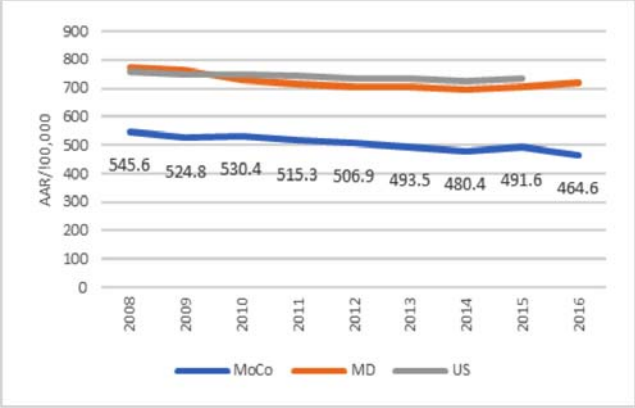


Fig. 19. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, All Causes, Montgomery County, 2014-16

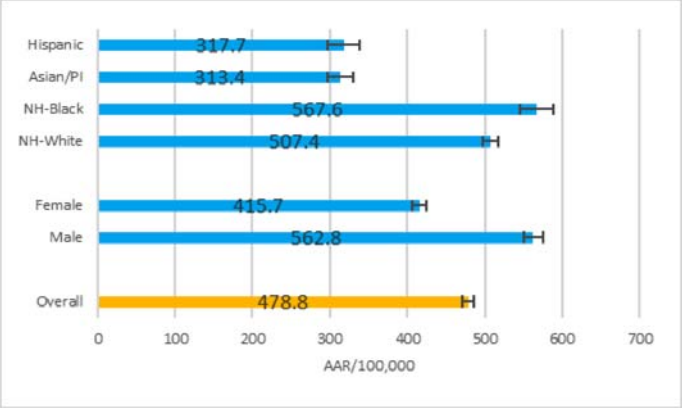
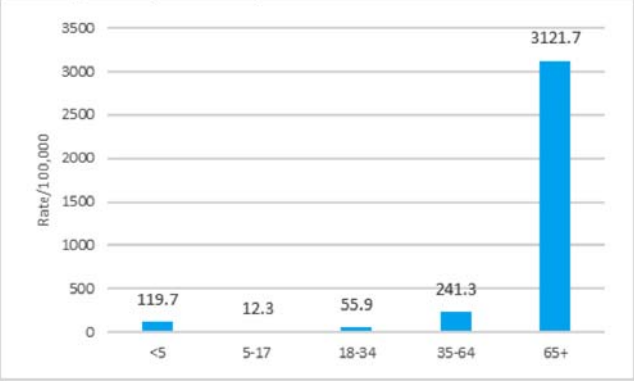


Fig. 20. Mortality Rate by Age, All Causes, Montgomery County, 2014-16



- Montgomery County had a decreasing trend of heart disease mortality during 2008-2016, following the same trends as Maryland and the U.S.; heart disease mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 21).
- Among population subgroups, NH-Black and NH-White had higher heart disease mortality than Hispanic and Asian/PI; males had higher heart disease mortality than females (Fig. 22).
- People age 65+ had the highest heart disease mortality as expected (Fig. 23).

Fig. 21. Age-Adjusted Mortality Rate, Heart Disease, Montgomery County, Maryland, and U.S., 2008-16

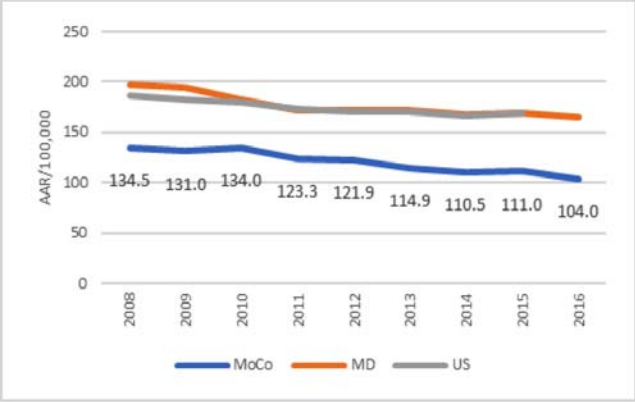


Fig. 22. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Heart Disease, Montgomery County, 2014-16

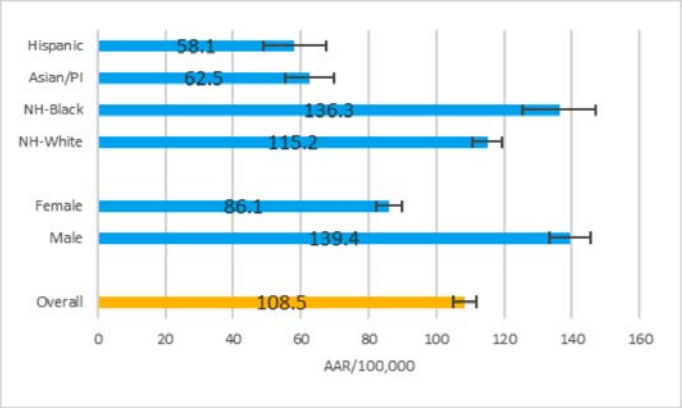
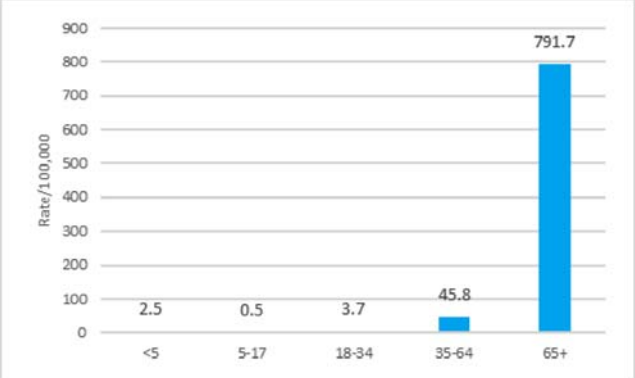


Fig. 23. Mortality Rate by Age, Heart Disease, Montgomery County, 2014-16



- Montgomery County had a decreasing trend of overall cancer mortality during 2008-2016, following the same trends of Maryland and the U.S.; cancer mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 24).
- Among population subgroups, NH-Black and NH-White had higher overall cancer mortality than Hispanic and Asian/PI groups; males had higher cancer mortality than females (Fig. 25).
- People age 65+ had the highest cancer mortality, followed by age 35-64 (Fig. 26).

Fig. 24. Age-Adjusted Mortality Rate, Cancer, Montgomery County, Maryland, and U.S., 2008-16

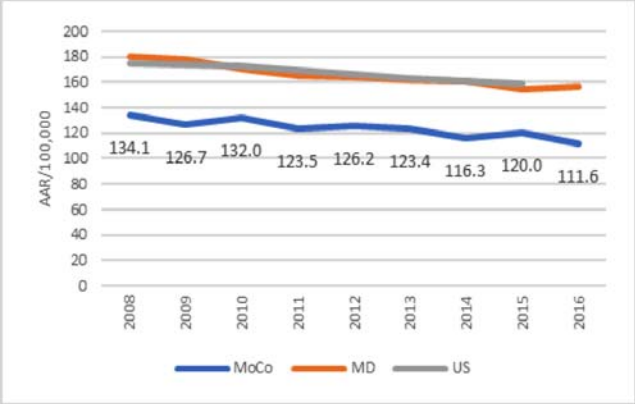


Fig. 25. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Cancer, Montgomery County, 2014-16

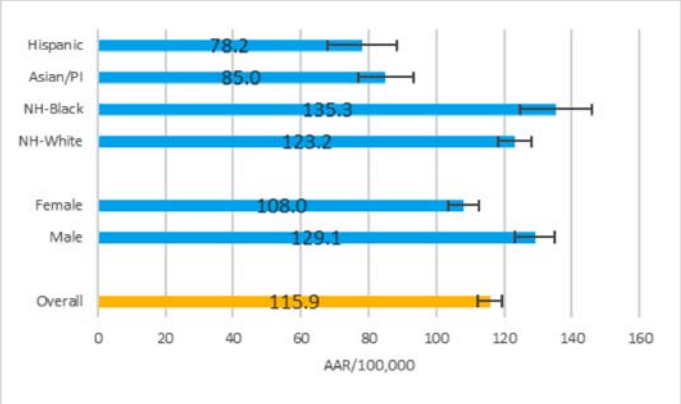
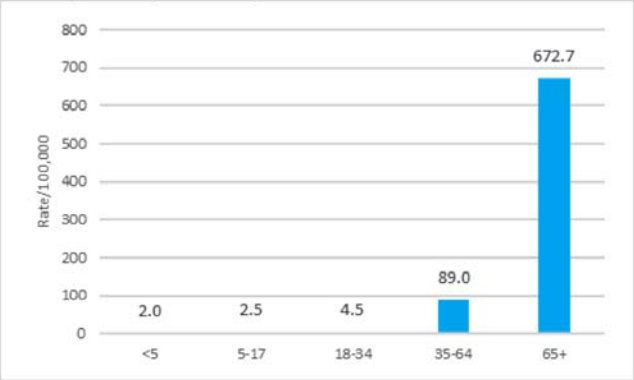


Fig. 26. Mortality Rate by Age, Cancer, Montgomery County, 2014-16



- Montgomery County had a decreasing trend of cerebrovascular disease mortality during 2008-2016, following the same trends as Maryland and the U.S.; cerebrovascular disease mortality in the County was consistently lower than that of Maryland and the U.S. (Fig. 27).
- Among population subgroups, NH-Black had the highest cerebrovascular disease mortality than other groups though it was not statistically significant; males and females had similar cerebrovascular disease mortality (Fig. 28).
- People age 65+ had the highest cerebrovascular disease mortality (Fig. 29).

Fig. 27. Age-Adjusted Mortality Rate, Cerebrovascular Disease, Montgomery County, Maryland, and U.S., 2008-16

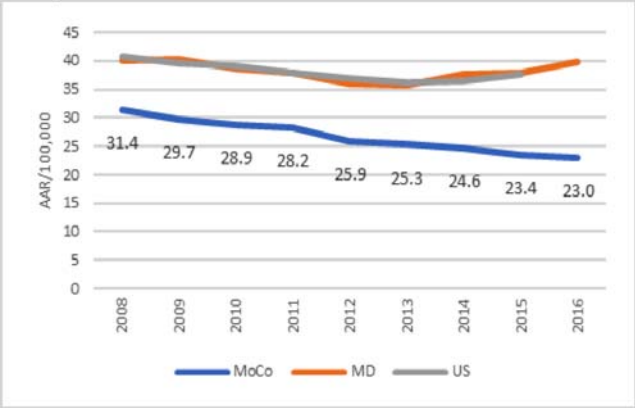


Fig. 28. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Cerebrovascular Disease, Montgomery County, 2014-16

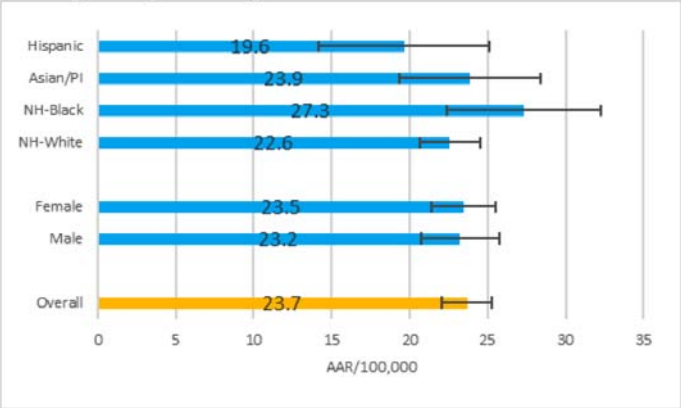
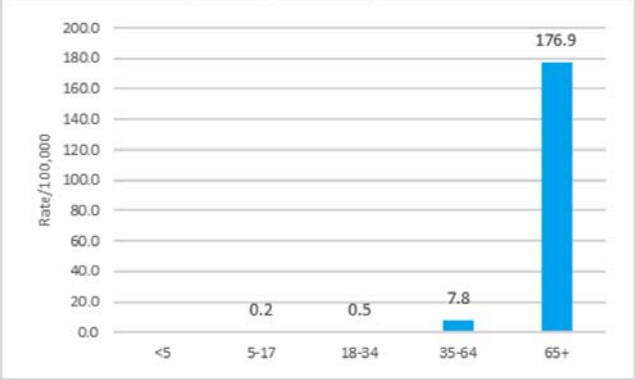


Fig. 29. Mortality Rate by Age, Cerebrovascular Disease, Montgomery County, 2014-16



- The accident mortality rates in Montgomery County follow the same trends as Maryland and the U.S.; accident mortality in the County was consistently lower than that of Maryland and the U.S. (Fig. 30).
- Among population subgroups, NH-White and Hispanic had higher accident mortality than other groups though the differences were not statistically significant; males had higher accident mortality than females (Fig. 31).
- Though age 65+ had the highest accident mortality, ages 18-34 had the second highest mortality (Fig. 32).

Fig. 30. Age-Adjusted Mortality Rate, Accidents, Montgomery County, Maryland, and U.S., 2008-16

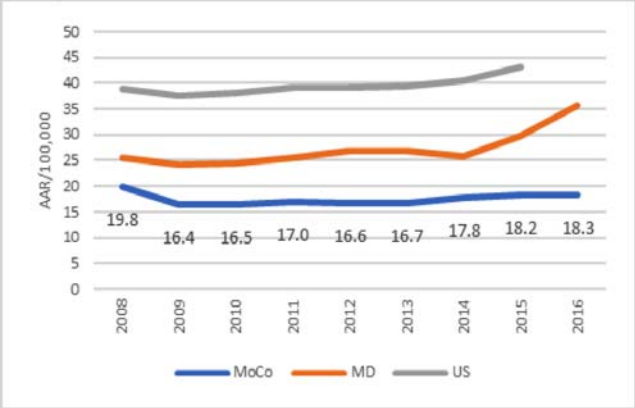


Fig. 31. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Accidents, Montgomery County, 2014-16

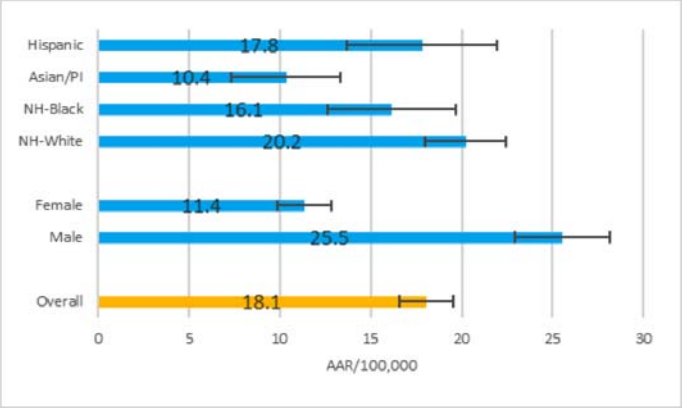
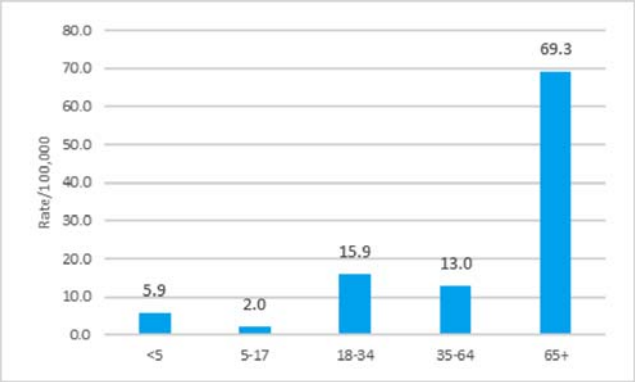


Fig. 32. Mortality Rate by Age, Accidents, Montgomery County, 2014-16



- Montgomery County had a decreasing trend of chronic lower respiratory disease mortality, following the same trends as Maryland and the U.S.; chronic lower respiratory disease mortality in the County was consistently lower than that of Maryland and the U.S. (Fig. 33).
- Among population subgroups, NH-White and NH-Black had higher mortality than Asian/PI and Hispanic; males and females have similar cerebrovascular disease mortality (Fig. 34).
- Age 65+ had the highest cerebrovascular disease mortality, as expected (Fig. 35).

Fig. 33. Age-Adjusted Mortality Rate, Chronic Lower Respiratory Disease, Montgomery County, Maryland, and U.S., 2008-16

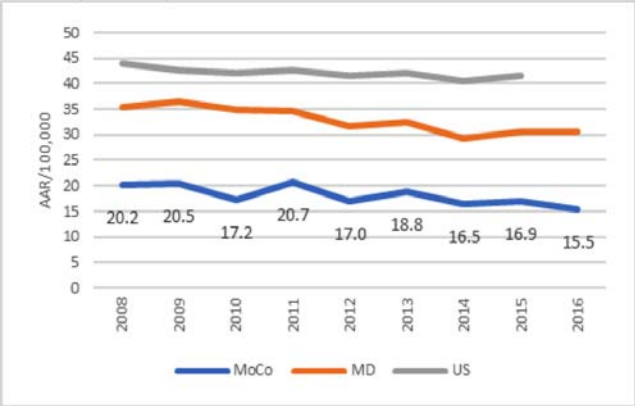


Fig. 34. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Chronic Lower Respiratory Disease, Montgomery County, 2014-16

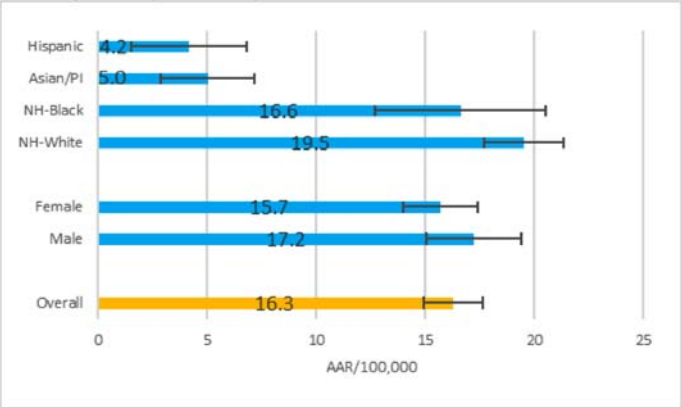
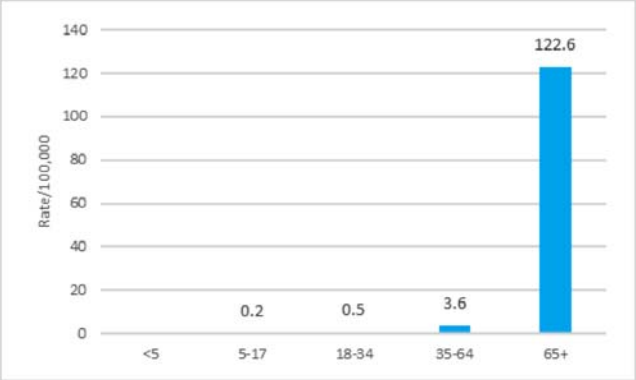


Fig. 35. Mortality Rate by Age, Chronic Lower Respiratory Disease, Montgomery County, 2014-16



- Montgomery County had an overall decreasing trend of diabetes mortality, following the same trends as Maryland and the U.S.; diabetes mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 36).
- Among population subgroups, NH-Black had the highest diabetes mortality than other groups; males had higher mortality than females (Fig. 37).
- Age 65+ had the highest cerebrovascular disease mortality, followed by ages 35-64 (Fig. 38).

Fig. 36. Age-Adjusted Mortality Rate, Diabetes Mellitus, Montgomery County, Maryland, and U.S., 2008-16

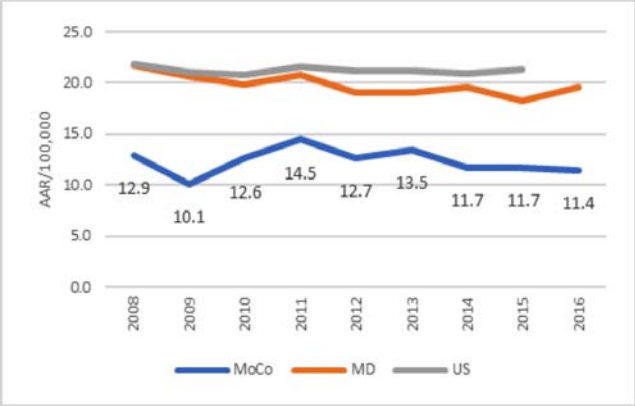


Fig. 37. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Diabetes Mellitus, Montgomery County, 2014-16

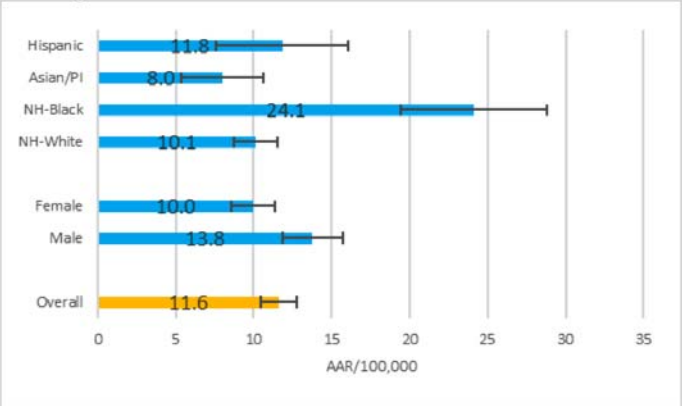
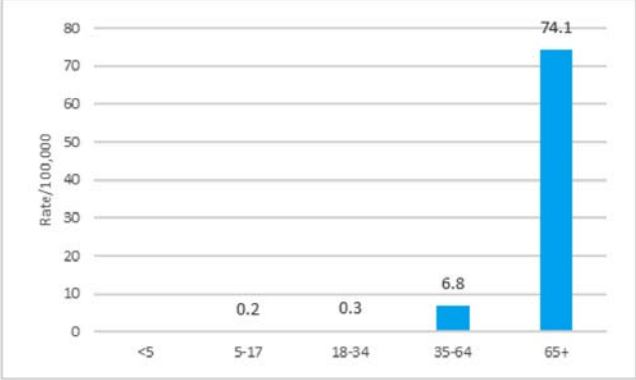


Fig. 38. Mortality Rate by Age, Diabetes Mellitus, Montgomery County, 2014-16



III Maternal and Infant Health

The well-being of mothers, infants, and children determines the health of the next generation and can help predict future public health challenges for families, communities, and the health care system. Existing health risks in women can be identified to prevent future health problems for women and their children during pregnancy [5]. The determinants that influence maternal health also affect pregnancy outcomes and infant and child health. Racial and ethnic disparities exist in infant mortality and can be partly attributed to disparities in social determinants of health [6-12]. Child health status varies by both race and ethnicity, as well as by family income and related factors, including educational attainment among household members and health insurance coverage [13-14]. Child health status and well-being can also be influenced by access to high-quality health care, such as that received through a medical home and maternity care practices that promote breastfeeding and safe sleep environments [15-17].

A mother's health, nutrition, and behaviors can influence cognitive and physical development of infants and children during pregnancy and early childhood [5]. Consumption of recommended amounts of folic acid before and during pregnancy can reduce the risk for neural tube defects. Breast milk is widely acknowledged to be the most complete form of nutrition for most infants, with a range of benefits for their health, growth, immunity, and development [18-19]. Furthermore, children reared in safe and nurturing families and neighborhoods, free from maltreatment and other adverse childhood experiences, are more likely to have better outcomes as adults [20-22].

Maternal and Infant Health

- Montgomery County had an increasing trend of the percentage of women ages 35-44 giving birth, following the same trends as Maryland; the percentage of women age 35-44 giving birth in the County is consistently higher than that of Maryland. (Fig. 39).
- Among population subgroups, the Asian/PI and NH-White groups had a higher percentage of births among women age 35-44, followed by NH-Black, and Hispanic (Fig. 40).

Fig. 39. Percent Births among Women Age 35-44, Montgomery County and Maryland, 2012-16

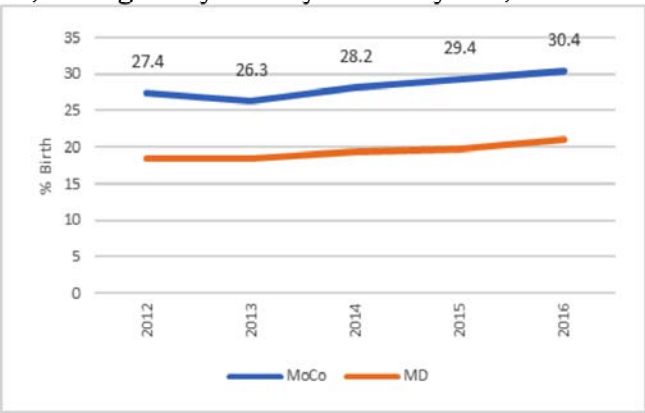
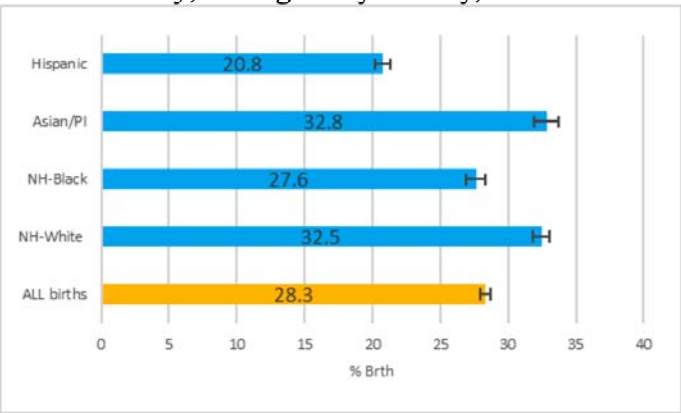


Fig. 40. Percent Births among Women Age 35-44 by Race/Ethnicity, Montgomery County, 2012-16



- Montgomery County had an overall increasing trend of the percentage of births to unmarried women, while the trends for Maryland and the U.S. seem stable; the percentage of births to unmarried women in the County is consistently lower than that of Maryland and U.S. (Fig. 41).
- Among population subgroups, the Hispanic group had the highest percentage of births to unmarried women, followed by NH-Black, NH-White, and Asian/PI (Fig. 42).

Fig. 41. Percent Births to Unmarried Women, Montgomery County, Maryland, and U.S., 2012-16

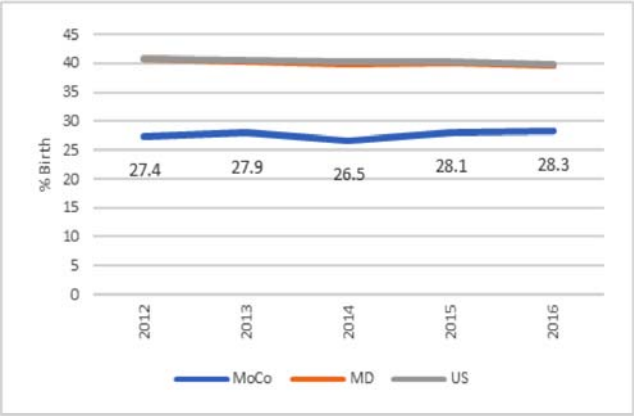
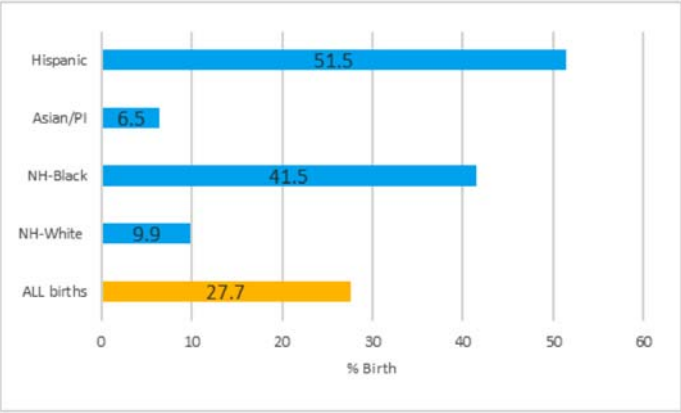


Fig. 42. Percent Births to Unmarried Women by Race/Ethnicity, Montgomery County, 2012-16



- The percentage of births to women without a high school education in the County fluctuated 2012-16, with a decreasing trend overall, while the trend seems to be decreasing in Maryland (Fig. 43).
- Among population subgroups, Hispanics had the highest percentage of births to women without a high school education, followed by NH-Black, Asian/PI, and NH-White (Fig. 44).

Fig. 43. Percent Births to Women without High School Education, Montgomery County and Maryland, 2012-16

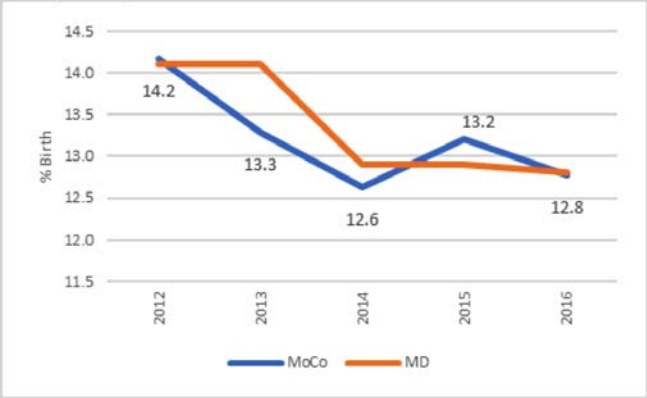
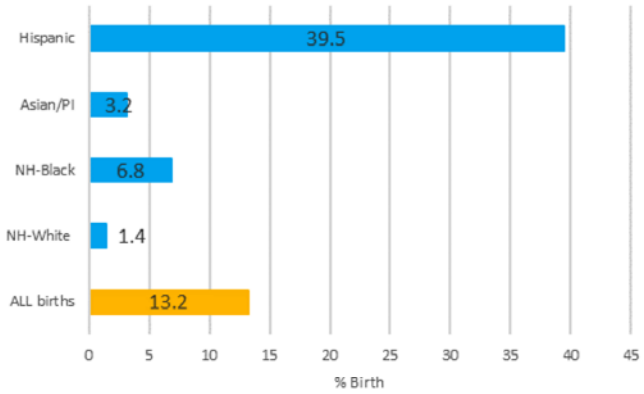


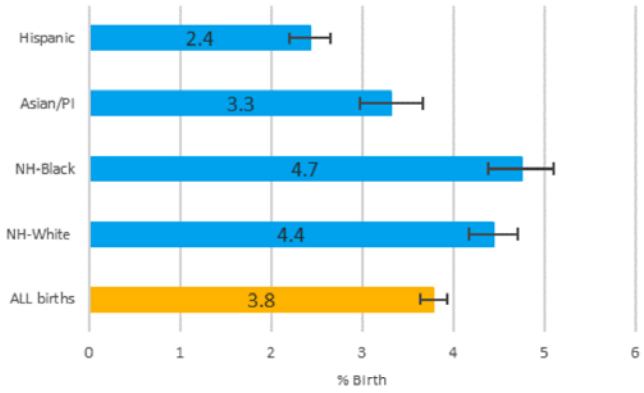
Fig. 44. Percent Births to Women without High School Education by Race/Ethnicity, Montgomery County, 2012-16



- Montgomery County had an overall decreasing trend of the percentage of plural births, followed the same trend as Maryland; the percentage of plural births in the County has been consistently higher than that of Maryland since 2014 (Fig. 45).
- Among population subgroups, NH-Black and NH-White groups had a higher percentage of plural births, followed by Asian/PI and Hispanic groups (Fig. 46).

Fig. 45. Percent Plurality Births, Montgomery County and Maryland, 2012-16

Fig. 46. Percent Plurality Births by Race/Ethnicity, Montgomery County, 2012-16



- Montgomery County had an overall decreasing trend of the percentage of births with late or no prenatal care; the percentage of births with late or no prenatal care in the County has been consistently lower than that of Maryland (Fig. 47).
- Among population subgroups, the NH-Black group had the highest percentage of births with late or no prenatal care, followed by Hispanic, Asian/PI, and NH-White (Fig. 48).

Fig. 47. Percent Birth with Late or No Prenatal Care, Montgomery County and Maryland, 2012-16

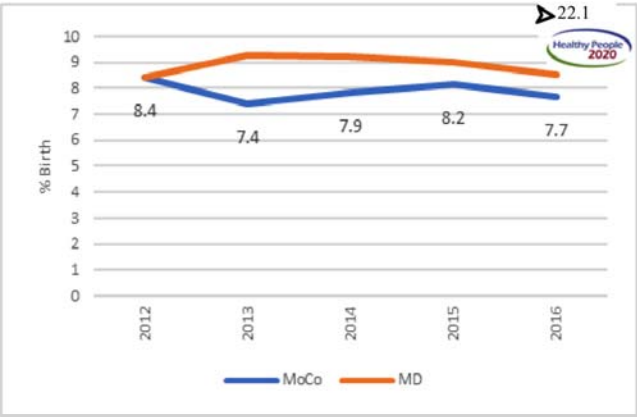
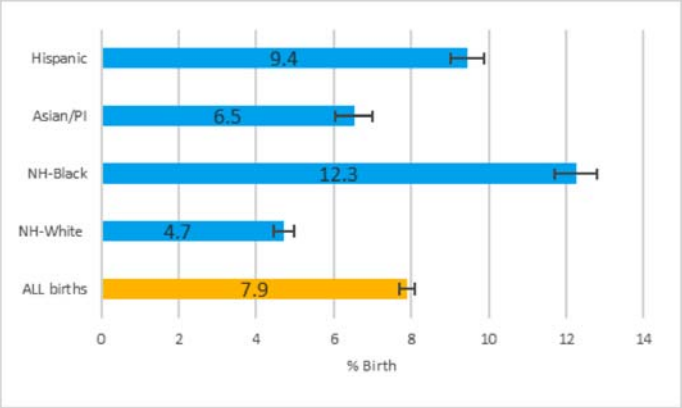


Fig. 48. Percent Birth with Late or No Prenatal Care by Race/Ethnicity, Montgomery County, 2012-16



- Montgomery County had an overall decreasing trend of tobacco use during pregnancy, though this information collected from birth records may be under-reported (Fig. 49).
- Among population subgroups, NH-Black and NH-White had higher tobacco use during pregnancy, followed by Hispanic and Asian/PI (Fig. 50)

Fig. 49. Tobacco Use during Pregnancy, Montgomery County, 2012-16

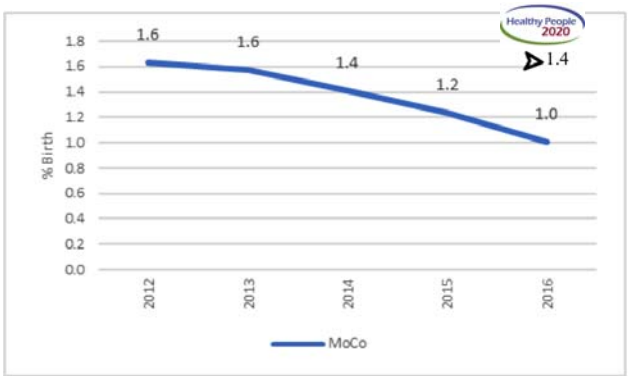
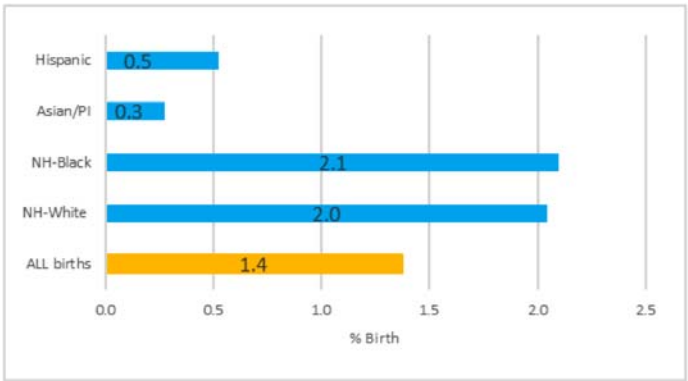


Fig. 50. Tobacco Use during Pregnancy by Race/Ethnicity, Montgomery County, 2012-16



- Montgomery County had an overall increasing trend of preterm births, though it fluctuated between 2012-16; the trend of preterm births in the County is consistently lower than that of Maryland (Fig. 51).
- Among population subgroups, the NH-Black had the highest percentage of preterm births than other groups (Fig. 52).

Fig. 51. Percent Preterm Births, Montgomery County and Maryland, 2012-16

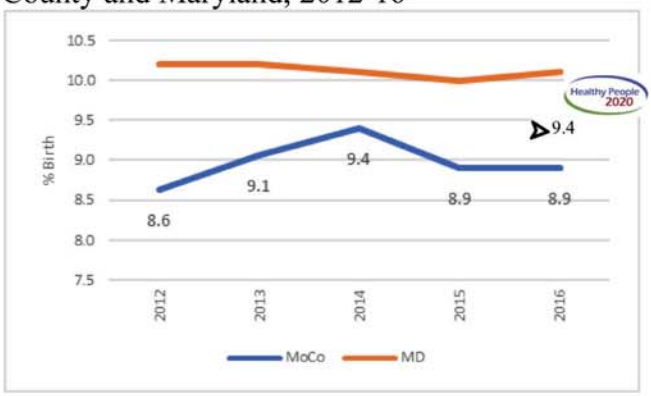
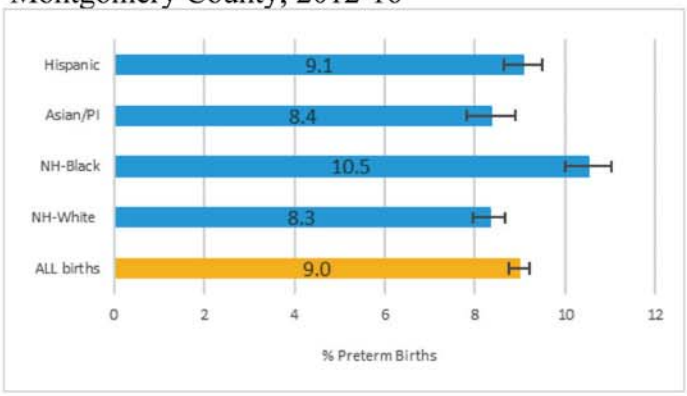


Fig. 52. Percent Preterm Births by Race/Ethnicity, Montgomery County, 2012-16



- The trend of low birth weight in Montgomery County over time is similar to that of Maryland and the U.S.; low birth weight in the County has been consistently lower than that of Maryland and the U.S. (Fig. 53).
- Among population subgroups, the NH-Black had the highest percentage of low birth weight than other groups, and NH-White has the lowest percentage (Fig. 54).

Fig. 53. Percent Low Weight Births, Montgomery County, Maryland, and U.S., 2012-16

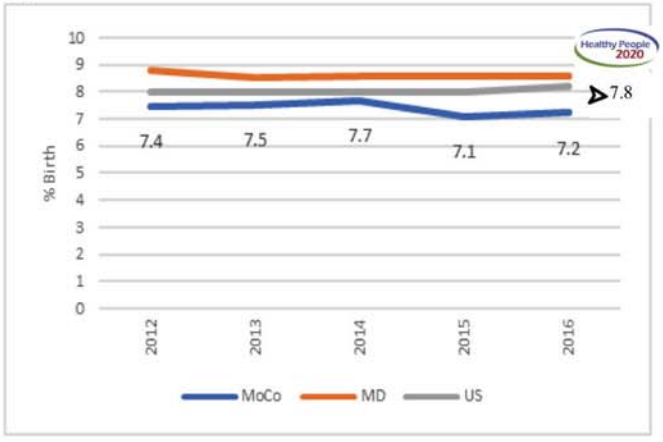
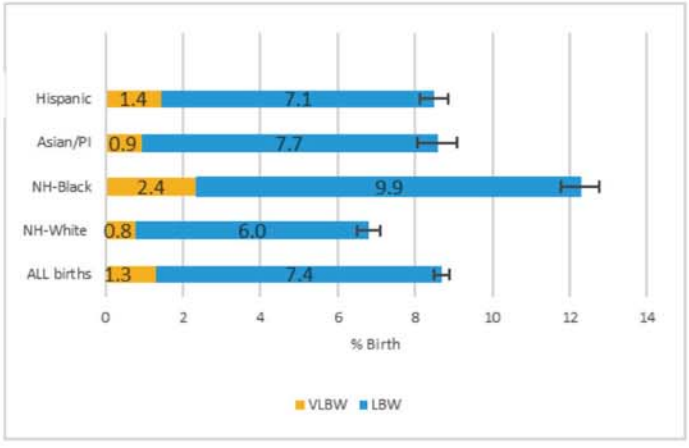


Fig. 54. Percent Low and Very Low Weight Births by Race/Ethnicity, Montgomery County, 2012-16



Very low birth weight: 1.4% of live births

- Infant mortality rates in Montgomery County fluctuated over time during 2008-16, with a decrease up to 2014 and increase again since 2015; the trend of infant mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 55).
- Among population subgroups, NH-Black had the highest infant mortality rate, followed by Hispanic, and NH-White (Fig. 56).

Fig. 55. Infant Mortality Rate, Montgomery County, Maryland, and U.S., 2008-2016

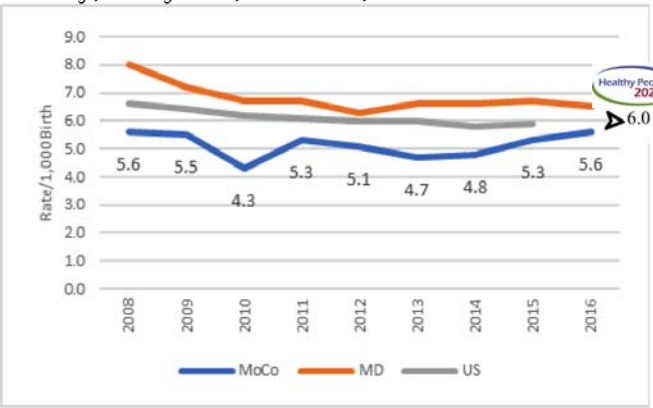
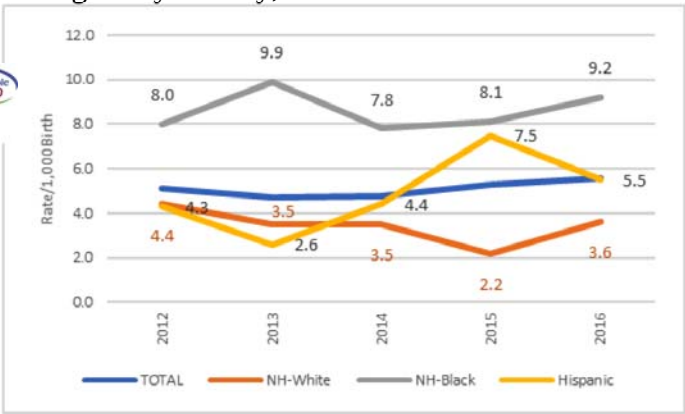
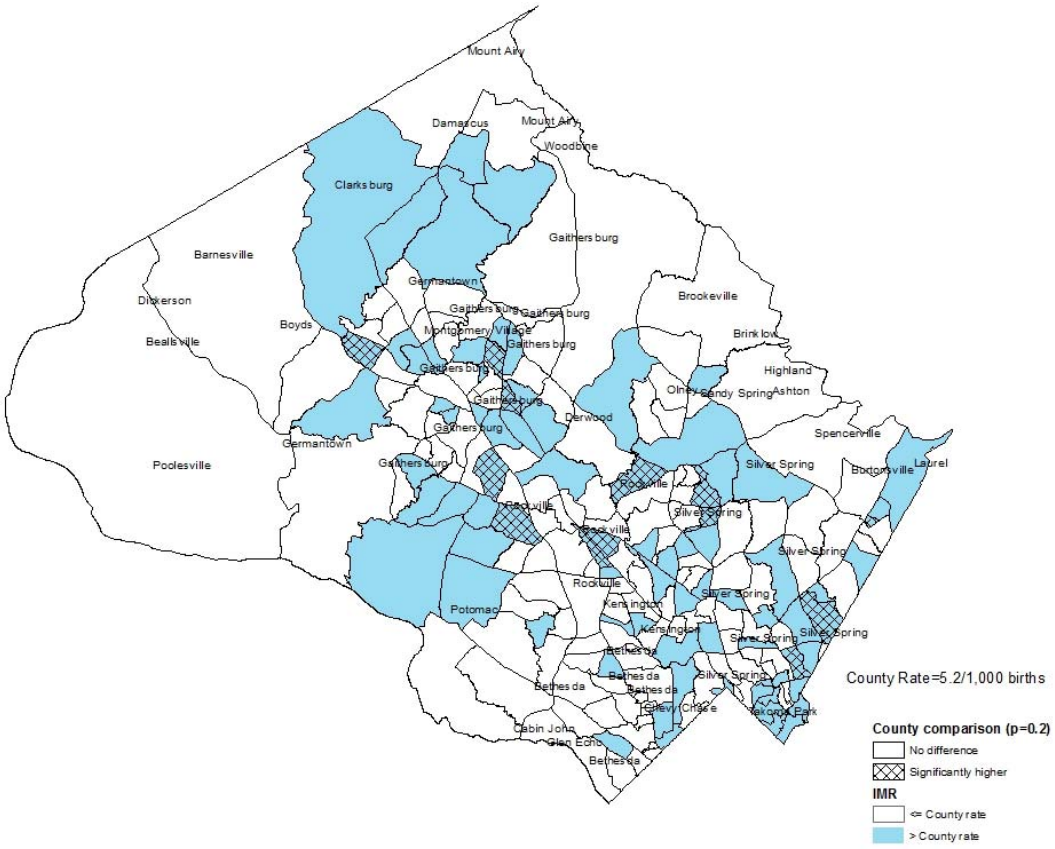


Fig. 56. Infant Mortality Rate by Race/Ethnicity, Montgomery County, 2012-16

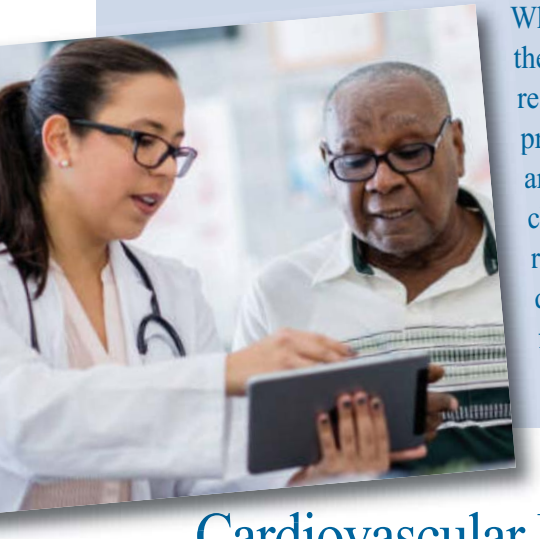


Map 2. Infant Mortality Rate by Census Tract,
Montgomery County, 2008-2016



IV Chronic Disease

A chronic disease is one lasting 3 months or more, as defined by the U.S. National Center for Health Statistics. Chronic diseases generally cannot be prevented by vaccines or cured by medication, nor do they just disappear. Common chronic diseases include cardiovascular diseases, cancer, diabetes, asthma, and some viral diseases.



While risk factors vary with age and sex, most of the common chronic diseases in the U.S. are caused by dietary, lifestyle and metabolic risk factors that are also responsible for the resulting mortality [23]. Therefore, these conditions might be prevented by behavioral changes, such as quitting smoking, adopting a healthy diet, and increasing physical activity. Social determinants are important risk factors for chronic diseases. Social factors such as socioeconomic status, education level, and race/ethnicity, are a major cause for the disparities observed in the care of chronic disease [24]. Lack of access and delay in receiving care result in worse outcomes for patients from minorities and underserved populations [25]. Those barriers to medical care complicate patients monitoring and continuity in treatment.

Cardiovascular Disease

Cardiovascular disease is a growing concern in the U.S. Heart disease is the nation's leading cause of death. Three health-related behaviors--tobacco use, lack of physical activity, and poor nutrition--contribute markedly to increased risk of heart disease. Modifying these behaviors is critical for both preventing and controlling heart disease. Modest changes in one or more of these risk factors among the population could have a profound public health impact.

MARYLAND BRFSS Behavioral Risk Factor Surveillance System

52.8% (95% CI: 44.9-60.9) adults age 18+ are overweight or obese in Montgomery County, as compared to 65.0% (95% CI: 61.4-68.8) in Maryland

10.5% (95% CI: 7.0-13.9) adults age 18+ are current smokers in Montgomery County, as compared to 15.1% (95% CI: 13.6-16.6) in Maryland

71.8% (95% CI: 67.4-76.3) adults age 18+ have daily fruit consumption in Montgomery County, as compared to 64.0% (95% CI: 62.1-66.0) in Maryland

86.1% (95% CI: 82.6-89.7) adults age 18+ have daily vegetable consumption in Montgomery County, as compared to 78.7% (95% CI: 76.9-80.4) in Maryland

83.4% (95% CI: 79.8-87.0) adults age 18+ have leisure time physical activity in Montgomery County, as compared to 75.9% (95% CI: 74.3-77.5) in Maryland

24.7% (95% CI: 21.4-28.1) adults age 18+ have ever been told they have hypertension in Montgomery County, as compared to 33.1% (95% CI: 31.5-34.7) in Maryland
32.8% (95% CI: 28.5-37.1) adults age 18+ have ever been told they have high cholesterol in Montgomery County, as compared to 35.9% (95% CI: 34.2-37.7) in Maryland

Table 20. Chronic Disease Mortality by Sex and Race/Ethnicity, Montgomery County, 2014-16

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian /PI	Hispanic
Heart Disease	4,099	2,072	2,027	2,985	646	286	169
Cancer	4,146	1,956	2,190	2,777	670	431	254
Cerebrovascular Disease	881	335	546	591	124	109	55
Chronic Lower Respiratory Disease	589	247	342	482	74	22	10
Diabetes Mellitus	416	207	209	235	108	37	34

Heart Disease

- Heart disease mortality had a decreasing trend during 2008-2016, similar to that of Maryland and the U.S.; the rate in the County is consistently lower than Maryland and the U.S. (Fig. 57).
- Among population subgroups, NH-Black had the highest rates, followed by NH-White, and Hispanic and Asian/PI; males had higher rates than females (Fig. 58).
- Heart disease mortality rates increase by age; people 65 and older have the highest rate (Fig. 59).

Fig. 57. Heart Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2008-16

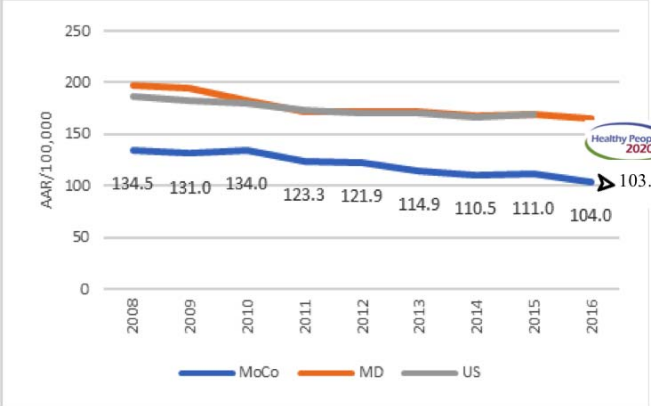


Fig. 58. Heart Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

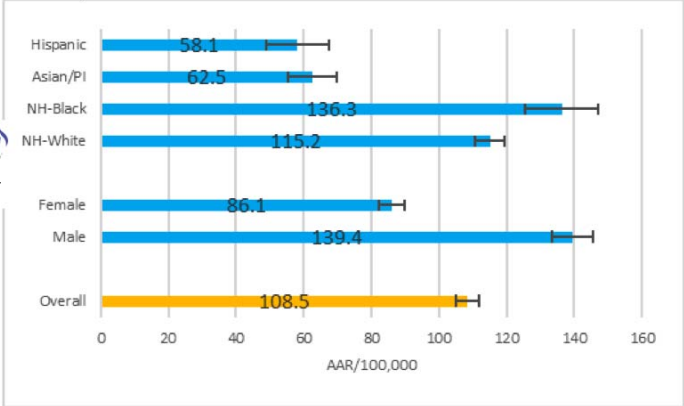
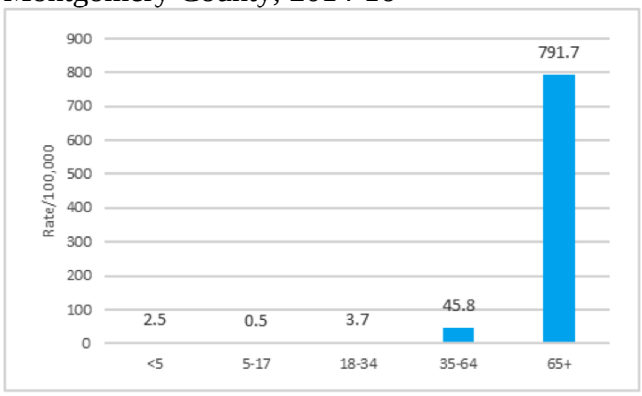
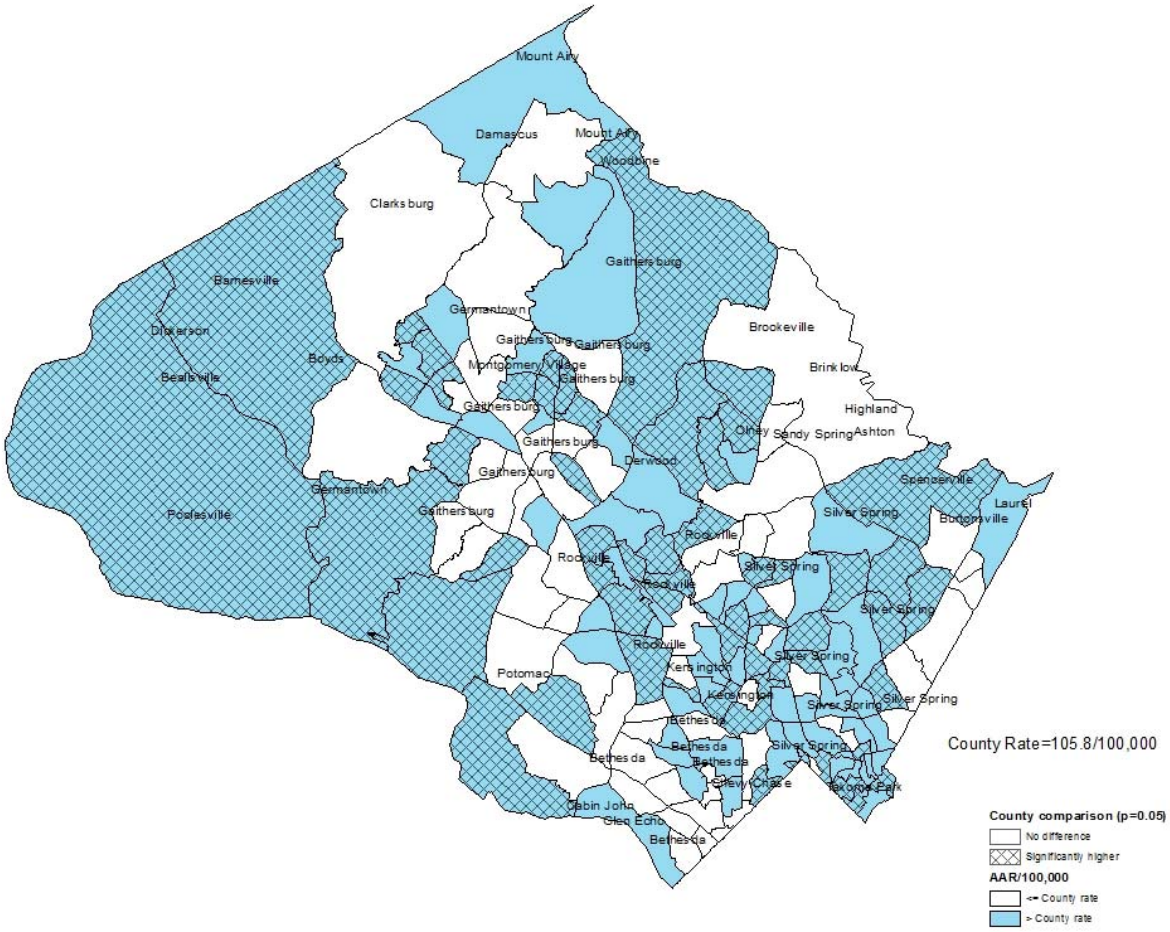


Fig. 59. Heart Disease Mortality Rates by Age, Montgomery County, 2014-16



Map 3. Heart Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



- Heart disease ER visit rates are increasing, similar to those in Maryland.; the rates in the County are consistently lower than those in Maryland (Fig. 60).
- Among population subgroups, the NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; males and females have similar rates (Fig. 61).
- Heart disease ER visit rates increase by age; people age 65 and older have the highest rate (Fig. 62).

Fig. 60. Heart Disease Related ER Visit Rates, Montgomery County and Maryland, 2008-16

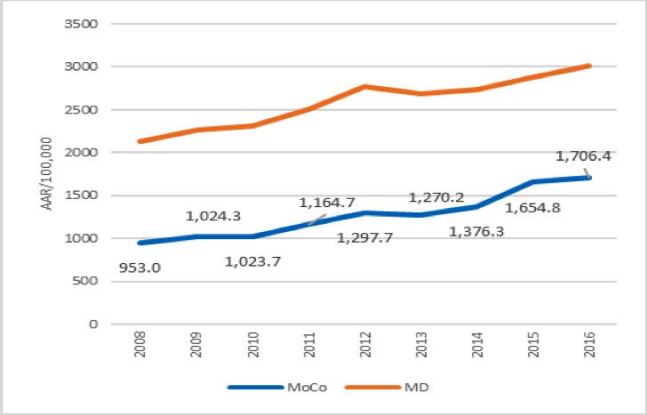


Fig. 61. Heart Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

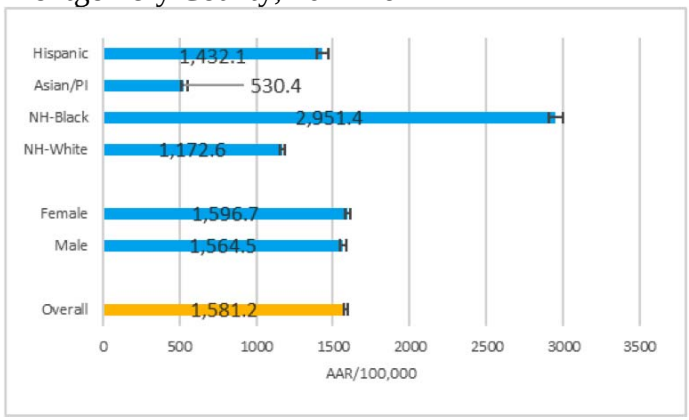
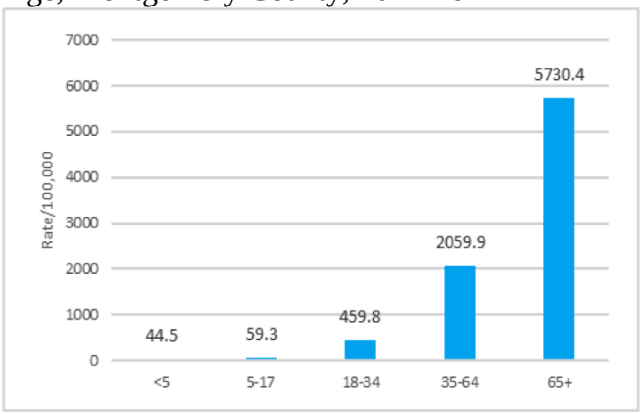
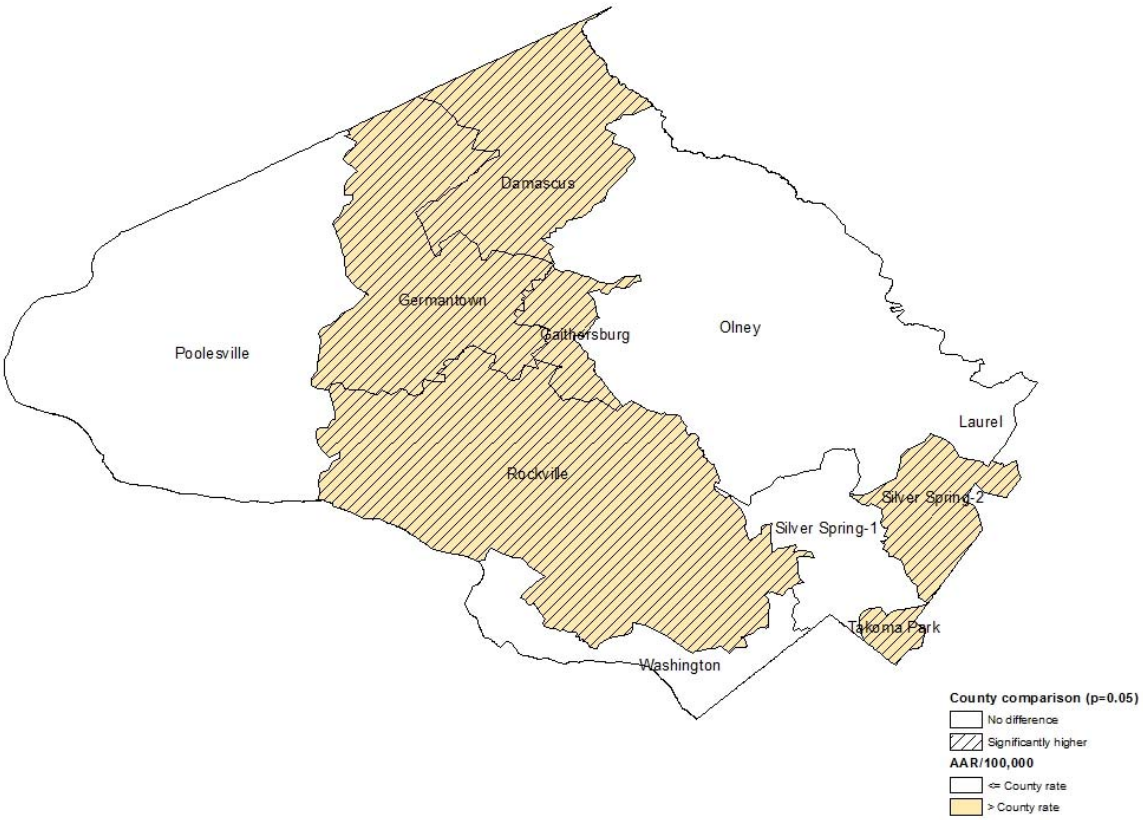


Fig. 62. Heart Disease Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 4. Heart Disease Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

2.5% (95% CI: 1.5 -3.5) adults age 18+ ever told have heart attack in Montgomery County, as compared to 3.7% (95% CI: 3.2-4.2) in Maryland

2.9% (95% CI: 1.9 -3.9) adults age 18+ ever told have Angina or Coronary Heart Disease in Montgomery County, as compared to 3.7% (95% CI: 3.2-4.3) in Maryland

Cerebrovascular Disease (including Stroke)

- Cerebrovascular disease mortality had a decreasing trend during 2008-2016, similar to that in Maryland and the U.S.; the rate in the County is consistently lower than that of Maryland and the U.S. (Fig. 63).
- Among population subgroups, NH-Black has the highest rates, followed by Asian/PI, NH-White, and Hispanic though the differences were not statistically significance; males and females have similar rates (Fig. 64).
- Cerebrovascular disease mortality rates increase by age; people age 65 and older have the highest rate (Fig. 65).

Fig. 63. Cerebrovascular Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2008-16

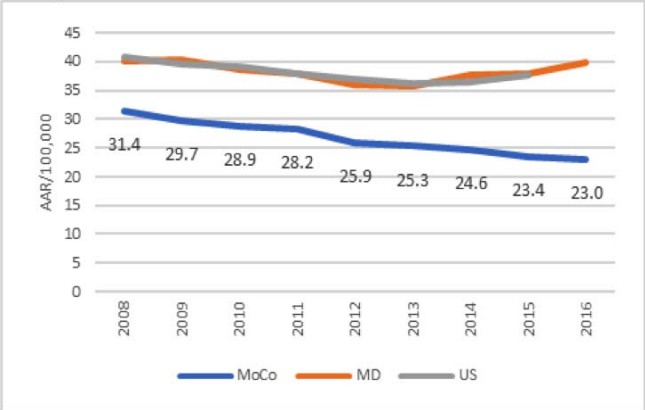


Fig. 64. Cerebrovascular Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

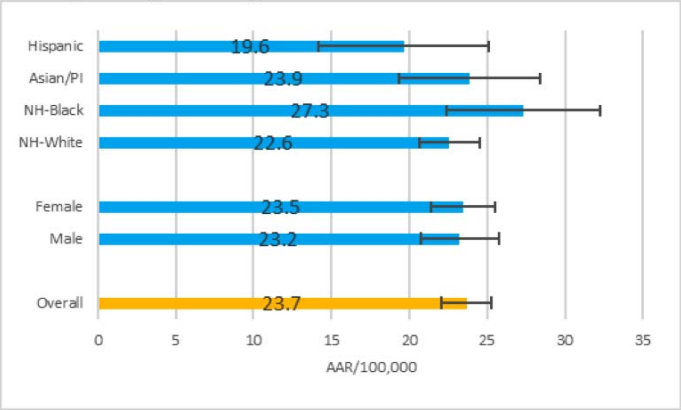
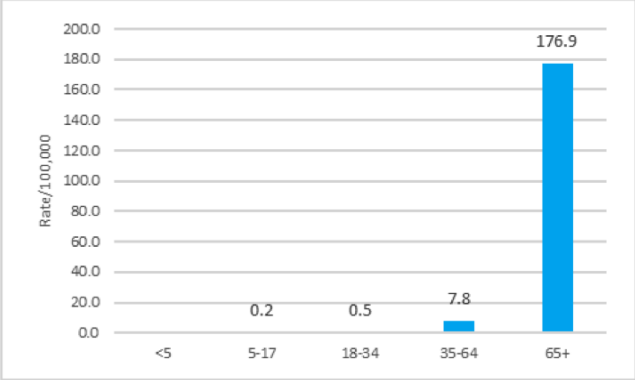
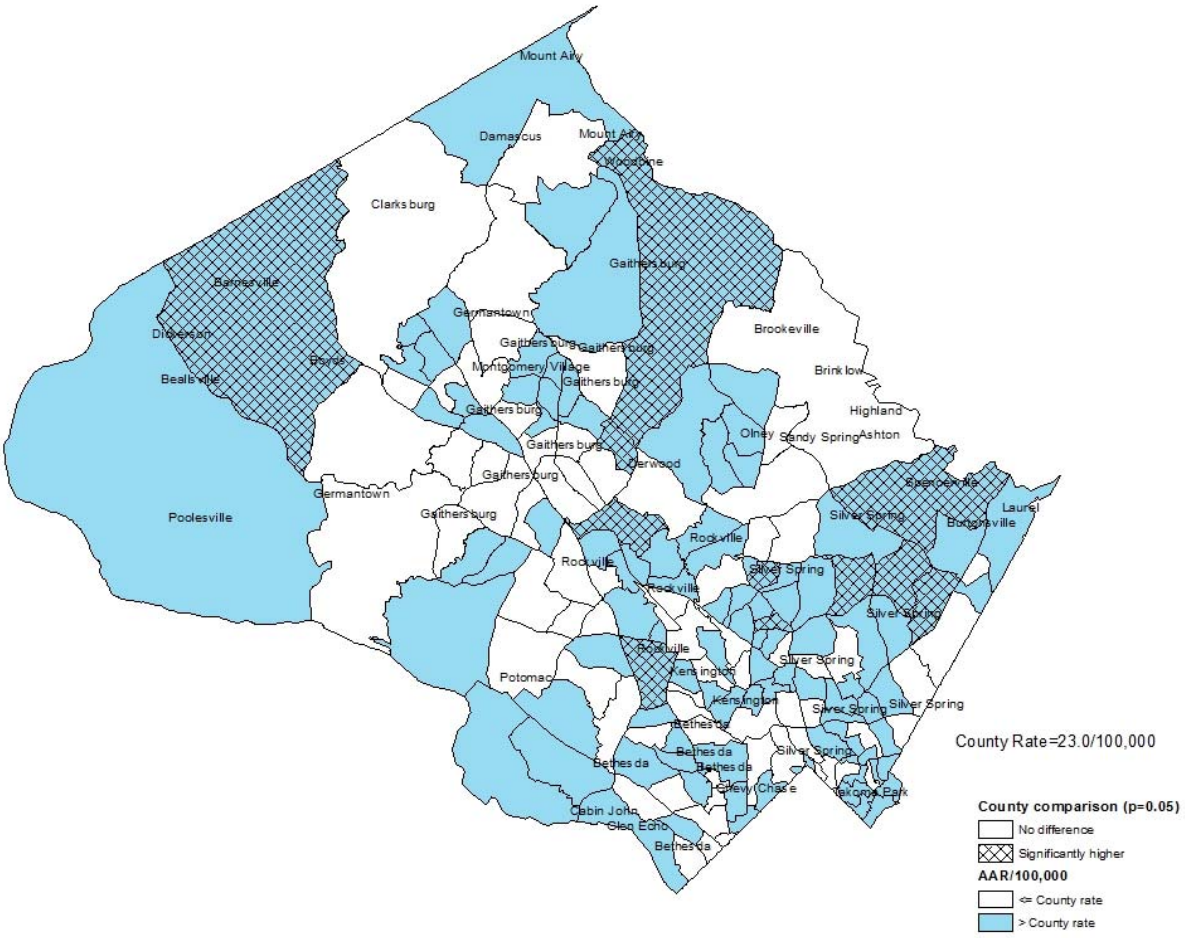


Fig. 65. Cerebrovascular Disease Mortality Rates by Age, Montgomery County, 2014-16



Map 5. Cerebrovascular Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



- Cerebrovascular disease ER visit rates increased until 2015, similar to that seen in Maryland.; the rates in the County are consistently lower than those in Maryland (Fig. 66).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic and NH-White, and Asian/PI; males and females have similar rates (Fig. 67).
- Cerebrovascular disease ER visits rates increase by age; people age 65 and older have the highest rate (Fig. 68).

Fig. 66. Cerebrovascular Disease Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

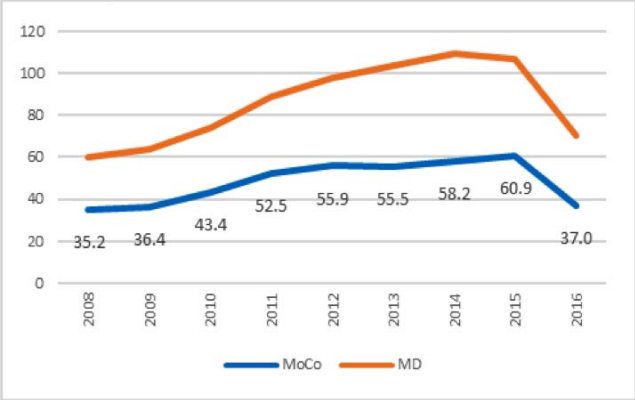


Fig. 67. Cerebrovascular Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

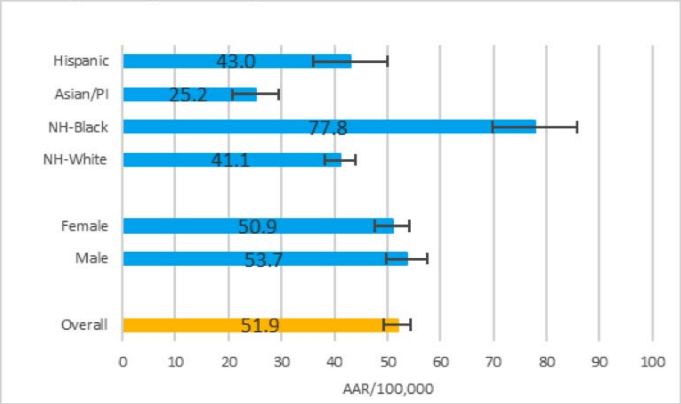
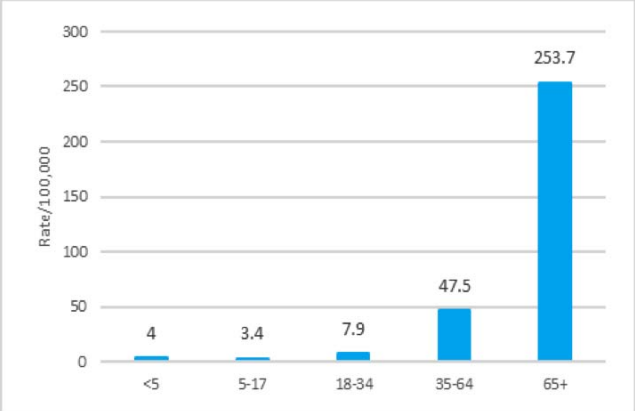
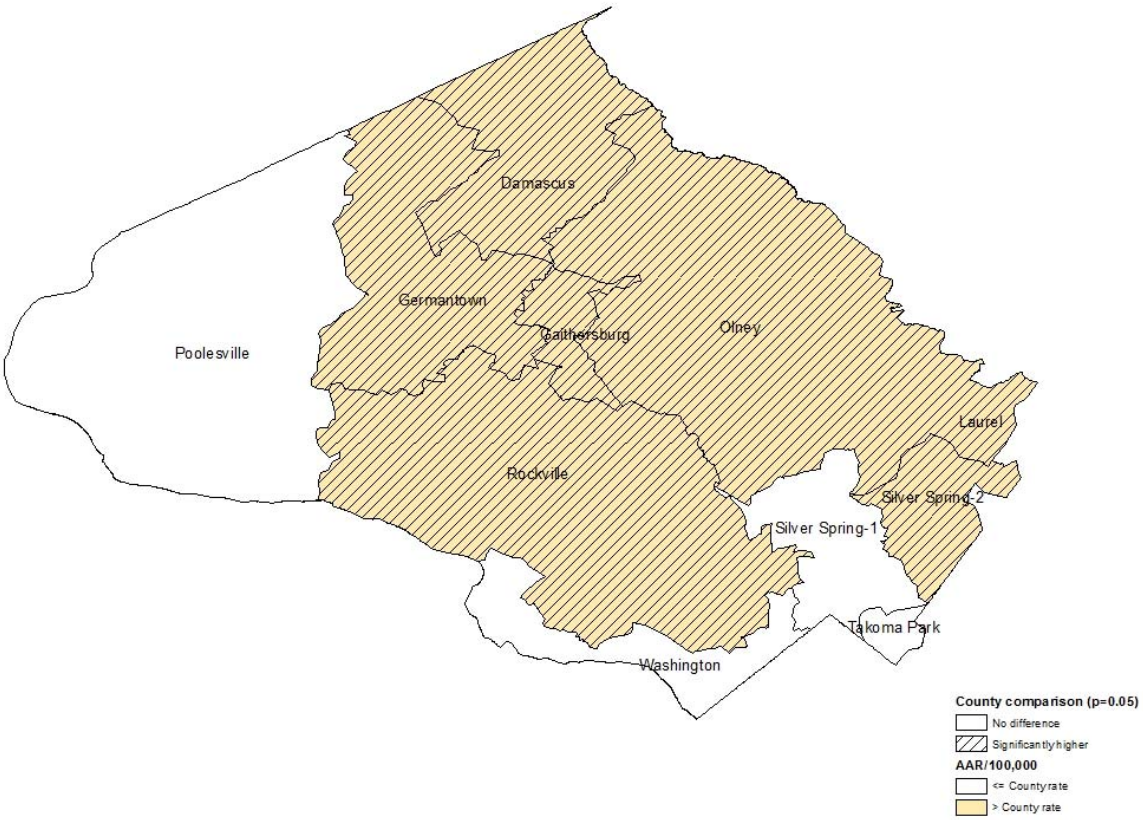


Fig. 68. Cerebrovascular Disease Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 6. Cerebrovascular Disease Related ER Visit Age-Adjusted Rate by PCSA, Montgomery County, 2014-16



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

2.0% (95% CI: 0.9-3.0) adults age 18+ ever told have stroke in Montgomery County, as compared to 2.8% (95% CI: 2.3-3.4) in Maryland.

Healthy People 2020

34.8 deaths per 100,000 population for stroke

Chronic Lower Respiratory Disease (including COPD)

- The chronic lower respiratory disease mortality rate had a decreasing trend during 2008-16, similar to that in Maryland and the U.S.; the rate of chronic lower respiratory disease mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 69).
- Among population subgroups, NH-White and NH-Black had higher rates than other groups; males had higher rates than females though this was not statistically significant (Fig. 70).
- Chronic lower respiratory disease mortality rates increased by age; people age 65 and older have the highest rate (Fig. 71).

Fig. 69. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2008-16

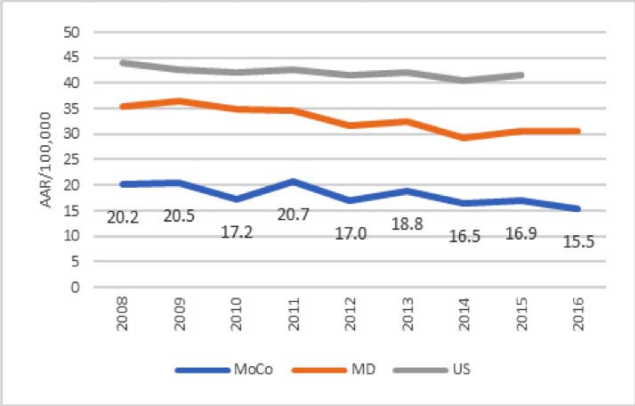


Fig. 70. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

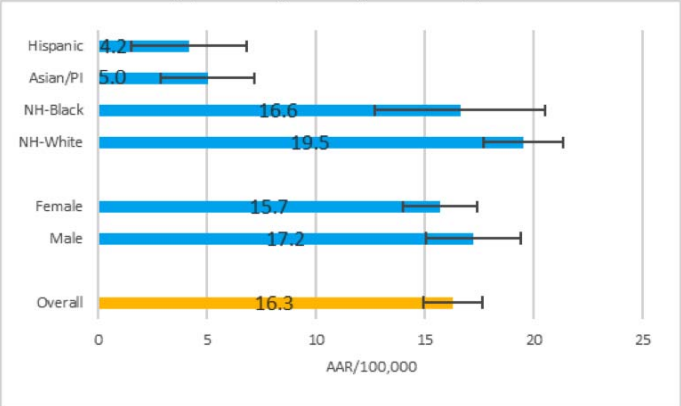
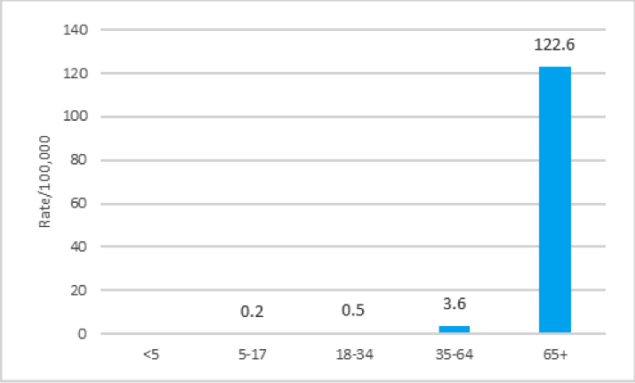
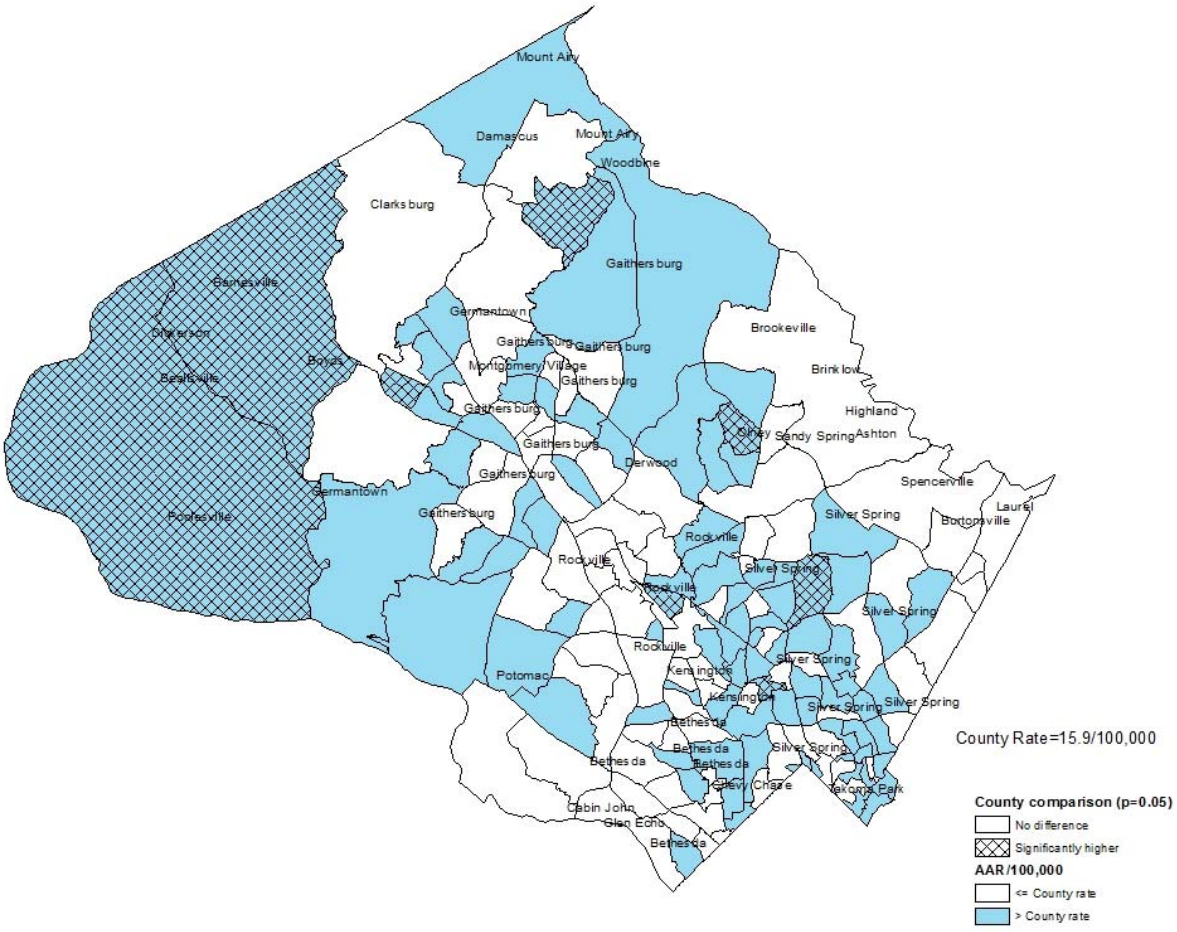


Fig. 71. Chronic Lower Respiratory Disease Mortality Rates by Age, Montgomery County, 2014-16



Map 7. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



- Chronic lower respiratory disease ER visit rates increased over time, similar to that observed in Maryland; the rates in the County are consistently lower than Maryland (Fig. 72).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; females had a higher rate than males (Fig. 73).
- Chronic lower respiratory disease ER visits rates decreased by age; younger people age <5 have the highest rate, followed by age 5-17 (Fig. 74).

Fig. 72. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

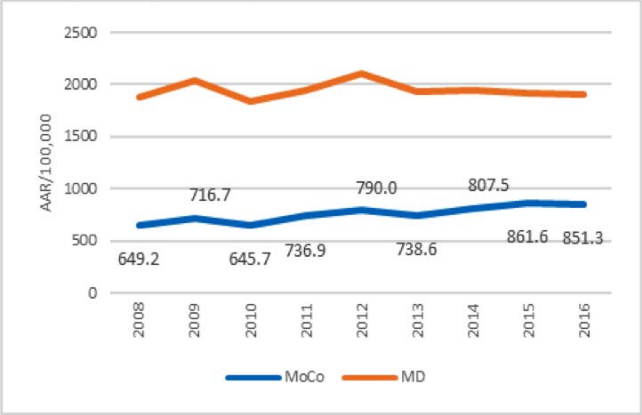


Fig. 73. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

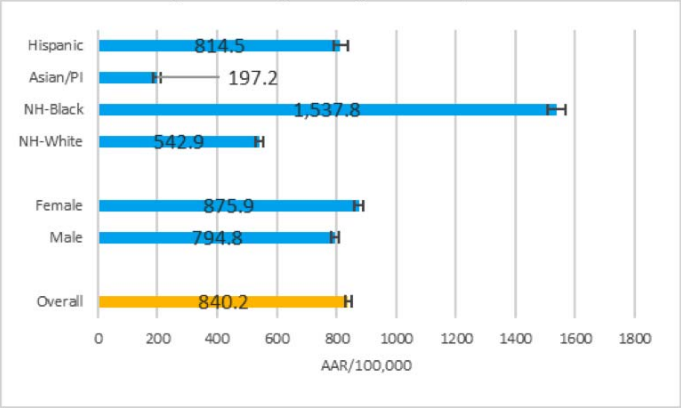
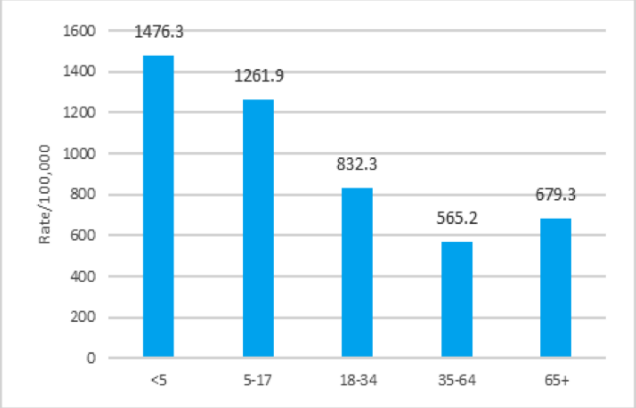
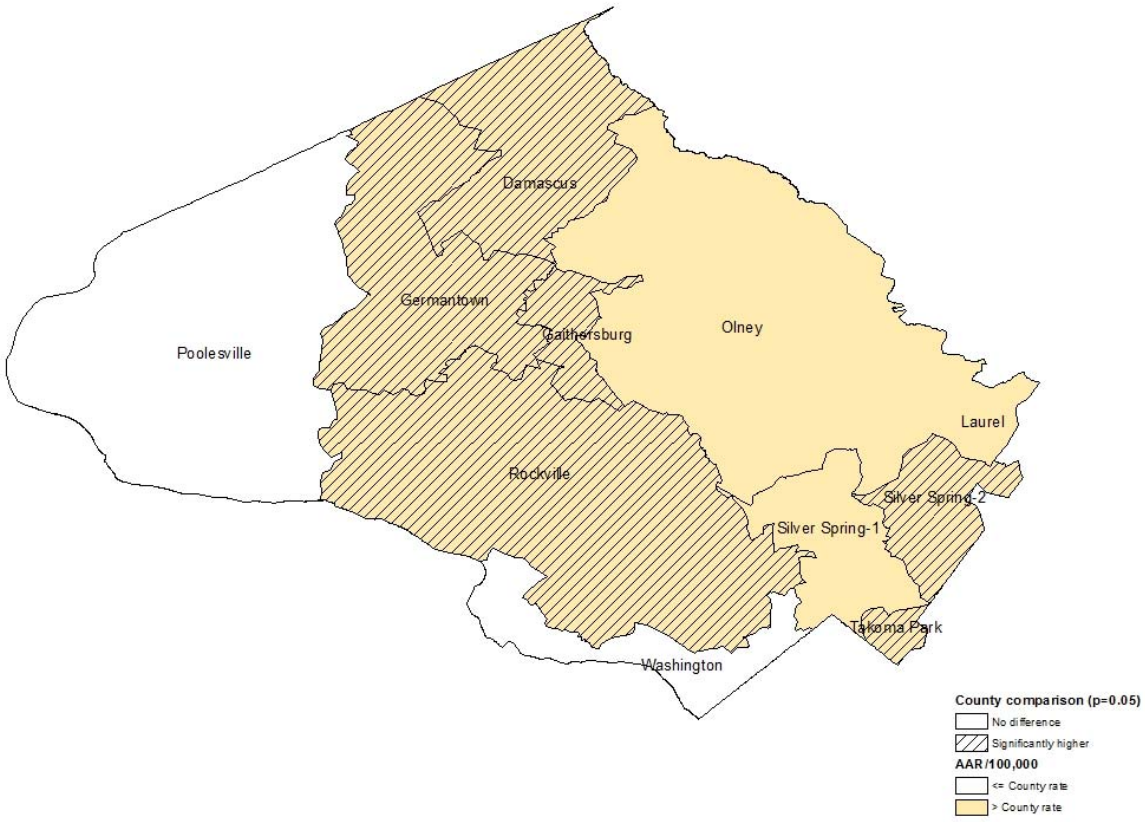


Fig. 74. Chronic Lower Respiratory Disease Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 8. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



3.8% (95% CI: 2.4-5.1) adults age 18+ ever told have COPD in Montgomery County, as compared to 6.1% (95% CI: 5.4-6.9) in Maryland.

102.6 deaths per 100,000 adults aged 45+ population for COPD
50.1 hospitalizations per 10,000 adults aged 45+ population for COPD
56.8 ED visits per 10,000 adults aged 45+ population for COPD

Cancer

Cancer is the second most common cause of death in the US. Cancer is largely controllable through prevention, early detection, and treatment. Reducing the cancer burden requires reducing the prevalence of the behavioral and environmental factors that increase cancer risk. It also requires ensuring that cancer screening services and high-quality treatment are available and accessible, particularly to medically underserved populations.

- The overall cancer incidence rate in Montgomery County follows similarly decreasing trends in Maryland and the U.S. during 2008-2014; the rates for the County were consistently lower than in Maryland and the U.S. (Fig. 75).
- Similar to incidence, overall cancer mortality in the County decreased and was consistently lower than in Maryland and the U.S. (Fig. 76).
- Males had higher overall cancer incidence and mortality than females; overall cancer incidence and mortality were not significantly different between races (Fig. 77 & 78).

Fig. 75. Cancer Age-Adjusted Incidence Rates, All Sites, Montgomery County, Maryland, and US, 2008-14

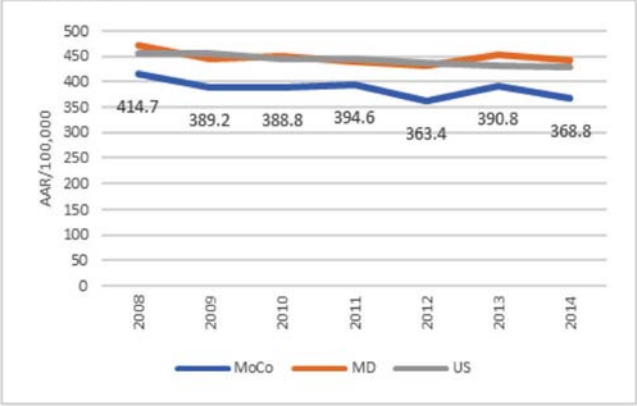


Fig. 76. Cancer Age-Adjusted Mortality Rates, All Sites, Montgomery County, Maryland, and US, 2008-14

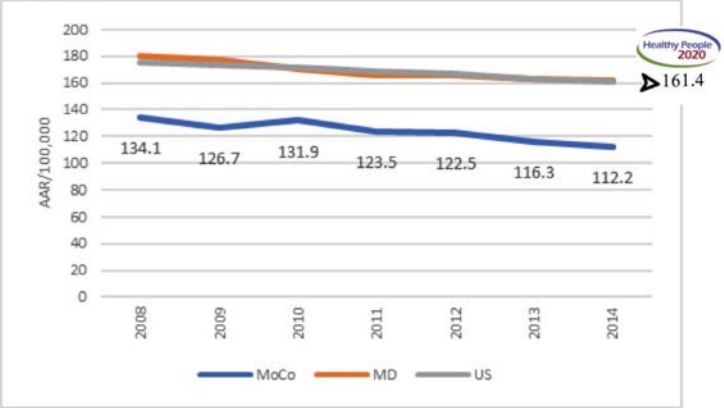


Fig. 77. Cancer Age-Adjusted Incidence Rates by Sex and Race, All Sites, Montgomery County, 2010-14

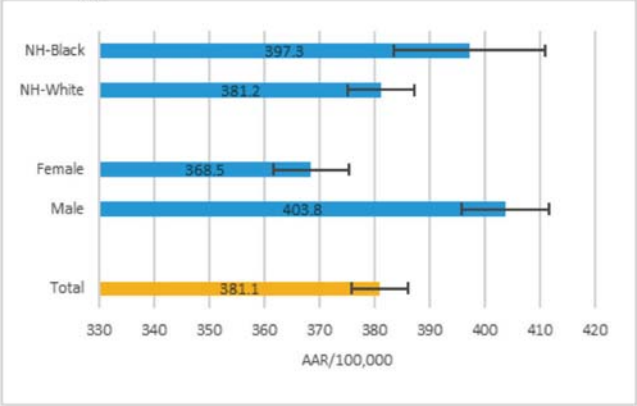
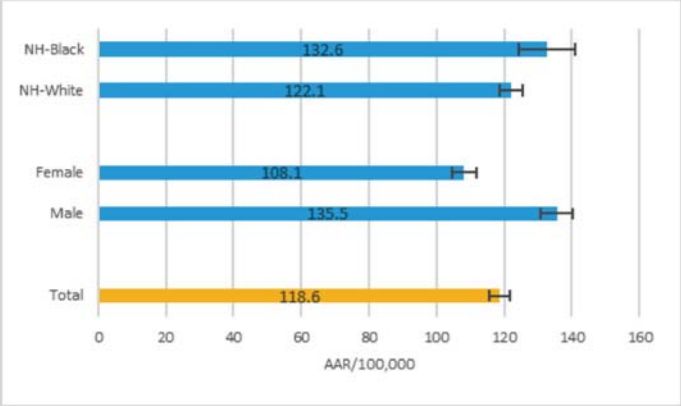


Fig. 78. Cancer Age-Adjusted Mortality Rates by Sex and Race, All Sites, Montgomery County, 2010-14



- The overall incidence rate of lung and bronchus cancer in Montgomery County followed similarly decreasing trends in Maryland and the U.S. during 2008-2014; the rate for the County is consistently lower than that of Maryland and the U.S. (Fig. 79).
- Similar to incidence, mortality from lung and bronchus cancer in the County decreased and was consistently lower than in Maryland and the U.S. (Fig. 80).
- Males had higher mortality than females (Fig. 81 & 82).
- NH-Black and NH-White had similar rates for both incidence and mortality (Fig. 81 & 82).

Fig. 79. Cancer Age-Adjusted Incidence Rates, Lung and Bronchus, Montgomery County, Maryland, and US, 2008-14

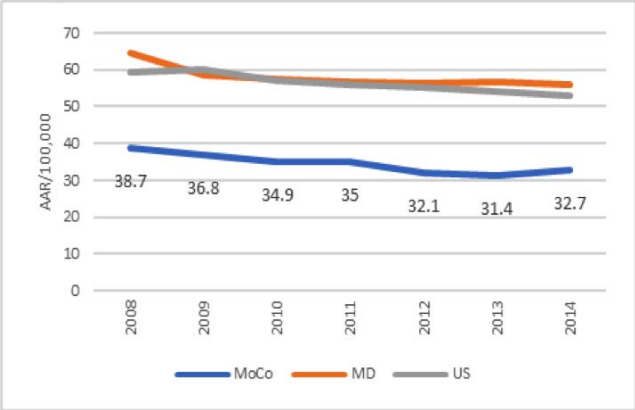


Fig. 80. Cancer Age-Adjusted Mortality Rates, Lung and Bronchus, Montgomery County, Maryland, and US, 2008-14

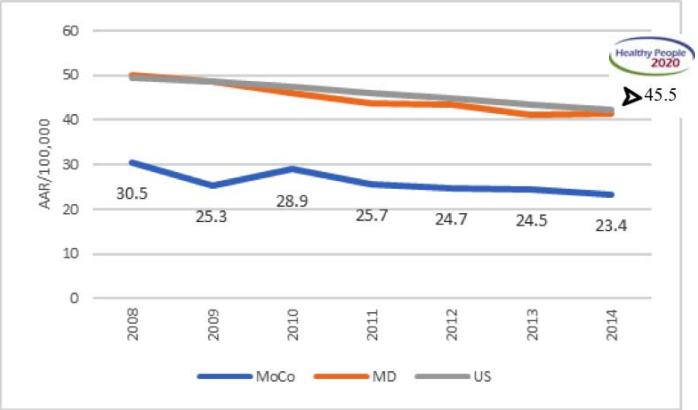


Fig. 81. Cancer Age-Adjusted Incidence Rates by Sex and Race, Lung and Bronchus, Montgomery County, 2010-14

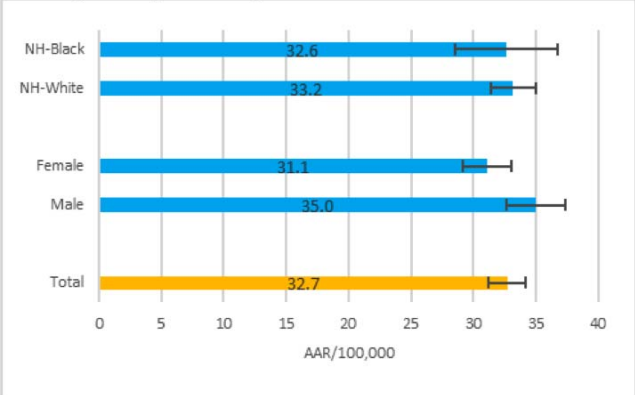
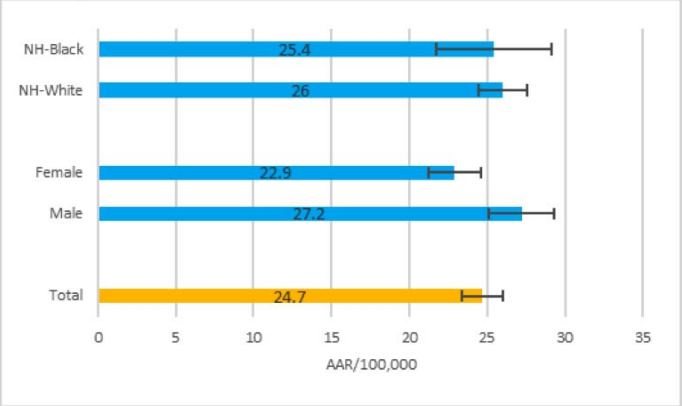


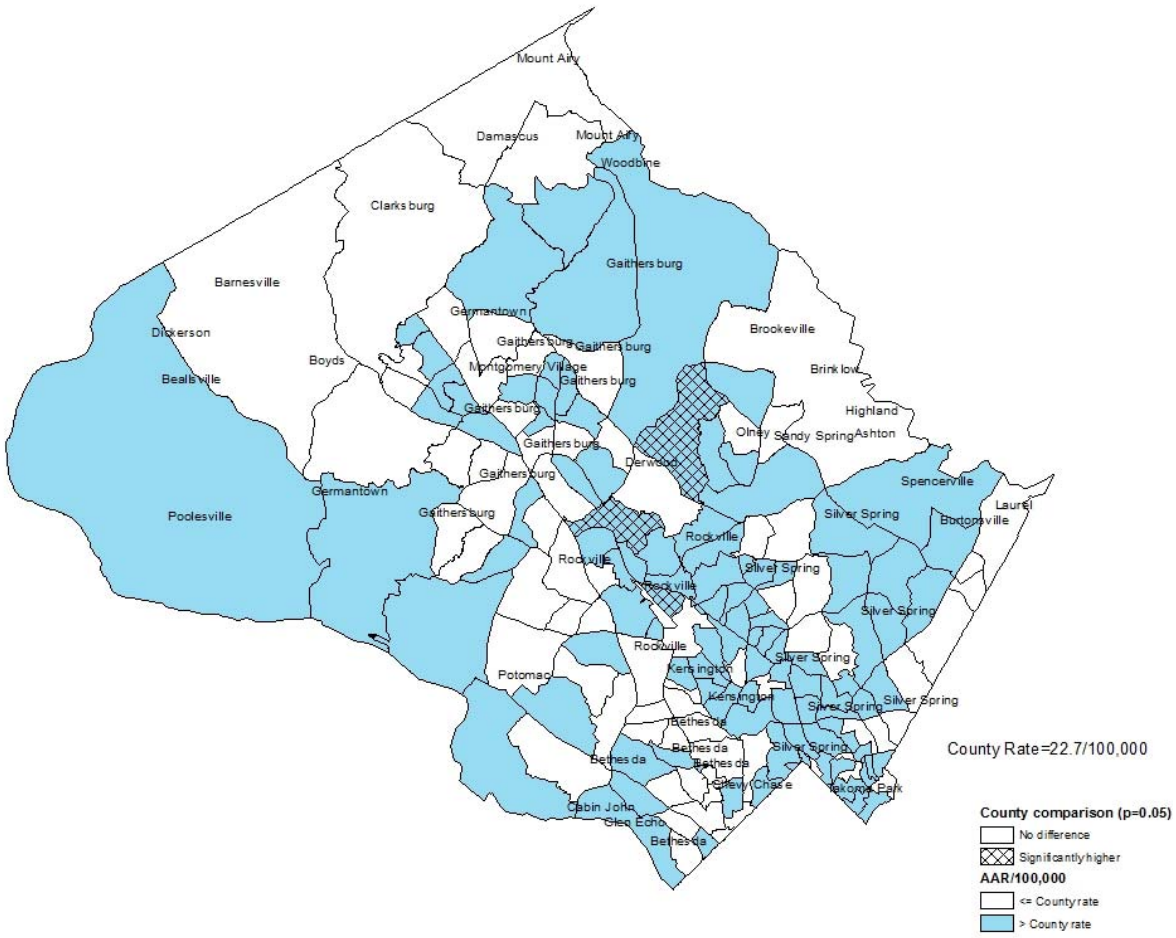
Fig. 82. Cancer Age-Adjusted Mortality Rates by Sex and Race, Lung and Bronchus, Montgomery County, 2010-14



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

10.5% (95% CI: 7.0-13.9) adults age 18+ are current smoker in Montgomery County, as compared to 15.1% (95% CI: 13.6-16.6) in Maryland.

Map 9. Cancer Age-Adjusted Mortality Rates by Census Tract, Lung and Bronchus, Montgomery County, 2008-2016



- The overall incidence rate of colon and rectum cancer in Montgomery County followed similarly decreasing trends in Maryland and the U.S. during 2008-2014; the rate for the County was consistently lower than in Maryland and the U.S. (Fig. 83).
- Similar to incidence, mortality from colon and rectum cancer in the County decreased and was consistently lower than in Maryland and the U.S. (Fig. 84).
- Males had both higher incidence and mortality than females (Fig. 85 & 86).
- NH-Black had higher incidence and mortality than NH-White in the marginally significant level (Fig. 85 & 86).

Fig. 83. Cancer Age-Adjusted Incidence Rates, Colon and Rectum, Montgomery County, Maryland, and US, 2008-14

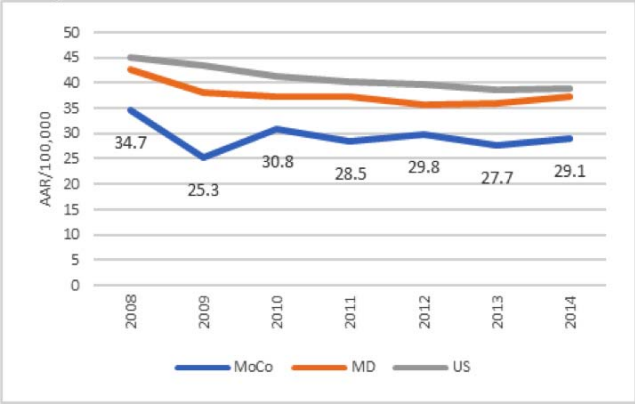


Fig. 84. Cancer Age-Adjusted Mortality Rates, Colon and Rectum, Montgomery County, Maryland, and US, 2008-14

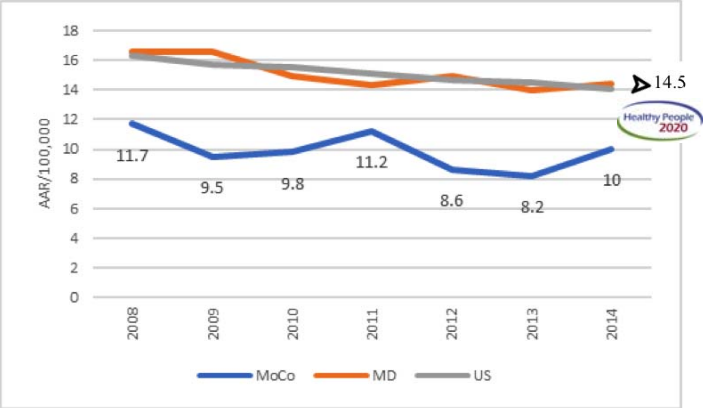


Fig. 85. Cancer Age-Adjusted Incidence Rates by Sex and Race, Colon and Rectum, Montgomery County, 2010-14

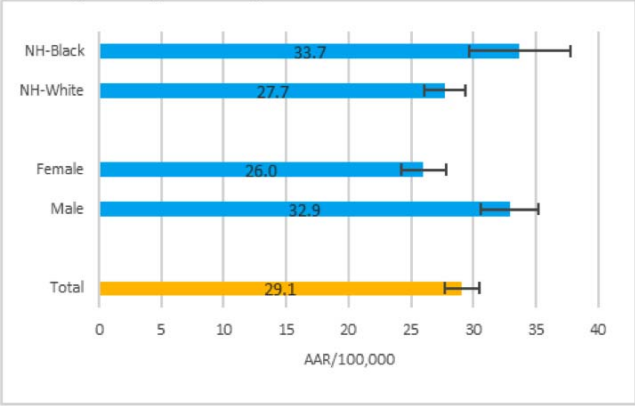
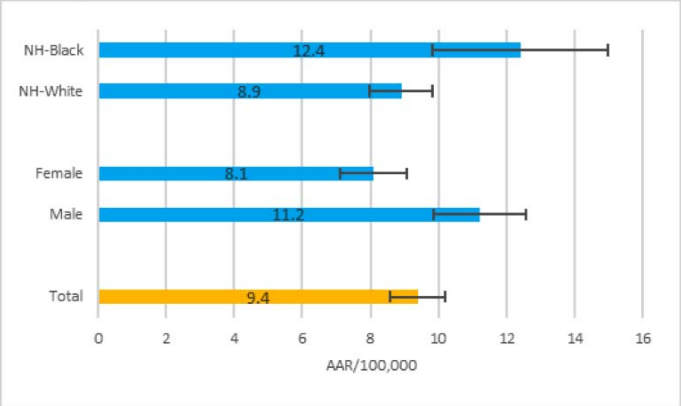
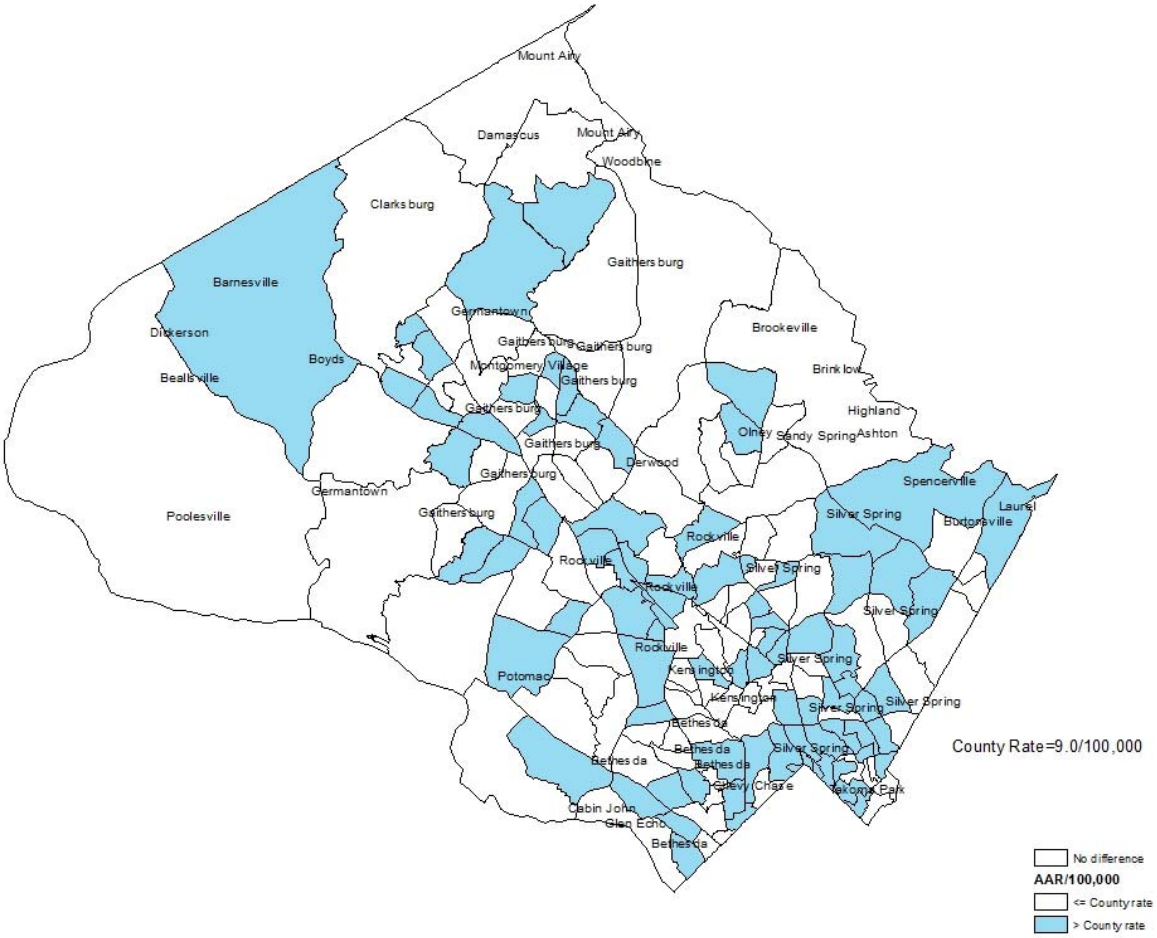


Fig. 86. Cancer Age-Adjusted Mortality Rates by Sex and Race, Colon and Rectum, Montgomery County, 2010-14



Map 10. Cancer Age-Adjusted Mortality Rates by Census Tract, Colon and Rectum, Montgomery County, 2008-16



- The incidence rate of female breast cancer in Montgomery County fluctuated over time, following similar trends in Maryland during 2008-2014; the rates for the County and Maryland were consistently higher than the U.S. (Fig. 87).
- The mortality rate in the County followed the decreasing trends seen in Maryland and the U.S.; the County rate was consistently lower than in Maryland and the U.S. (Fig. 88).
- Though NH-Black had lower incidence than NH-White, NH-Black had higher mortality than NH-White though these differences were not statistically significant (Fig. 89 & 90).

Fig. 87. Cancer Age-Adjusted Incidence Rates, Female Breast, Montgomery County, Maryland, and US, 2008-14

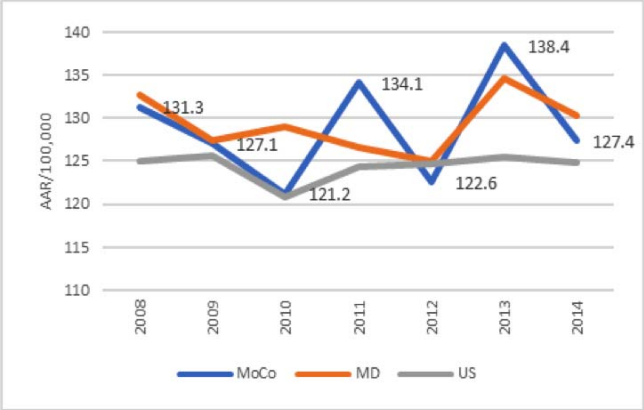


Fig. 88. Cancer Age-Adjusted Mortality Rates, Female Breast, Montgomery County, Maryland, and US, 2008-14

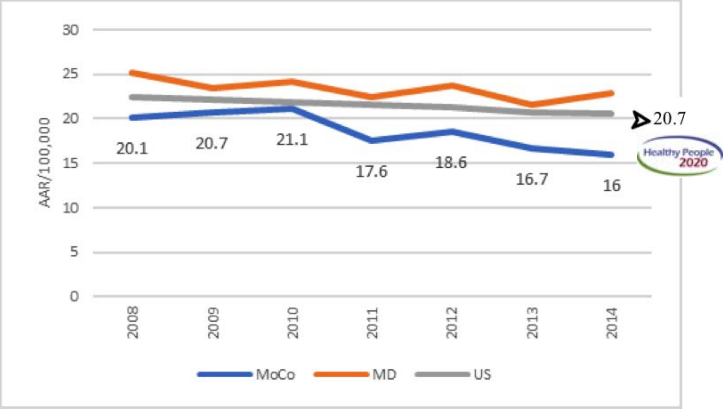


Fig. 89. Cancer Age-Adjusted Incidence Rates by Race, Female Breast, Montgomery County, 2010-14

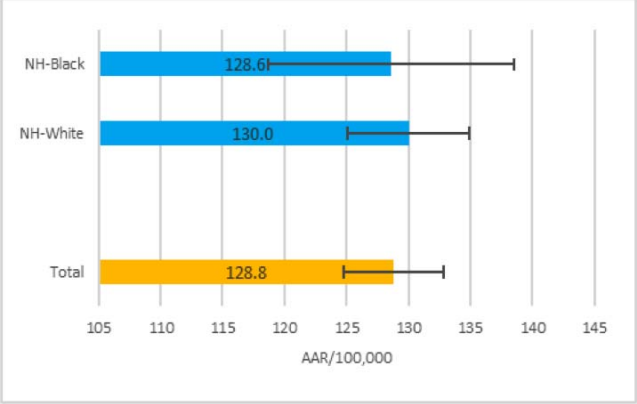
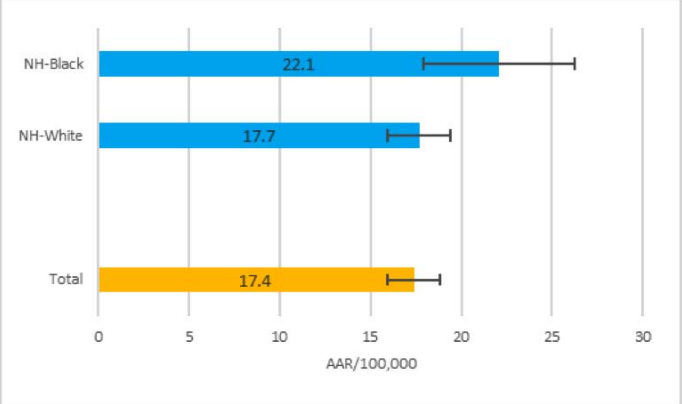
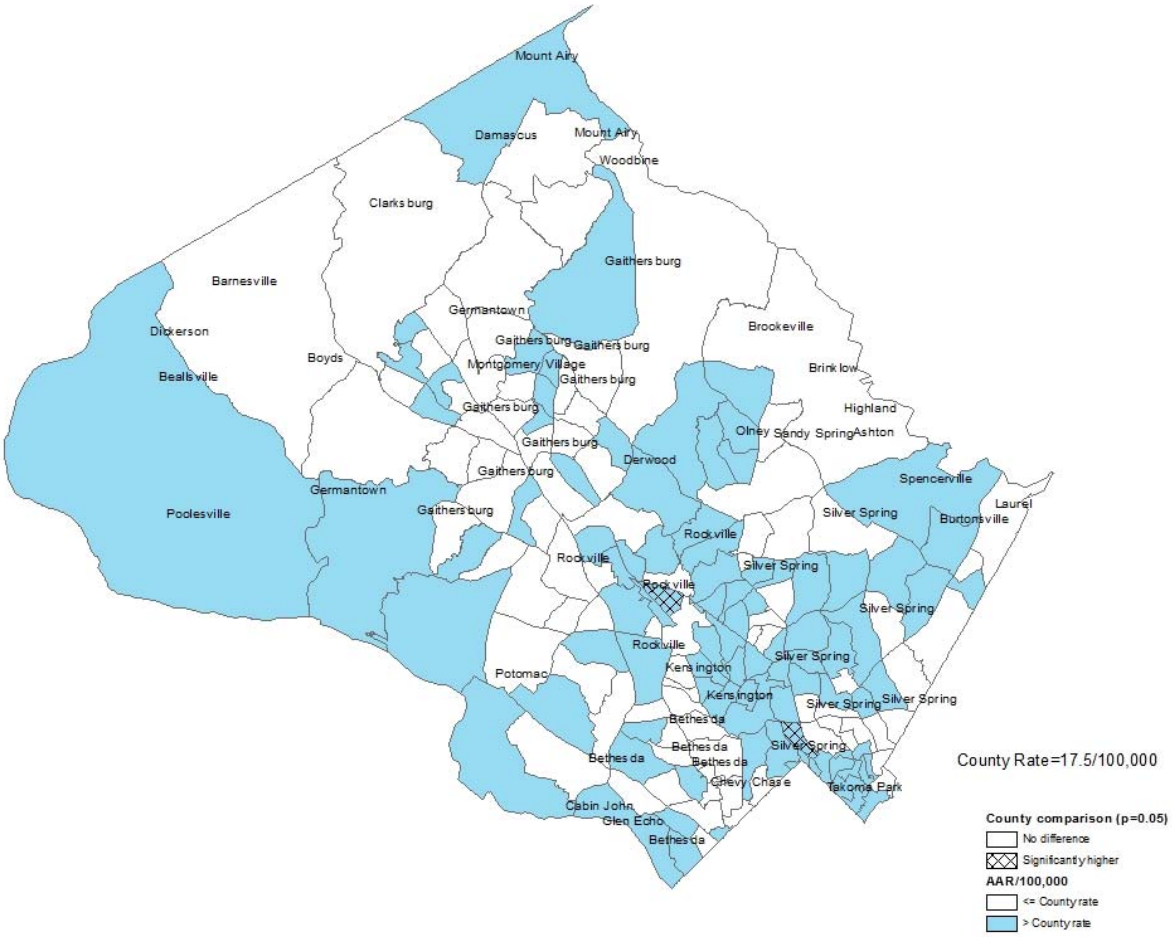


Fig. 90. Cancer Age-Adjusted Mortality Rates by Race, Female Breast, Montgomery County, 2010-14



Map 11. Cancer Age-Adjusted Mortality Rates by Census Tract, Female Breast, Montgomery County, 2008-2016



- The incidence rate of prostate cancer in Montgomery County decreased and was similar to that in Maryland and the U.S. (Fig. 91).
- The mortality rate in the County followed the decreasing trends of Maryland and the U.S.; the County rate was consistently lower than that of Maryland and the U.S. (Fig. 92).
- NH- Black had both statistically significant higher incidence and mortality rates than NH-White (Fig. 93 & 94).

Fig. 91. Cancer Age-Adjusted Incidence Rates, Prostate, Montgomery County, Maryland, and US, 2008-14

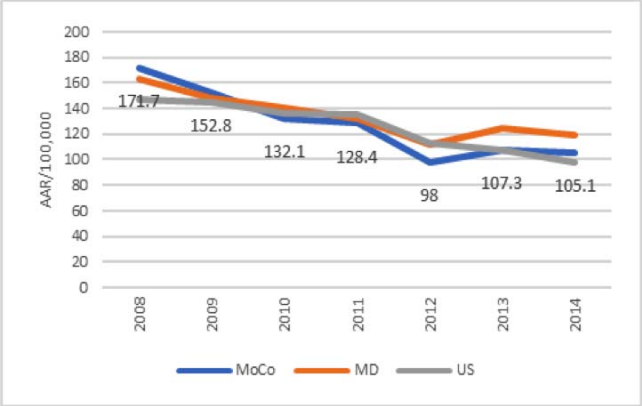


Fig. 92. Cancer Age-Adjusted Mortality Rates, Prostate, Montgomery County, Maryland, and US, 2008-14

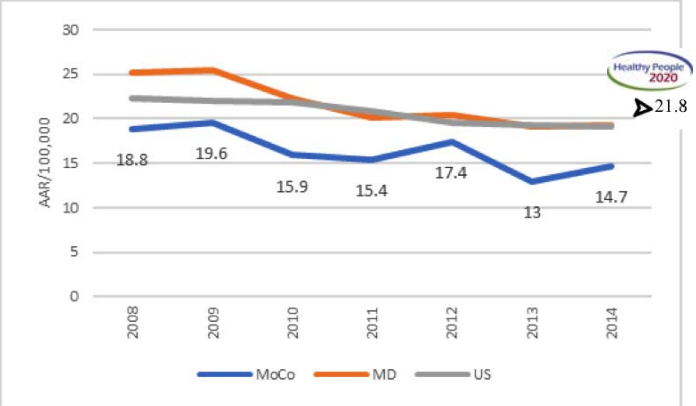


Fig. 93. Cancer Age-Adjusted Incidence Rates by Race, Prostate, Montgomery County, 2010-14

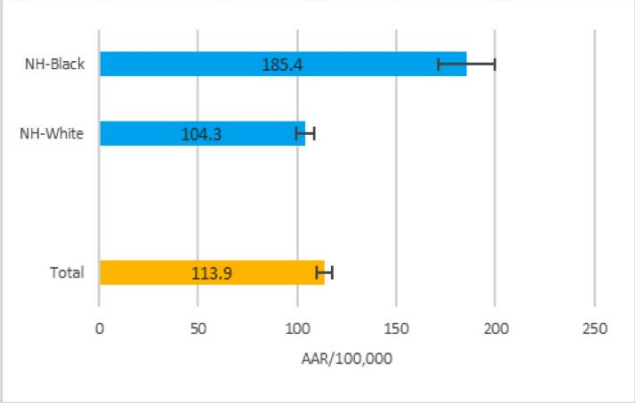
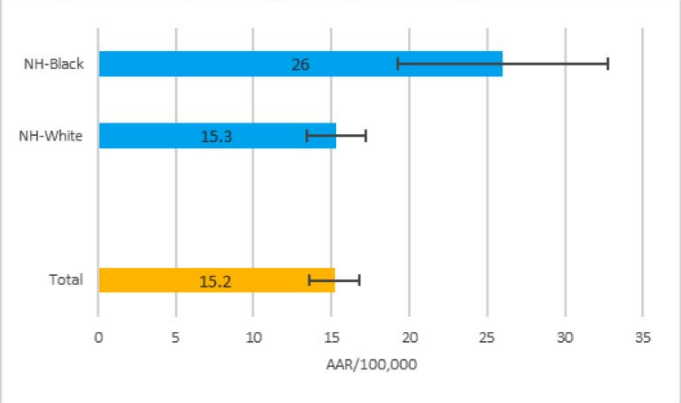
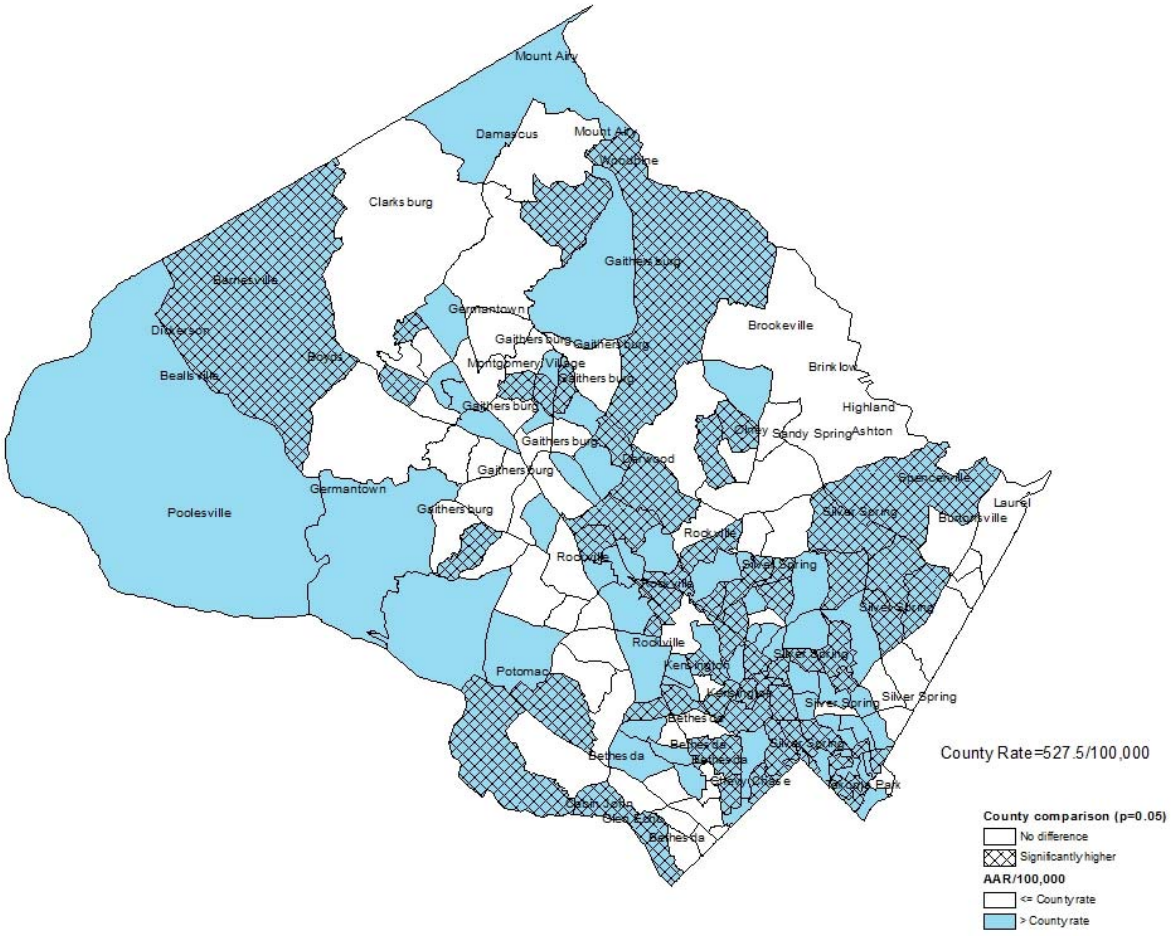


Fig. 94. Cancer Age-Adjusted Mortality Rates by Race, Prostate, Montgomery County, 2010-14



Map 12. Cancer Age-Adjusted Mortality Rates by Census Tract, Prostate, Montgomery County, 2008-16



- The overall incidence rate of melanoma of skin in Montgomery County followed similarly increasing trends in Maryland and the U.S. during 2008-2014; the rate for the County is consistently lower than in Maryland and the U.S. (Fig. 95).
- The mortality rate in the County followed similarly decreasing trends in Maryland and the U.S., though it fluctuated (Fig. 96).
- Males had both higher incidence and mortality than females (Fig. 97 & 98).

Fig. 95. Cancer Age-Adjusted Incidence Rates, Melanoma of Skin, Montgomery County, Maryland, and US, 2008-14

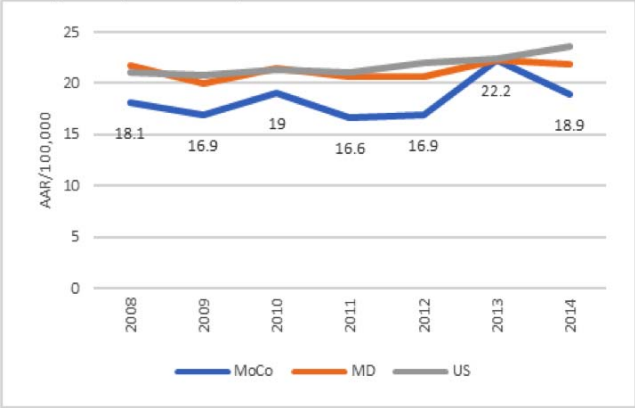


Fig. 96. Cancer Age-Adjusted Mortality Rates, Melanoma of Skin, Montgomery County, Maryland, and US, 2008-14

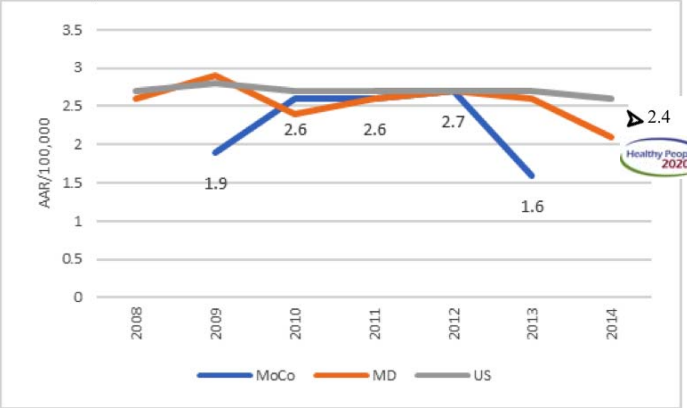


Fig. 97. Cancer Age-Adjusted Incidence Rates by Sex, Melanoma of Skin, Montgomery County, 2010-14

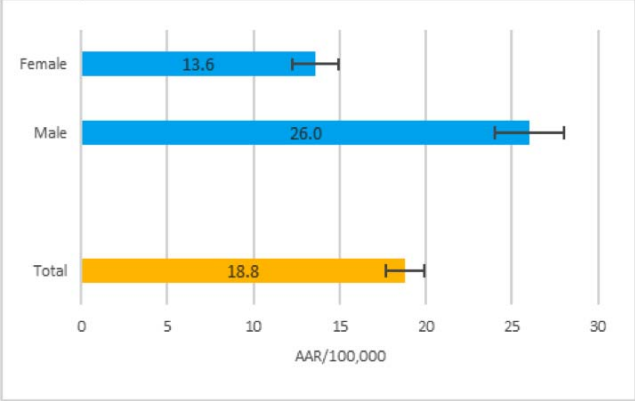
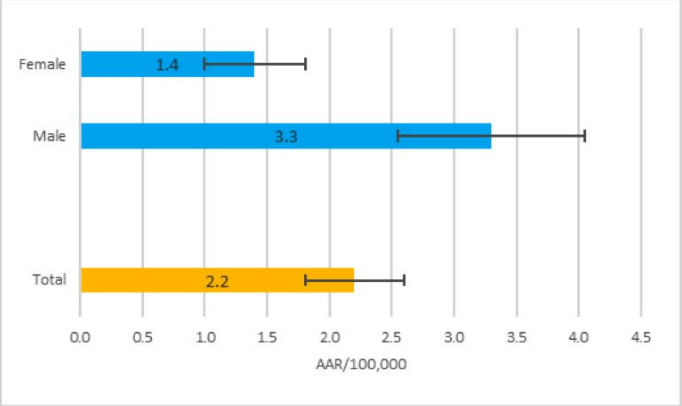


Fig. 98. Cancer Age-Adjusted Mortality Rates by Sex, Melanoma of Skin, Montgomery County, 2010-14



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

6.3% (95% CI: 4.8-7.8) adults age 18+ ever told have skin cancer in Montgomery County, as compared to 5.0% (95% CI: 4.4-5.5) in Maryland.

Diabetes Mellitus

Diabetes is a serious, costly, and increasingly common chronic disease. Early detection, improved delivery of care, and better self-management are the key strategies for preventing much of the burden of diabetes. Seven million persons aged 65 years or older (20.1% of all people in this age group) in the U.S. have diabetes, most of them type 2 diabetes.

- Diabetes mortality had an overall decreasing trend, similar to that in Maryland and the U.S.; the rate in the County was consistently lower than that of Maryland and the U.S. (Fig. 99).
- Among population subgroups, NH-Black had the highest rates among all groups; males had higher rates than females (Fig. 100).
- Diabetes disease mortality rates increase by age; people age 65 and older had the highest rate (Fig. 101).

Fig. 99. Diabetes Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2008-16

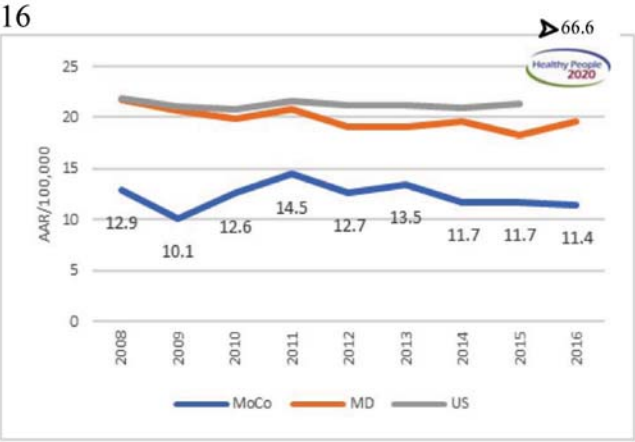


Fig. 100. Diabetes Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

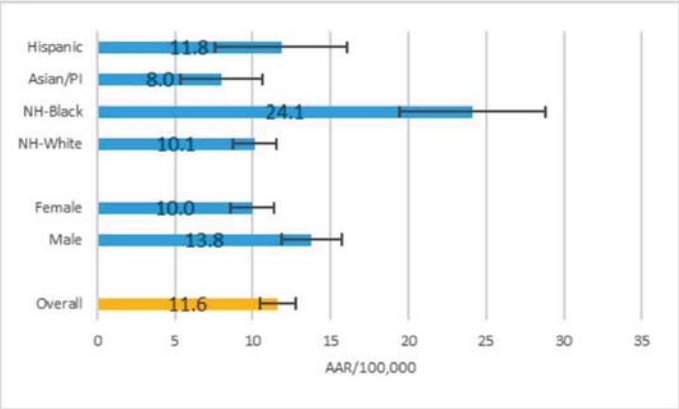
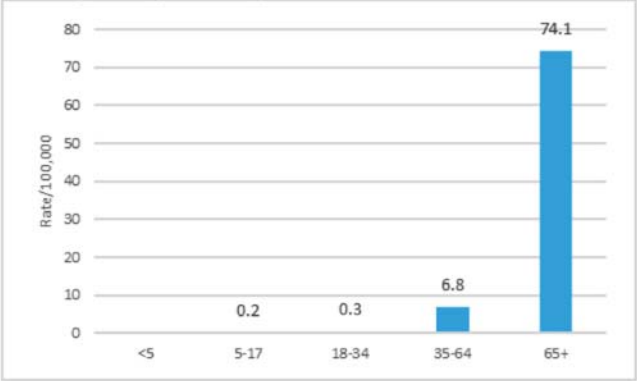


Fig. 101. Diabetes Mortality Rates by Age, Montgomery County, 2014-16



- Diabetes ER visit rates increased over time, similar to those in Maryland.; the rates in the County were consistently lower than Maryland (Fig. 102).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; males and females had similar rates (Fig. 103).
- Diabetes ER visits rates increased by age; people age 65 and older had the highest rate (Fig. 104).

Fig. 102. Diabetes Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

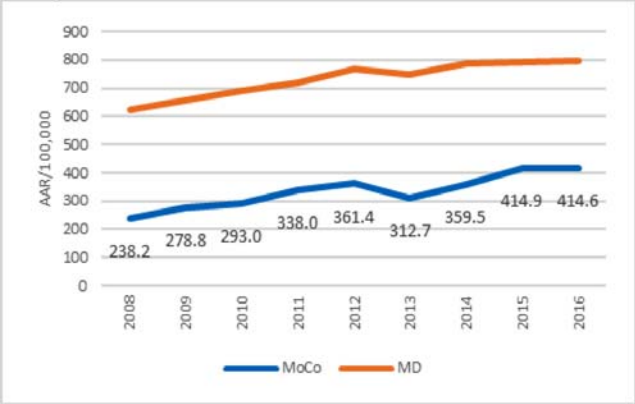


Fig. 103. Diabetes Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

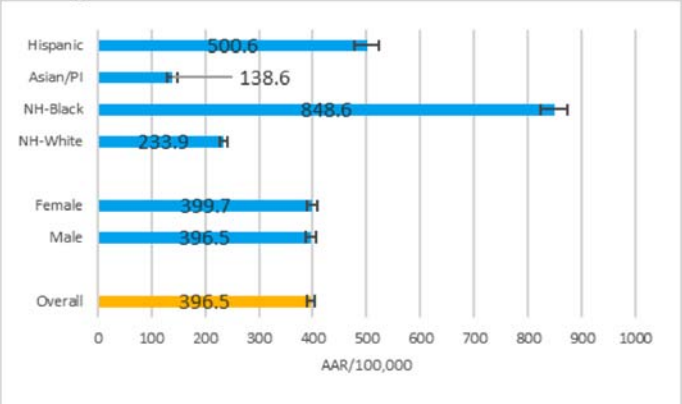
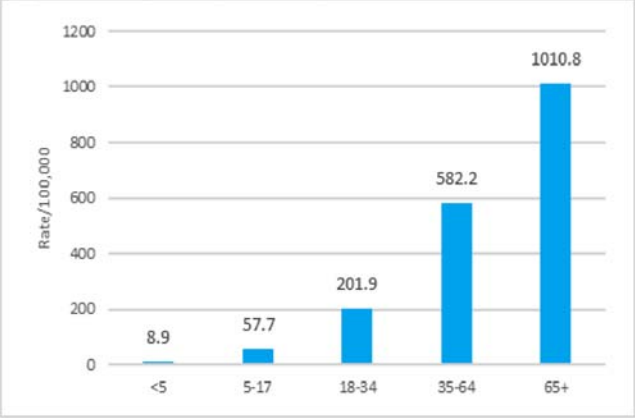
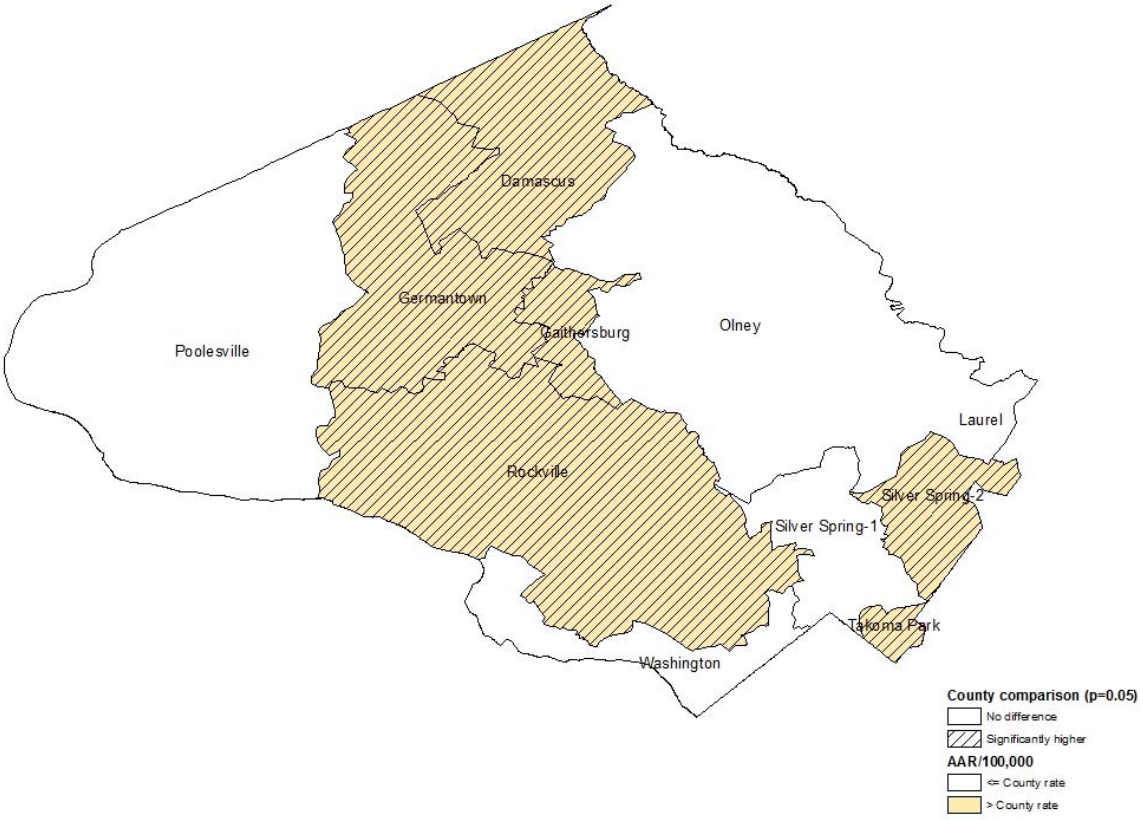


Fig. 104. Diabetes Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 13. Diabetes Related ER Visit Age-Adjusted Rates by PCSA,
Montgomery County, 2014-16



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

7.4% (95% CI: 5.6-9.2) adults age 18+ ever told have diabetes in Montgomery County, as compared to 10.4% (95% CI: 9.5-11.3) in Maryland.

V Infectious Diseases

Infectious diseases are disorders caused by organisms such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They are normally harmless or even helpful, but under certain conditions, some organisms may cause disease. Some infectious diseases can be passed from person to person. Some are transmitted by bites from insects or animals; others are acquired by ingesting contaminated food or water or through environmental exposures. Signs and symptoms vary depending on the organism causing the infection, but often include fever and fatigue. Mild infections may respond to rest and home remedies, while some life-threatening infections may require hospitalization. Many infectious diseases, such as measles and chickenpox, can be prevented by vaccines. Frequent and thorough hand-washing also helps protect against many infectious diseases [26].

Reportable Diseases

- Campylobacteriosis had an increasing trend in Montgomery County, the rate in the County was consistently higher than for Maryland (Fig. 105).
- Salmonellosis had an increasing trend in Montgomery County, though fluctuated. The County rate was consistently lower than that of Maryland and the U.S. (Fig. 106).
- Vibriosis rates in Montgomery County fluctuated over time, and were lower than in Maryland but higher than the U.S. (Fig. 107).
- Legionellosis had an increasing trend in Montgomery County. The rates were consistently lower than in Maryland but higher than the U.S. (Fig. 108).
- Pertussis had a decreasing trend in Montgomery County, the rates were consistently higher than in Maryland but lower than the U.S. (Fig. 109).
- Rabies infection rates in animals fluctuated over time in Montgomery County; the rates were consistently lower than in Maryland but higher than the U.S. (Fig. 110).
- Lyme Disease infection rates fluctuated over time in Montgomery County, the rates were consistently lower than in Maryland but higher than the U.S. (Fig. 111).
- Shiga Toxin Producing E. Coli infection rates fluctuated over time in Montgomery County; the rates were consistently lower than in Maryland and the U.S. (Fig. 112).

Fig. 105. Incidence Rates, Campylobacteriosis, Montgomery County, Maryland, 2012-16

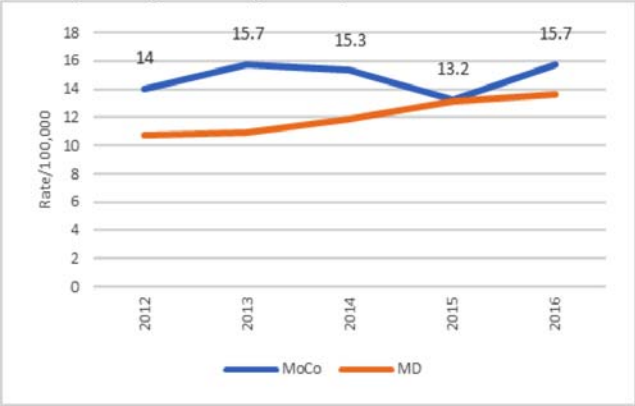


Fig. 106. Incidence Rates, Salmonellosis, Montgomery County, Maryland, and U.S., 2012-16

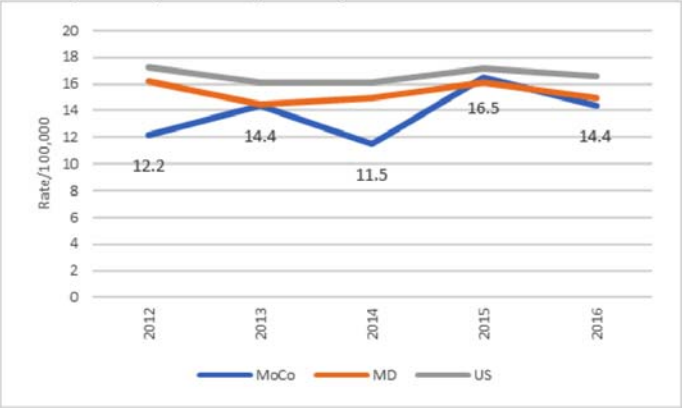


Fig. 107. Incidence Rates, Vibriosis, Montgomery County, Maryland, and U.S., 2012-16

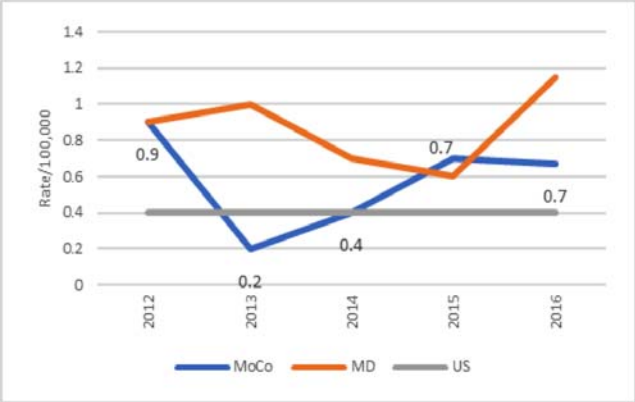


Fig. 108. Incidence Rates, Legionellosis, Montgomery County, Maryland, and U.S., 2012-16

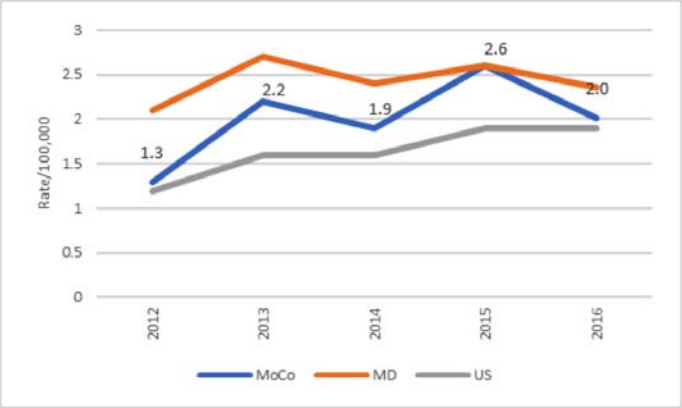


Fig. 109. Incidence Rates, Pertussis, Montgomery County, Maryland, and U.S., 2012-16

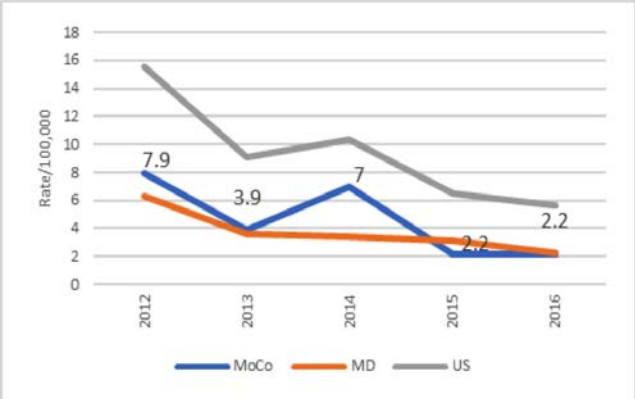


Fig. 110. Incidence Rates, Rabies-Animal, Montgomery County, Maryland, and U.S., 2012-16

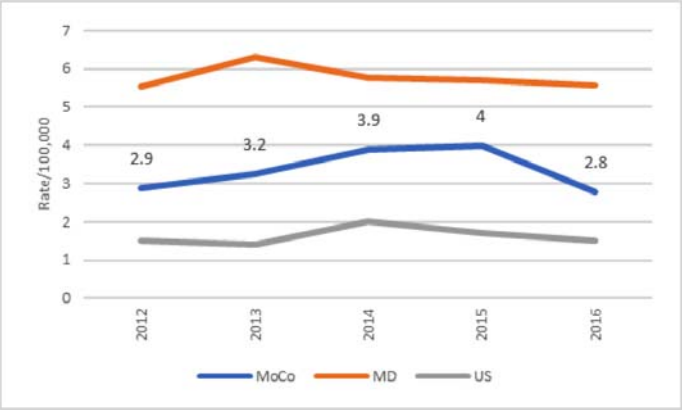


Fig. 111. Incidence Rates, Lyme Disease, Montgomery County, Maryland, and U.S., 2012-16

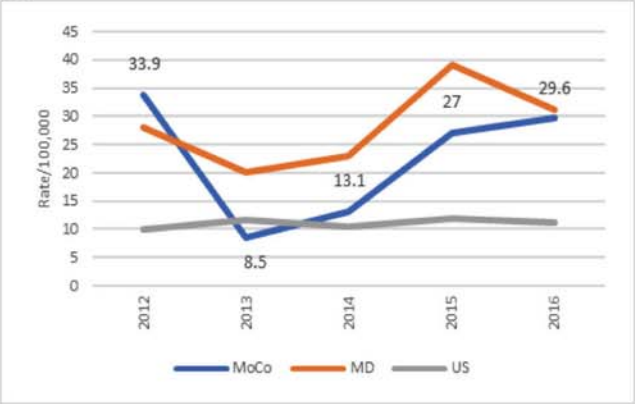


Fig. 112. Incidence Rates, Shiga Toxin Producing E. Coli, Montgomery County, Maryland, and U.S., 2012-16

Tuberculosis

- Tuberculosis rates fluctuated over time in Montgomery County; the rates were consistently higher than Maryland and the U.S. (Fig. 113).
- Among population subgroups, Asian/PI had the highest tuberculosis rates, followed by NH-Black, NH-White, and Hispanic; males have higher rates than females (Fig. 114).
- Age 65+ had the highest Tuberculosis rates, followed by age 18-34, and age 35-64 (Fig. 115).

Fig. 113. Incidence Rates, Tuberculosis, Montgomery County, Maryland, and U.S., 2012-16

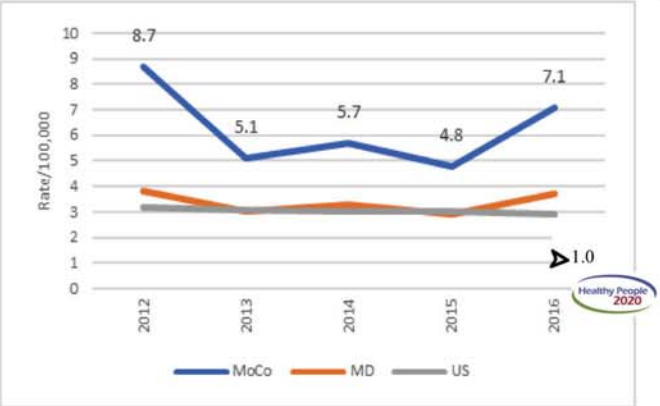


Fig. 114. Incidence Rates by Sex and Race/Ethnicity, Tuberculosis, Montgomery County, 2012-16

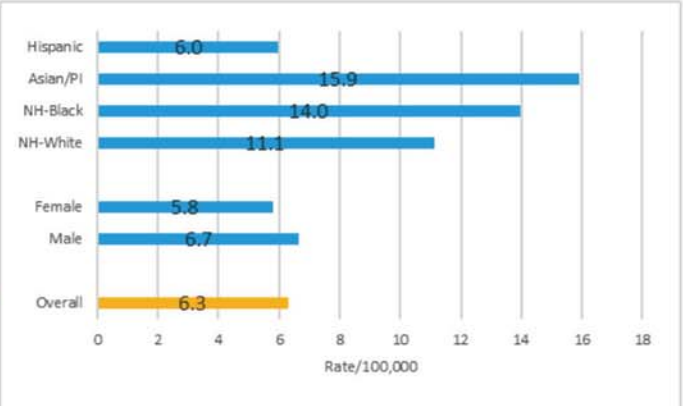
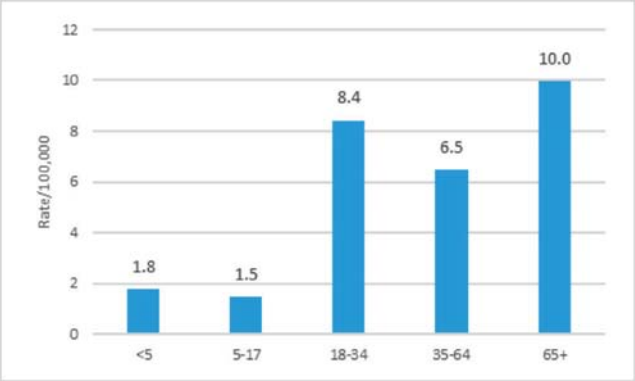


Fig. 115. Incidence Rates by Age, Tuberculosis, Montgomery County, Maryland, and U.S., 2012-16



Sexually Transmitted Infections (STI)

Table 21. Incidence by Sex and Race/Ethnicity, Selected Infectious Diseases, Montgomery County, 2014-16

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
Chlamydia	9,166	2,869	6,297	534	1,223	134	760
Gonorrhea	1,364	906	458	83	404	21	94
Syphilis	102	99	3	30	38	6	11
HIV	492	309	183	71	292	N/A	155

- Chlamydia infection rates increased over time in Montgomery County; however, the rates in the County were consistently lower than in Maryland and the U.S. (Fig. 116).
- Among population subgroups, NH-Black had the highest chlamydia infection rates, followed by Hispanic, NH-White and Asian/PI; females had higher rates than males (Fig. 117).
- Ages 20-24 had the highest chlamydia infection rates, followed by ages 15-19, and ages 25-44 (Fig. 118).

Fig. 116. Incidence Rates, Chlamydia, Montgomery County, Maryland, and U.S., 2012-16

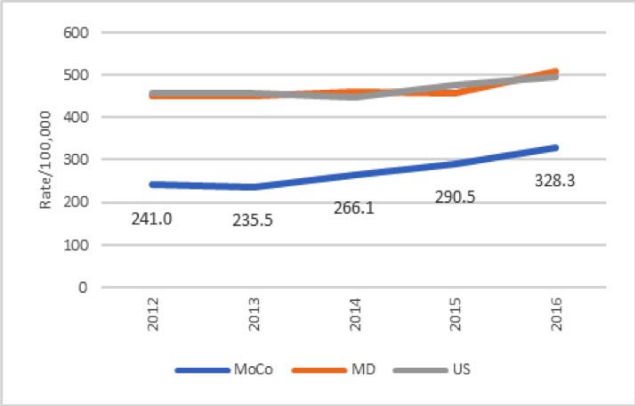


Fig. 117. Incidence Rates by Sex and Race/Ethnicity, Chlamydia, Montgomery County, 2012-16

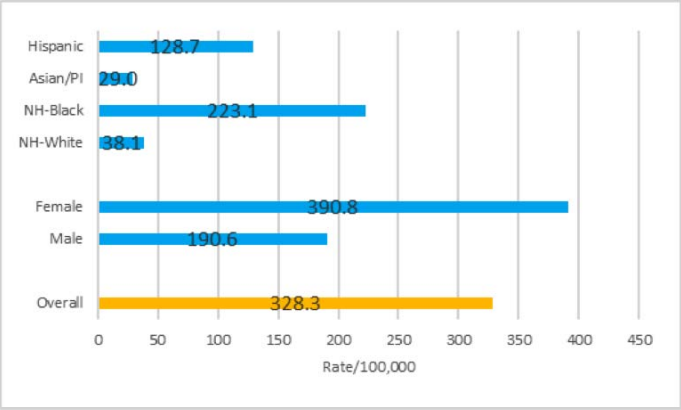
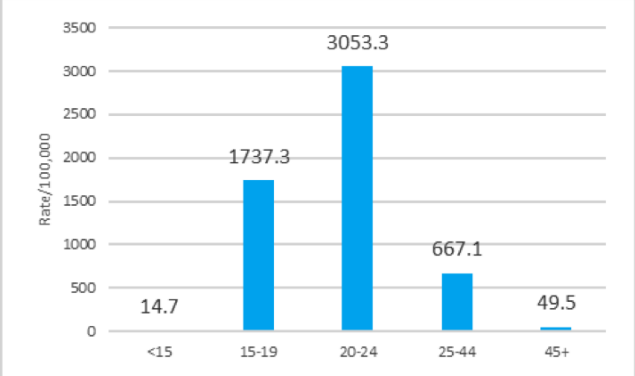
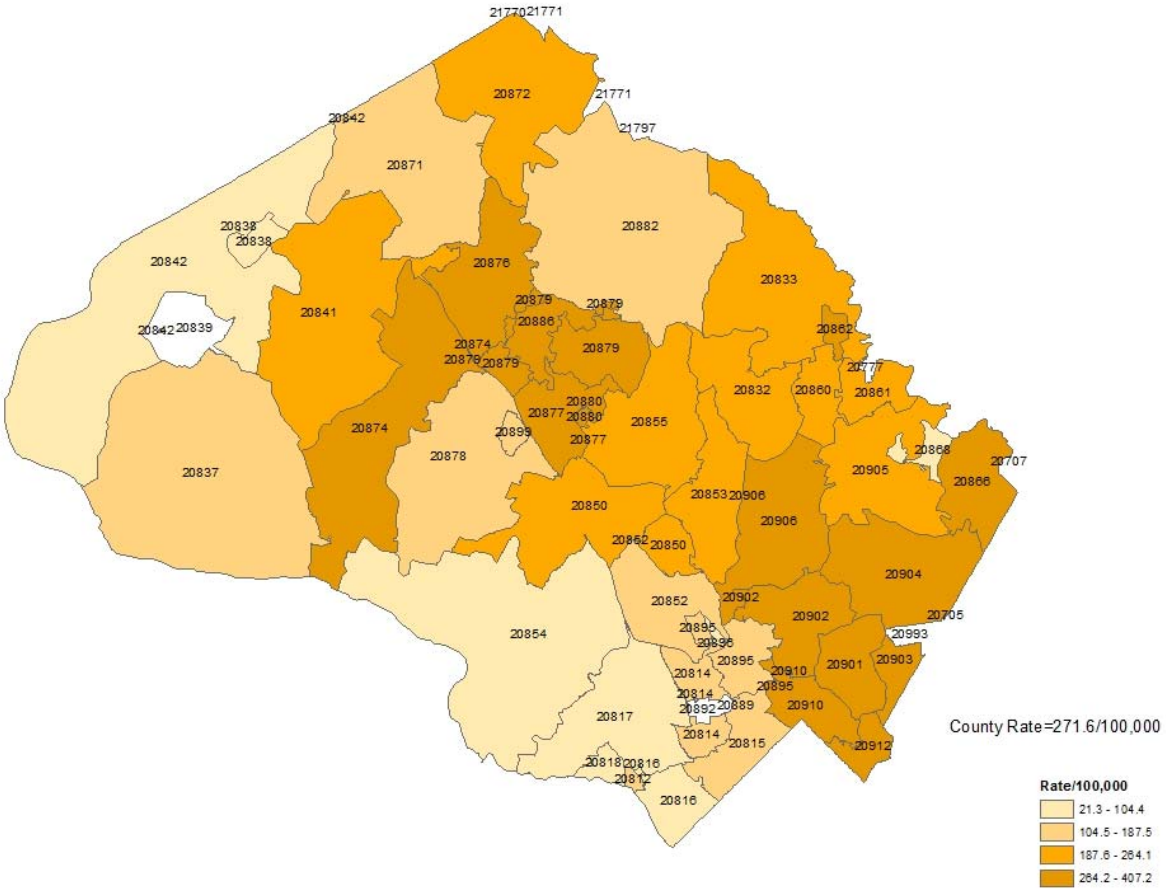


Fig. 118. Incidence Rates by Age, Chlamydia, Montgomery County, 2012-16



Map 14. Incidence Rates by Zip Code, Chlamydia,
Montgomery County, 2012-16



- Gonorrhea infection rates had an overall increase over time in Montgomery County, similar to that in Maryland and the U.S.; however, the rates in the County were consistently lower than Maryland and the U.S. (Fig. 119).
- Among population subgroups, NH-Black had the highest gonorrhea rates, followed by Hispanic, NH-White and Asian/PI; males have higher rates than females (Fig. 120).
- Age 20-24 had the highest gonorrhea rates, followed by age 15-19, and age 25-44 (Fig. 121).

Fig. 119. Incidence Rates, Gonorrhea, Montgomery County, Maryland, and U.S., 2012-16

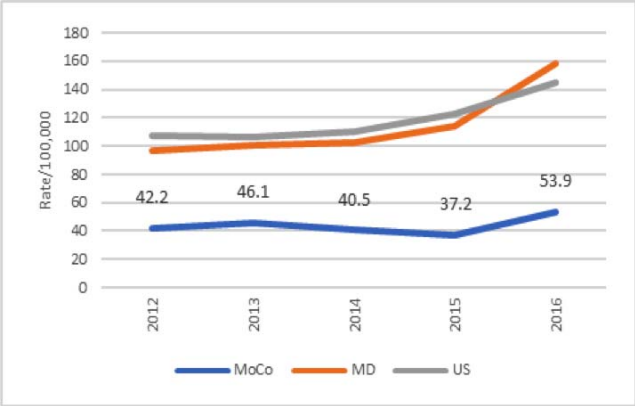


Fig. 120. Incidence Rates by Sex and Race/Ethnicity, Gonorrhea, Montgomery County, 2012-16

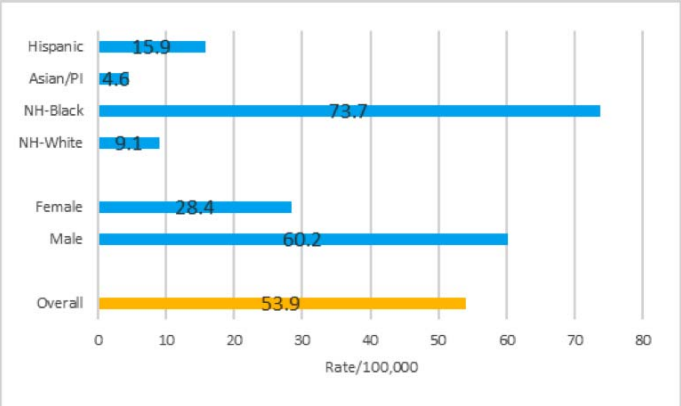
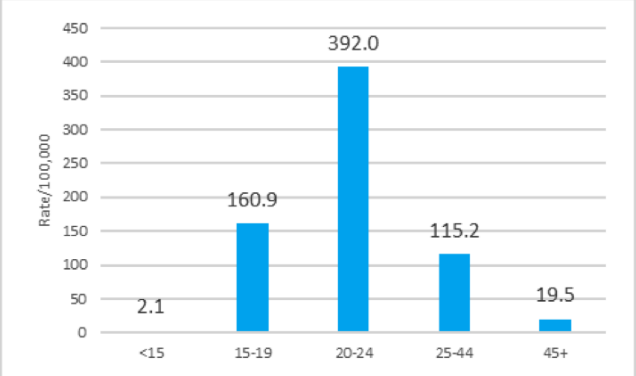
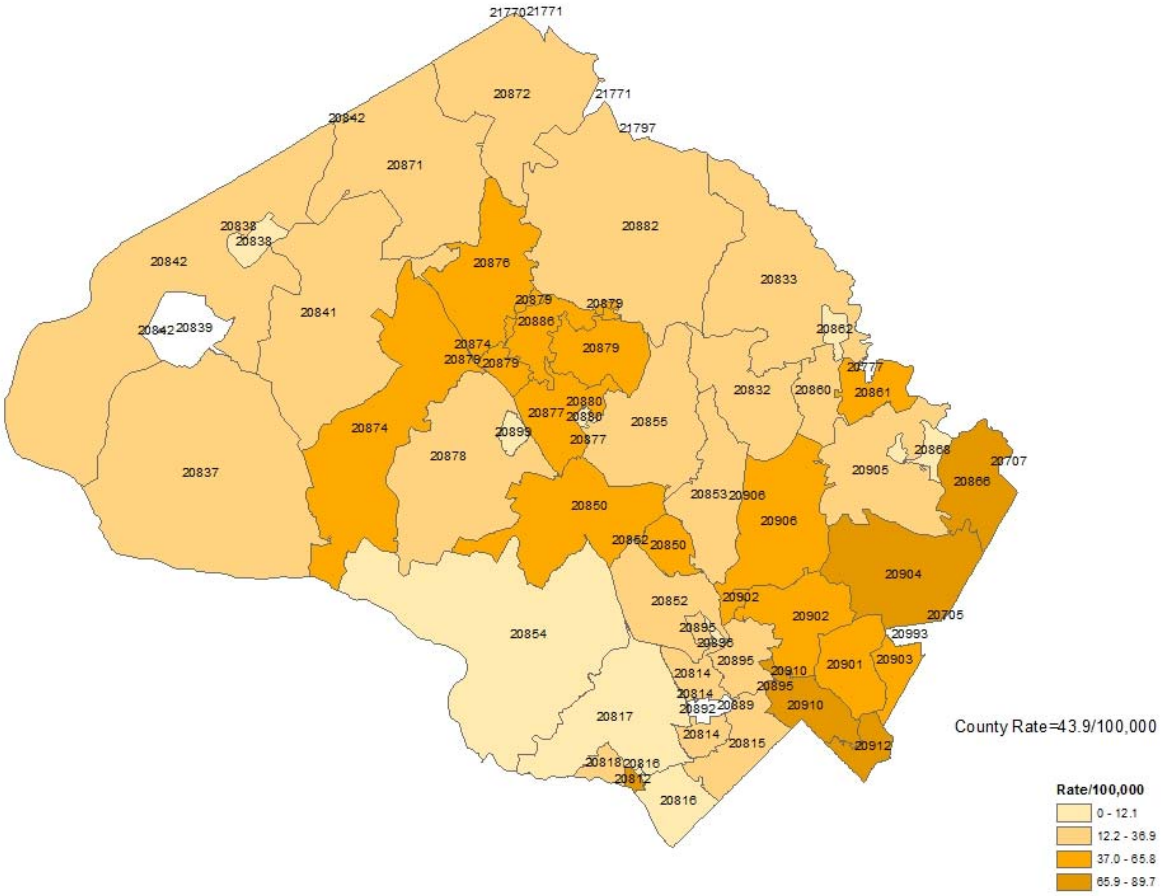


Fig. 121. Incidence Rates by Age, Gonorrhea, Montgomery County, 2012-16



Map 15. Incidence Rates by Zip Code, Gonorrhea,
Montgomery County, 2012-16



- Syphilis infection rates increased over time in Montgomery County, similar to those in Maryland and the U.S.; however, the rates in the County were consistently lower than Maryland and the U.S. (Fig. 122).
- Among population subgroups, NH-Black had the highest syphilis infection rates, followed by NH-White, Hispanic, and Asian/PI; males had much higher rates than females (Fig. 123).
- Ages 25-44 had the highest syphilis rates, followed by age 20-24, age 45+, and age 15-19 (Fig. 124).

Fig. 122. Incidence Rates, Syphilis, Montgomery County, Maryland, and U.S., 2012-16

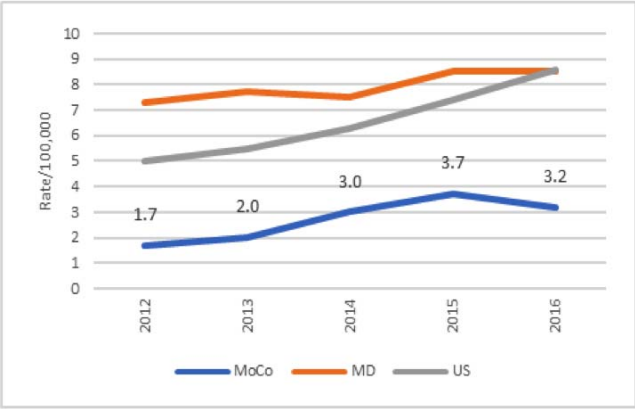


Fig. 123. Incidence Rates by Sex and Race/Ethnicity, Syphilis, Montgomery County, 2012-16

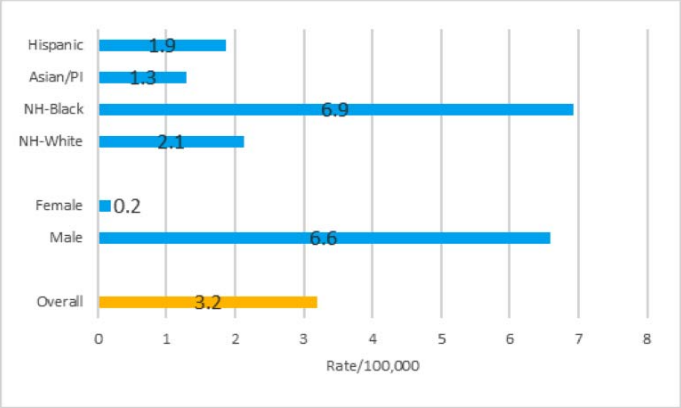
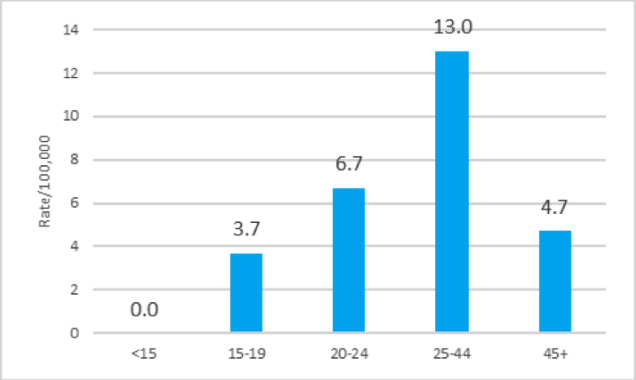


Fig. 124. Incidence Rates by Age, Syphilis, Montgomery County, 2012-16



Healthy People 2020

251.9 new Gonorrhea cases per 100,000 female population 15-44 yrs old
194.8 new Gonorrhea cases per 100,000 male population 15-44 yrs old
1.3 new Syphilis cases per 100,000 female population
6.7 new Syphilis cases per 100,000 male population

HIV

- HIV rates decreased over time in Montgomery County, similar to those in Maryland and the U.S.; the rates in the County were consistently lower than Maryland but higher than the U.S. (Fig. 125).
- Among population subgroups, NH-Black had the highest HIV rates, followed by Hispanic, and NH-White; females had higher rates than males (Fig. 126).

Fig. 125. Incidence Rates, HIV, Montgomery County, Maryland, and U.S., 2012-16

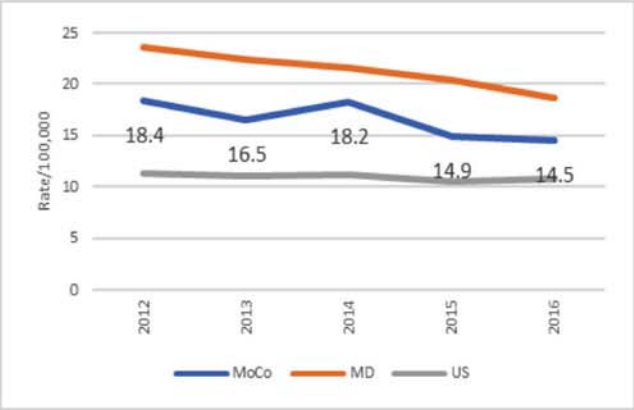
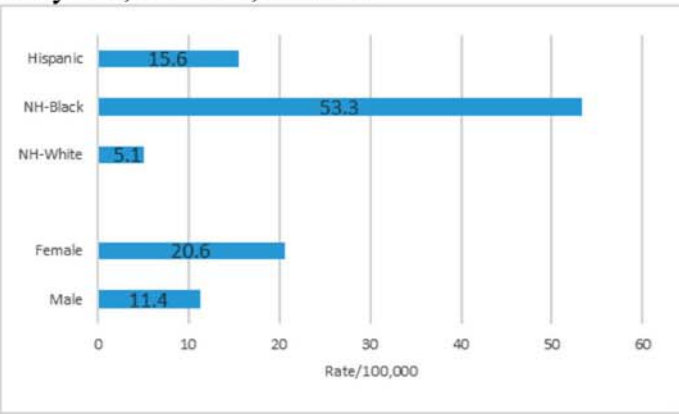


Fig. 126. Incidence Rates by Sex and Race/Ethnicity, HIV, Montgomery County, Maryland, and U.S., 2012-16



Immunization

- Maryland had higher coverage rates for all required childhood immunizations than the U.S.; data at the County level are not available (Table 22).
- Maryland had lower coverage rates for HPV immunization among adolescents aged 13-17 years old than the U.S. since 2014; data at the County level are not available (Table 23).
- Among population subgroups, Hispanic group had the highest coverage for adolescent HPV immunization, followed by NH-Black, Asian/PI, and NH-White (Table 23).

Table 22. Immunization Coverage for Selected Vaccines by Age 24 Months, Maryland and U.S., 2014

	3+DTaP	3+Polio	1+MMR	3+Hib	3+HepB	1+Var	3+PCV	1+HepA	Rotavirus	Combined 3-vaccine series
MD	96.9±2.9	96.8±2.9	94.5±3.3	96.9±2.9	92.4±4.0	92.6±4.4	93.3±4.7	86.2±5.7	81.9±6.6	81.5±7.1
US	94.0±0.8	92.5±0.9	89.5±1.0	91.9±0.9	90.9±0.9	88.9±1.0	92.1±0.9	81.6±1.2	71.7±1.6	78.5±1.3

Table 23. Coverage with >=1 HPV Vaccine for Adolescents Aged 13-17 Years, Maryland and U.S., 2014-16

		2013	2014	2015	2016
MD		45.7 (44.3-47.1)	50.6 (49.3-52.0)	56.1 (54.9-57.4)	60.4 (59.2-61.6)
US	All	42.0 (34.5-49.8)	52.3 (45.3-59.1)	60.3 (53.7-66.7)	64.5 (58.1-70.5)
	NH-White				54.7 (53.3-56.1)
	NH-Black				65.9 (62.6-69.2)
	Asian/PI				62.5 (55.9-69.1)
	Hispanic				69.8 (66.7-72.9)

- Source: National Immunization Survey (NIS), Center for Disease Control and Prevention https://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/index.html

50.7% (95% CI: 45.8-55.6) adults age 18+ have flu vaccination in last 12 months in Montgomery County, as compared to 42.9% (95% CI: 40.9-44.8) in Maryland.

VI Behavioral Health

Behavioral health refers to a person's state of being and how their behaviors and choices affect their overall health and wellness. Substance abuse and addictions of all kinds fall into the realm of behavioral health. Mental health refers as a person's psychological, emotional, and social wellbeing. While some mental health issues may be impacted by behavior, many mental health disorders have neurological or biological causes that may not be cured by changing the person's behavior. Behavioral health overlaps with mental health, and although each has its own definitions [27-29], we cover the topic of mental health under the bigger umbrella of behavioral health in this report.

Mental Health

Table 24. Any Mental Illness in the Past Year among Adults Aged 18 or Older, Montgomery County, Maryland, and U.S., 2010-14

	2010-12		2012-14		
	%	95% CI	%	95% CI	P
MoCo	17.89	(14.74-21.55)	16.23	(13.73-19.09)	0.28
MD	17.37	(15.48-19.43)	16.8	(15.02-18.73)	0.55
US	18.13	(17.79-18.48)	18.39	(18.07-18.72)	0.17

* Source: National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA) https://www.samhsa.gov/data/population-data-nsduh/reports?tab=38

- Mental health related ER visit rates in the County increased during 2008-2016, which is consistent with those in Maryland; rates in the County were consistently lower than in Maryland (Fig. 127).
- Among population subgroups, NH-Black had the highest rates, followed by NH-White, Hispanic, and Asian/PI; females had higher rates than males (Fig. 128).
- People aged 18-34 had the highest ER visit rate, followed by ages 5-17, and 5-64 (Fig. 129).

Fig. 127. Mental Health Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

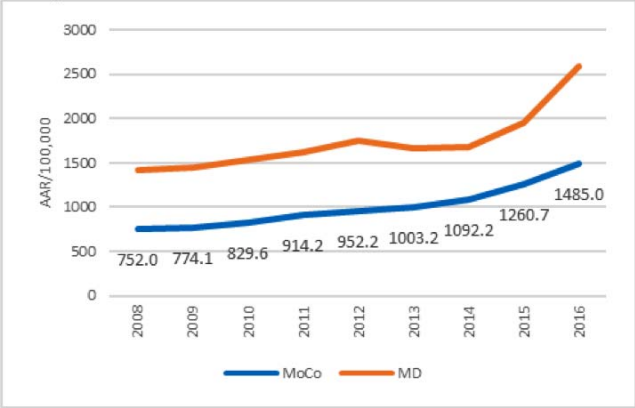


Fig. 128. Mental Health Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

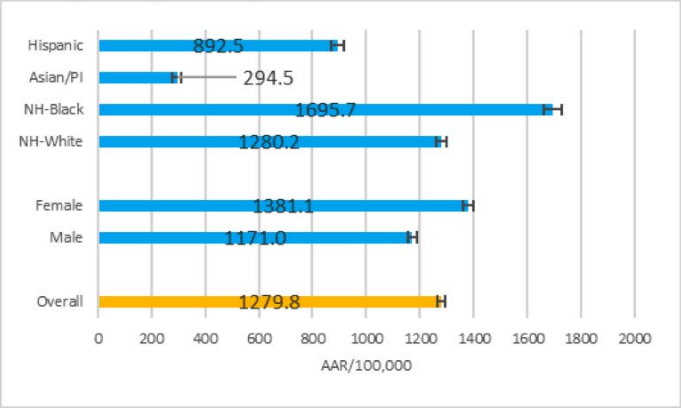
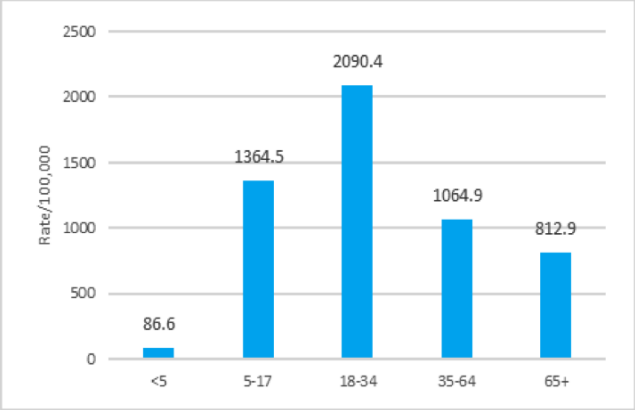
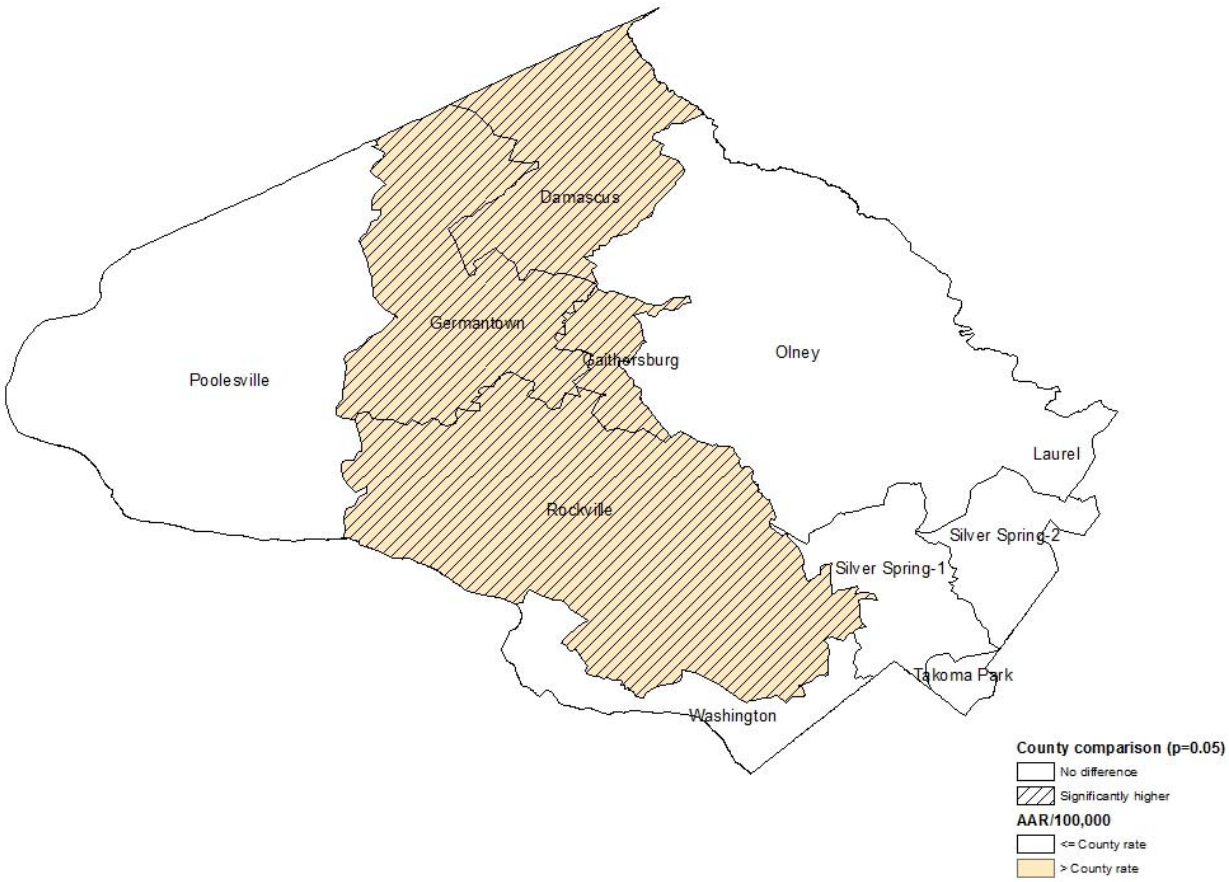


Fig. 129. Mental Health Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 16. Mental Health Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



MARYLAND BRFSS Behavioral Risk Factor Surveillance System

16.3% (95% CI: 12.8-19.8) of adults age 18+ had ever been told they have depressive disorder in Montgomery County, as compared to 16.3% (95% CI: 15.0-17.7) in Maryland

12.3% (95% CI: 7.8-16.8) of adults age 18+ had ever been told they had anxiety disorder in Montgomery County, as compared to 13.5% (95% CI: 11.8-15.2) in Maryland

2.8% (95% CI: 1.3-4.4) of adults age 18+ had not had good mental health in at least the previous 30 days in Montgomery County, as compared to 4.5% (95% CI: 3.8-5.3) in Maryland

5.8% adults aged 18+ experienced a major depressive episode

Substance Abuse

Table 25. Illicit Drug Use in the Past Month among Individuals Aged 12 or Older, Montgomery County, Maryland, and U.S., 2010-14

	2010-12		2012-14		
	%	95% CI	%	95% CI	P
MoCo	7.03	(5.40-9.11)	8.91	(6.86-11.51)	0.02
MD	7.56	(6.53-8.74)	9.69	(8.47-11.05)	<0.01
US	8.9	(8.68-9.12)	9.58	(9.36-9.79)	<0.01

* Source: National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA)
https://www.samhsa.gov/data/population-data-nsduh/reports?tab=38

Table 26. Percent High School Students Ever Taken a Prescription Drug without Prescription, Montgomery County, Maryland, and U.S., 2013-14

	2013		2014	
	%	95% CI	%	95% CI
MoCo	14.1	(12.1-16.1)	12.5	(10.7-14.2)
MD	15.2	(14.6-15.8)	14.2	(13.7-14.8)
US	17.8	(15.8-19.8)	16.8	(15.4-18.2)

Table 27. Percent High School Students Ever Used Needle to Inject Illegal Drug, Montgomery County, Maryland, and U.S., 2013-14

	2013		2014	
	%	95% CI	%	95% CI
MoCo	3.1	(2.5-3.7)	2.9	(2.3-3.4)
MD	3.9	(3.6-4.2)	3.6	(3.3-3.8)
US	1.7	(1.2-2.2)	1.8	(1.3-2.3)

* Source: Maryland Youth Risk Behavior Survey (YRBS)
https://phpa.health.maryland.gov/ccdpc/Reports/Pages/yrbs.aspx

- Drug-induced mortality rates in the County had an increasing trend during 2008-2016 (Fig. 130), which is consistent with that in Maryland and the U.S.
- Among population subgroups, NH-White had the highest rate among all groups; males had higher rates than females (Fig. 131).
- People ages 18-34 had the highest mortality rate, followed by age 35-64 (Fig. 132).

Fig. 130. Drug-induced Age-Adjusted Mortality Rates, Montgomery County, 2008-16

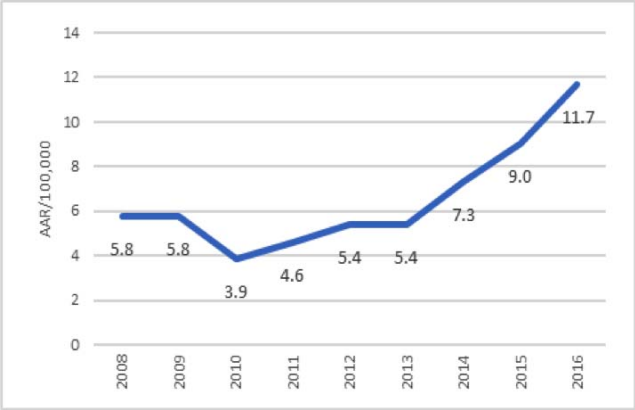


Fig. 131. Drug-induced Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

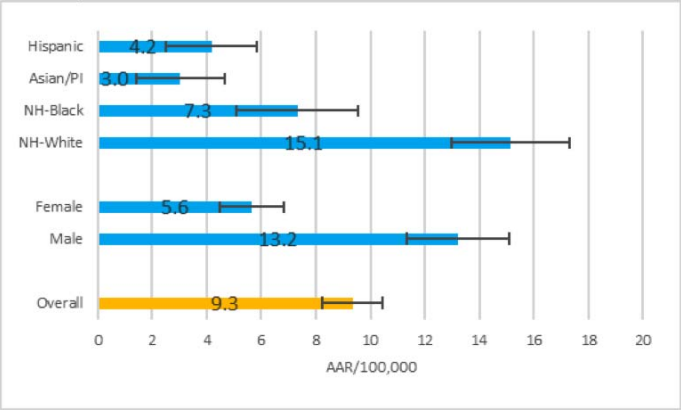
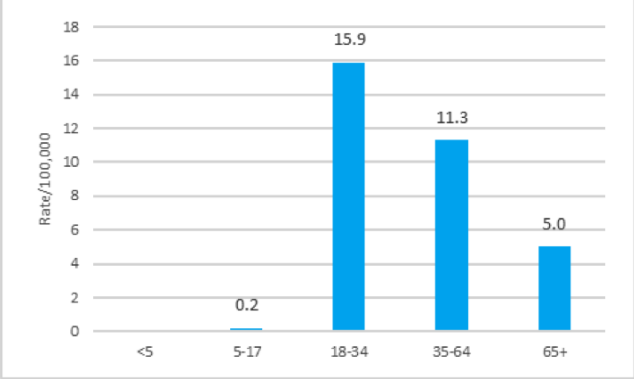
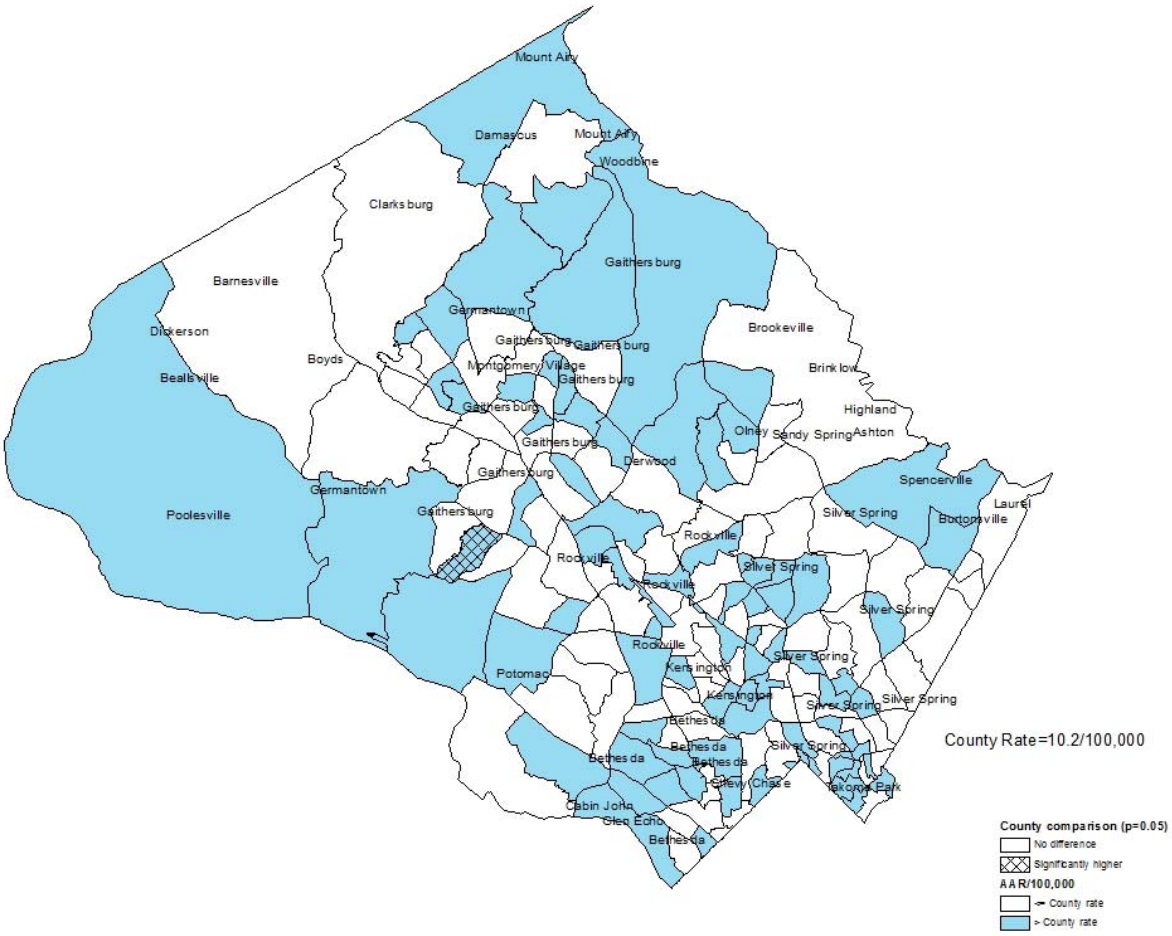


Fig. 132. Drug-induced Mortality Rates by Age, Montgomery County, 2014-16



Map 17. Drug-induced Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



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- Substance abuse related ER visit rates increased overall, which is consistent with those in Maryland; the rates in the County were consistently lower than in Maryland (Fig. 133).
- Among population subgroups, NH-Black had the highest rate, followed by NH-White and Hispanic, and Asian/PI; males had higher rates than females (Fig. 134).
- People ages 18-34 had the highest ER visit rate, followed by ages 35-64 (Fig. 135).

Fig. 133. Substance Abuse Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

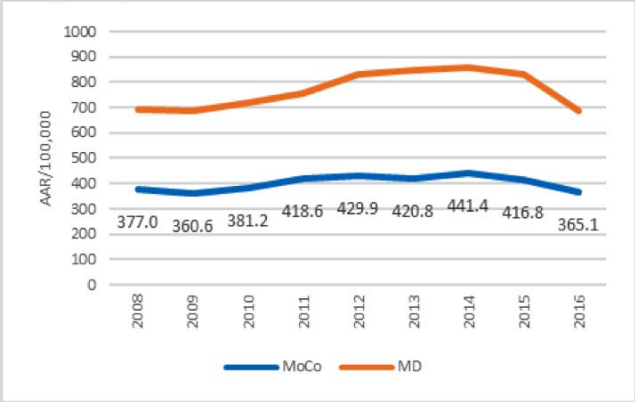


Fig. 134. Substance Abuse Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

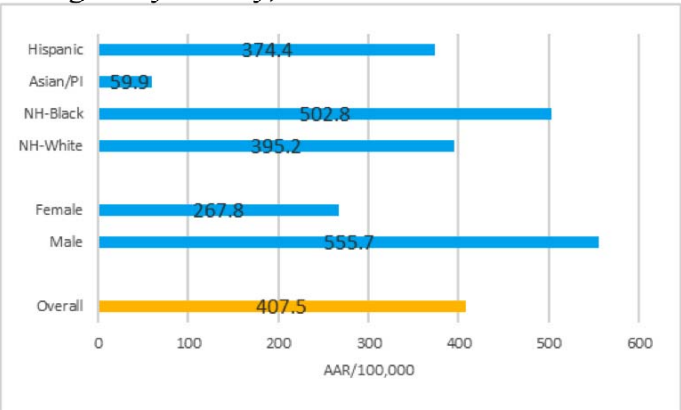
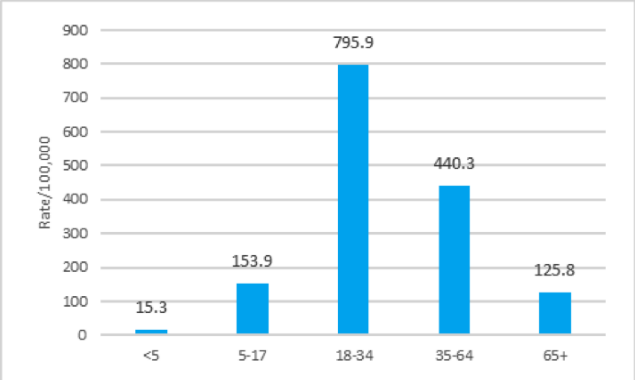
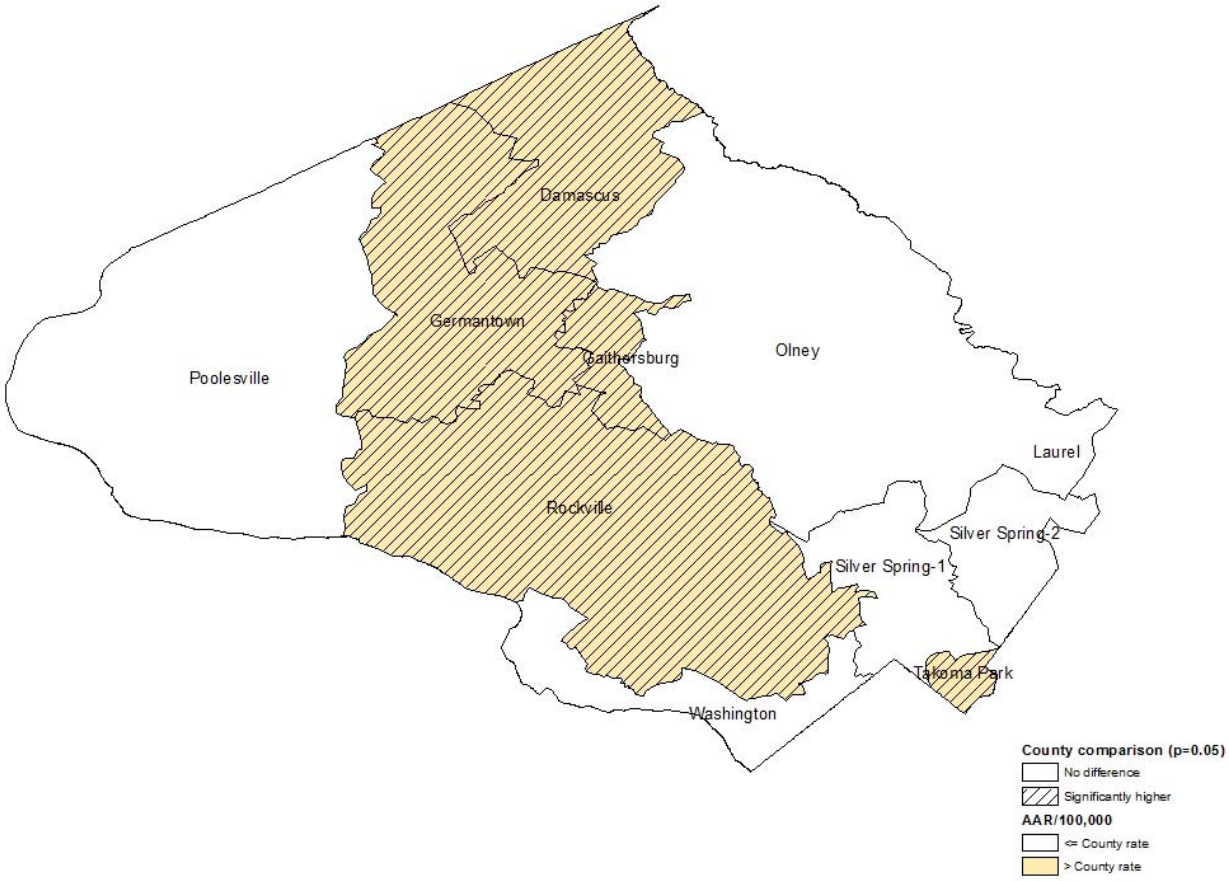


Fig. 135. Substance Abuse Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 18. Substance Abuse Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



3.2% (95% CI: 1.8-4.7) of adults age 18+ had chronic drinking (Men who drink more than 2 alcoholic beverages per day, or women who drink more than 1 alcoholic beverage per day) in Montgomery County, as compared to 4.9% (95% CI: 4.0-5.8) in Maryland

12.3% (95% CI: 8.6-16.0) of adults age 18+ engaged in binge drinking (Men who have 5+ drinks per occasion, or women who have 4+ drinks per occasion) in Montgomery County, as compared to 14.2% (95% CI: 12.7-15.7) in Maryland

Table 28. Drug and Alcohol Related Intoxication Deaths, Montgomery County, 2012-16

	2012	2013	2014	2015	2016
Total Intoxication	48	52	65	70	102
Heroin	22	28	33	37	48
Opioid (prescription)	18	16	19	23	26
Fentanyl			8	17	43
Cocaine	12	13	10	5	11
Benzodiazepine	4	4	10	7	7
Alcohol	15	13	18	15	22

* Source: Overdose Death Report, Maryland Department of Health
https://bha.health.maryland.gov/OVERDOSE_PREVENTION/Pages/Data-and-Reports.aspx

Suicide

Table 29. Had Serious Thoughts of Suicide in the Past Year among Adults Aged 18 or Older, Montgomery County, Maryland, and U.S., 2010-14

	2010-12		2012-14		
	%	95% CI	%	95% CI	P
MoCo	3.23	(2.37-4.38)	3.41	(2.62-4.42)	0.69
MD	3.38	(2.78-4.10)	3.57	(3.03-4.22)	0.53
US	3.78	(3.63-3.93)	3.91	(3.76-4.06)	0.13

* Source: National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA)
https://www.samhsa.gov/data/population-data-nsduh/reports?tab=38

Table 30. Percent High School Students Report Seriously Considering Suicide Past Year, Montgomery County, Maryland, and U.S., 2013-14

	2013		2014	
	%	95% CI	%	95% CI
MoCo	14.6	(12.4-16.8)	15.6	(14.3-16.9)
MD	16.0	(15.4-16.5)	15.9	(15.4-16.3)
US	17.0	(15.8-18.1)	17.1	(16.7-18.8)

* Source: Maryland Youth Risk Behavior Survey (YRBS)
https://phpa.health.maryland.gov/ccdpc/Reports/Pages/yrbs.aspx

- Suicide mortality rates in the County fluctuated during 2008-2016 (Fig. 136).
- Among population subgroups, NH-White had the highest rate among all groups; males had higher rates than females (Fig. 137).
- People aged 65+ had the highest suicide mortality rates, followed by age 35-46, and age 18-34 (Fig. 138).

Fig. 136. Suicide Related Age-Adjusted Mortality Rates, Montgomery County, 2008-16

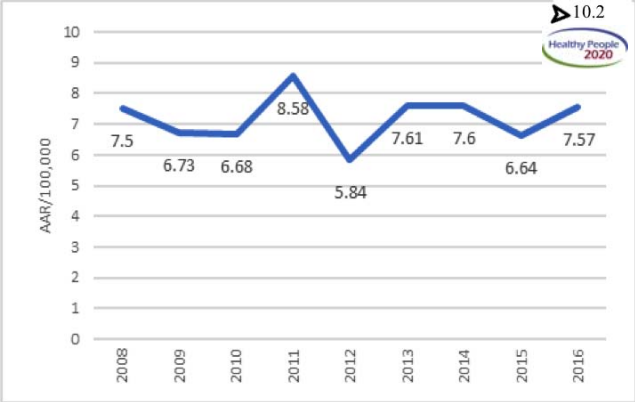


Fig. 137. Suicide Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

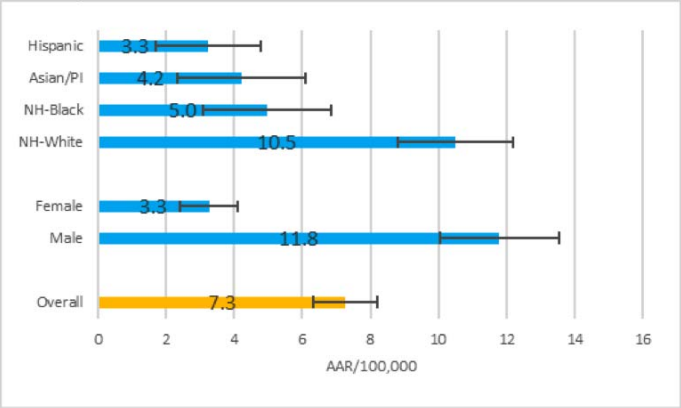
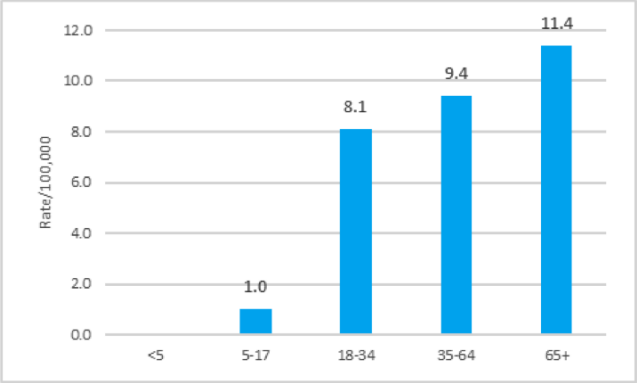
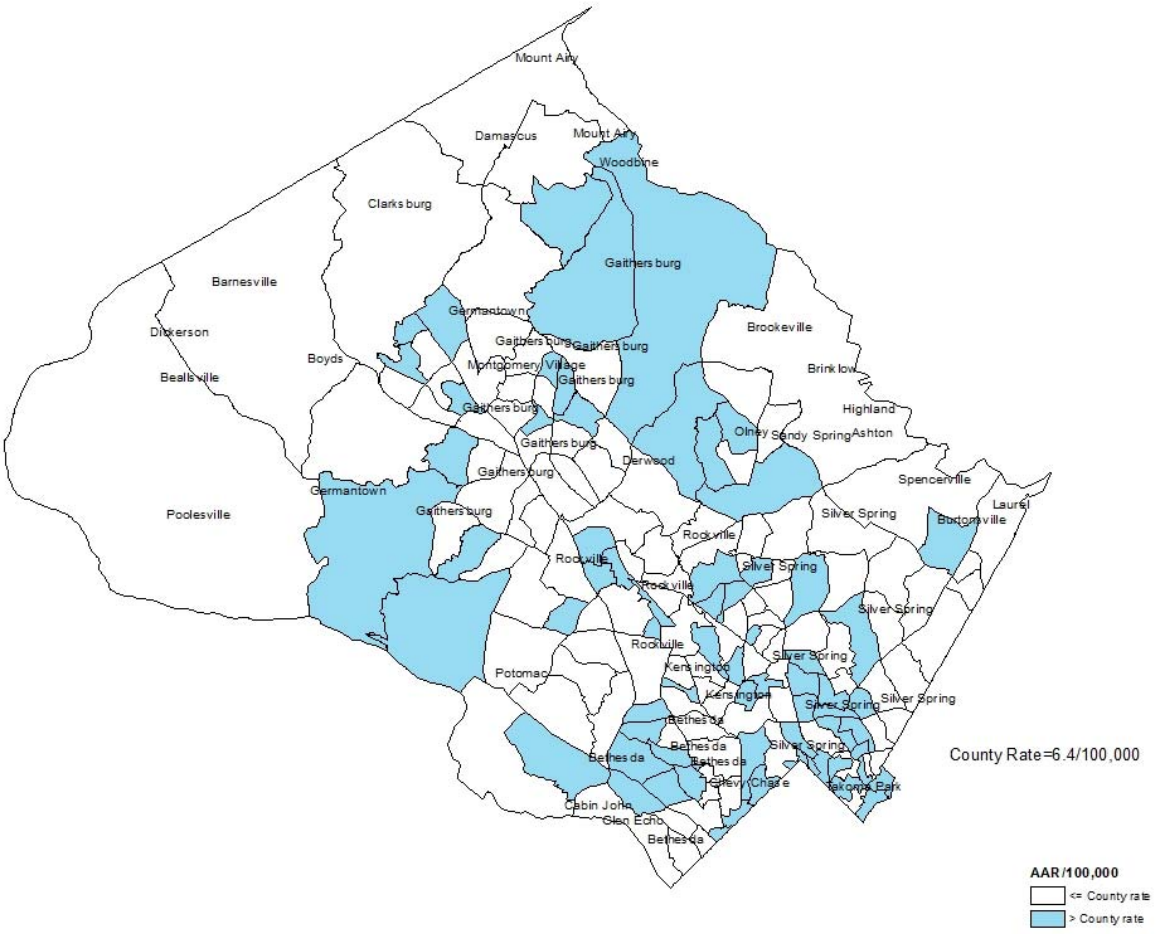


Fig. 138. Suicide Related Mortality Rates by Age, Montgomery County, 2014-16



Map 19. Suicide Related Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



- Suicide related hospitalization rates decreased during 2008-2016, similar to those in Maryland; rates in the County were consistently lower than in Maryland (Fig. 139).
- Among population subgroups, NH-White had the highest rate, followed by NH-Black and Hispanic; females had higher rates than males (Fig. 140).
- People aged 18-34 had the highest rate, followed by ages 35-44, and 5-17 (Fig. 141).

Fig. 139. Suicide Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

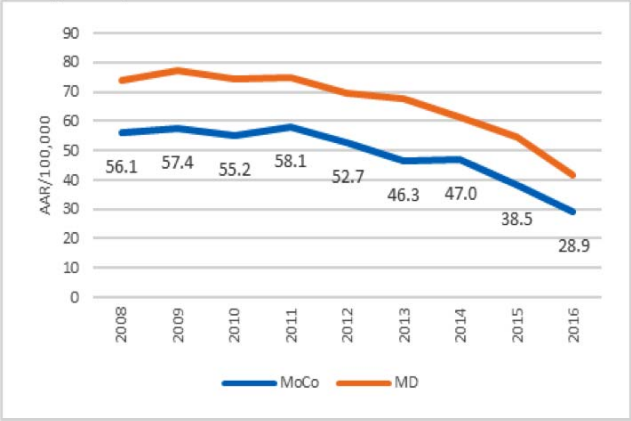


Fig. 140. Suicide Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

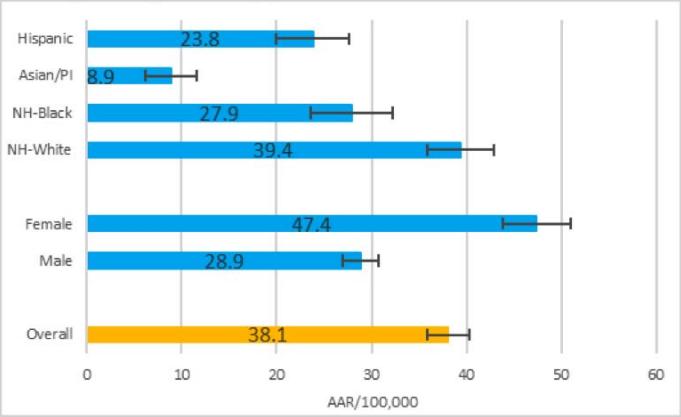
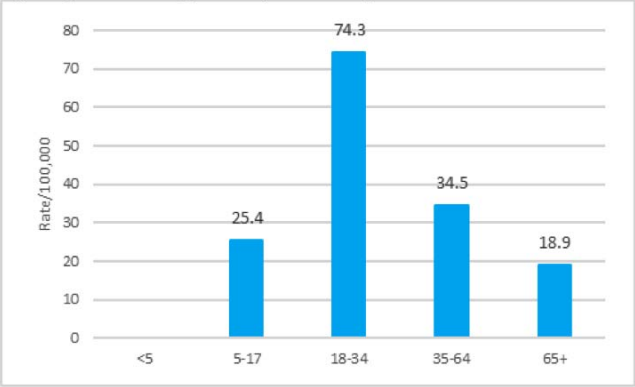
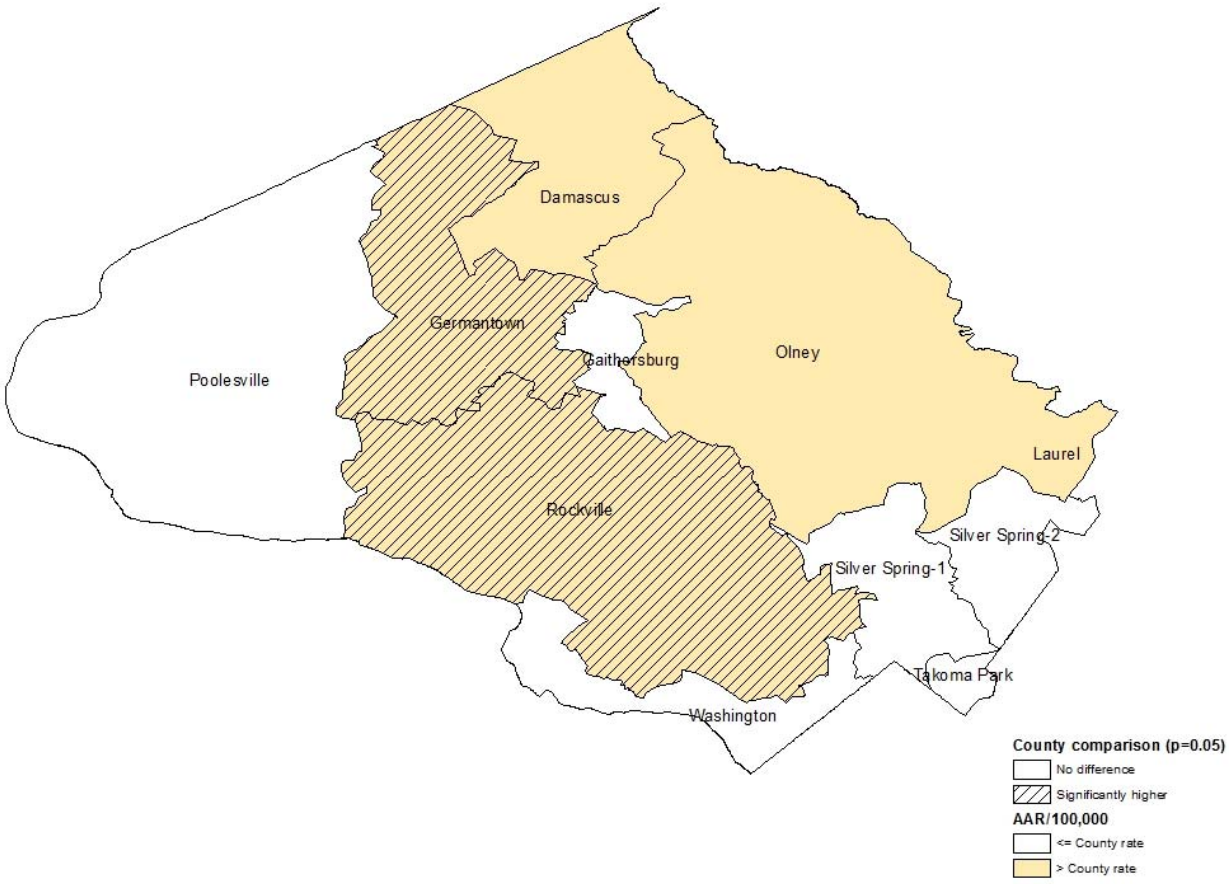


Fig. 141. Suicide Related Hospitalization Rates by Age, Montgomery County, 2014-16



Map 20. Suicide Related Hospitalization Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



- Suicide related ER visit rates increased during 2008-2016, similar to those in Maryland; rates in the County were consistently lower than in Maryland (Fig. 142).
- Among population subgroups, NH-White and NH-Black had higher rates than other groups, Asian/PI had the lowest rate; females had higher rates than males (Fig. 143).
- People aged 5-17 had the highest rates, followed by ages 18-34, and 35-64 (Fig. 144).

Fig. 142. Suicide Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

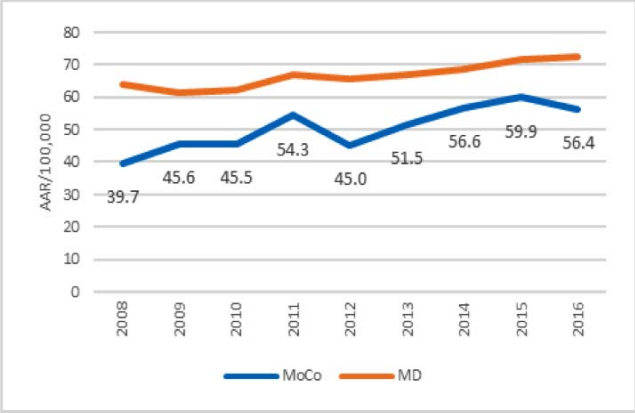


Fig. 143. Suicide Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

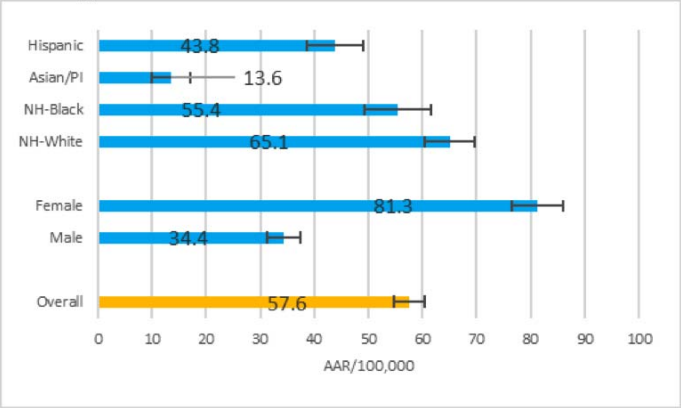
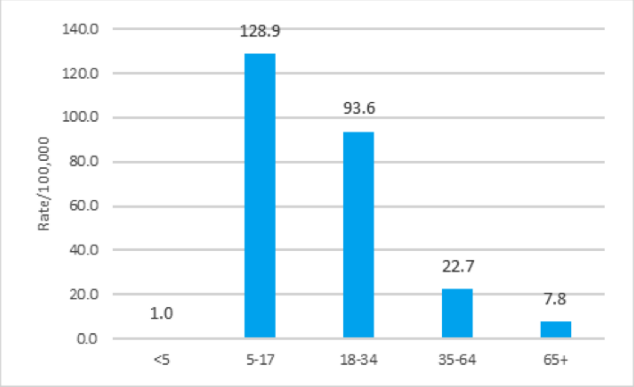
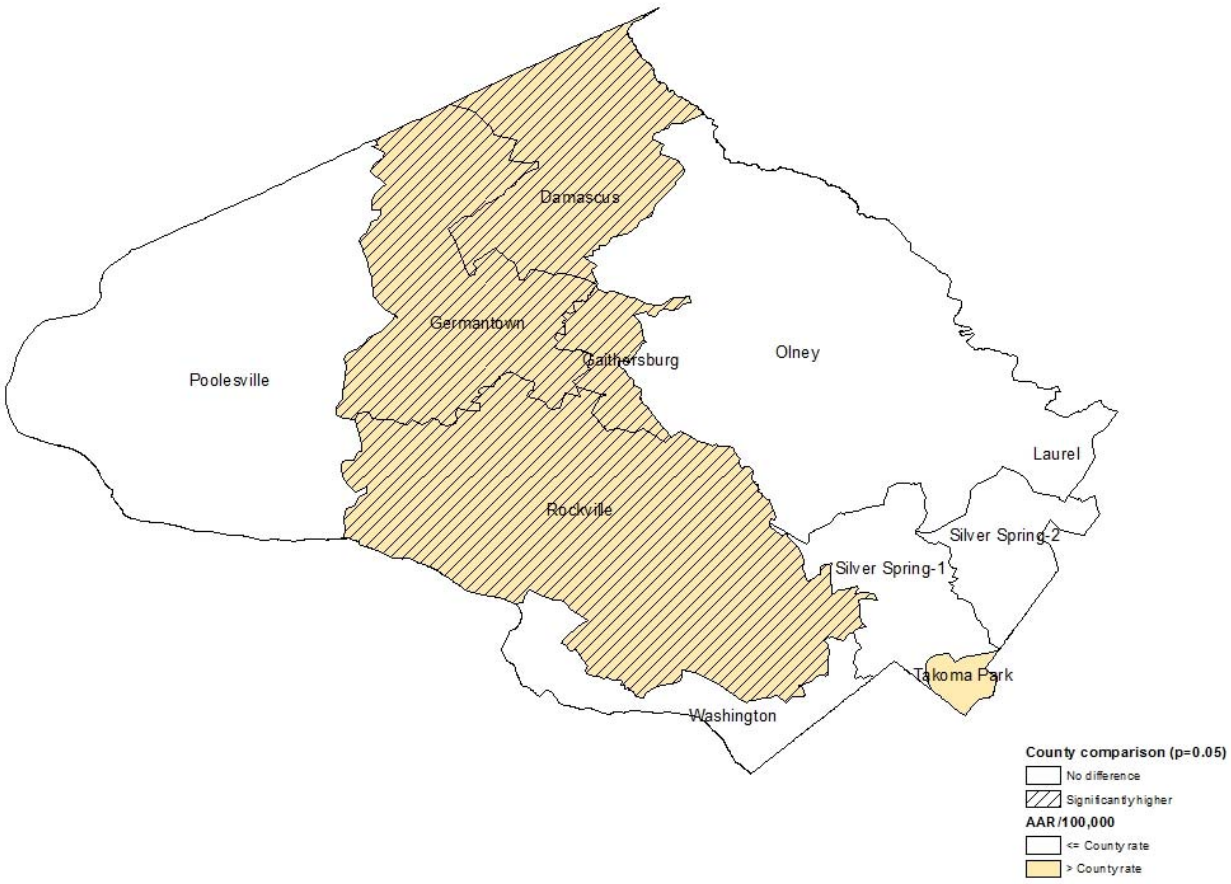


Fig. 144. Suicide Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 21. Suicide Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



1.7 suicide attempts per 100 population

VII Injuries

Injury is damage or harm to the body resulting in impairment or destruction of health. Injury includes trauma from motor vehicle crashes, crushing and piercing by machines, falls, poisoning, burns, suffocation, and drowning. It also includes intentional acts like homicide, suicide, and assault. Injuries remain one of the most important causes of preventable morbidity and mortality in Maryland and the U.S. In 2012, the burden and costs of injuries alone accounted for more than $1.1 billion in hospital and emergency department charges in Maryland. The burden of injury in Maryland amounted to 89,845 years of potential life lost (YPLL) in 2012. Forty-five percent of this was due to unintentional injuries, 18.6% due to homicides, and 14.8% due to suicides [30].

Table 31. Injury Related Mortality by Sex and Race/Ethnicity, Montgomery County, 2014-16

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
All Injuries	1,112	746	366	698	168	88	150
Motor Vehicle	141	104	37	62	31	17	29
Firearm	74	68	6	62	7	1	4
Fall	245	111	134	184	23	19	19

Overall Injury

- Overall injury mortality rates stayed consistent during 2008-2016 in the County, though fluctuated (Fig. 145).
- Among population subgroups, NH-White had the highest rate, followed by NH-Black and Hispanic, and Asian/PI; males had much higher rates than females (Fig. 146).
- People ages 65 and older had the highest rates as expected, followed by ages 18-34, and 35-64 (Fig. 147).

Fig. 145. Overall Injury Related Age-Adjusted Mortality Rates, Montgomery County, 2008-16

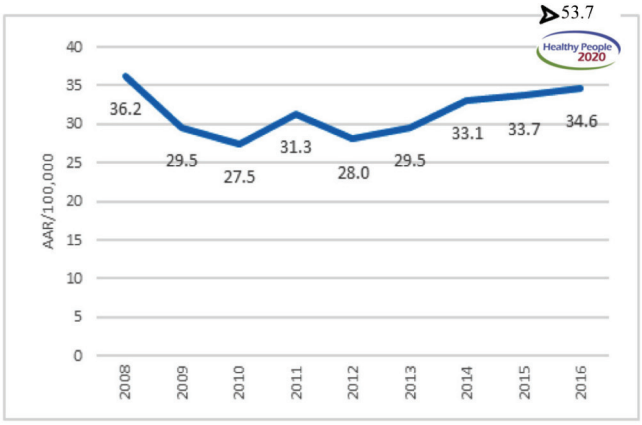


Fig. 146. Overall Injury Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

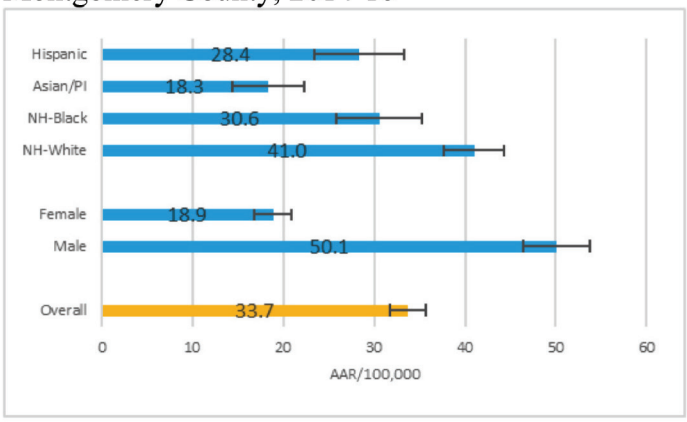
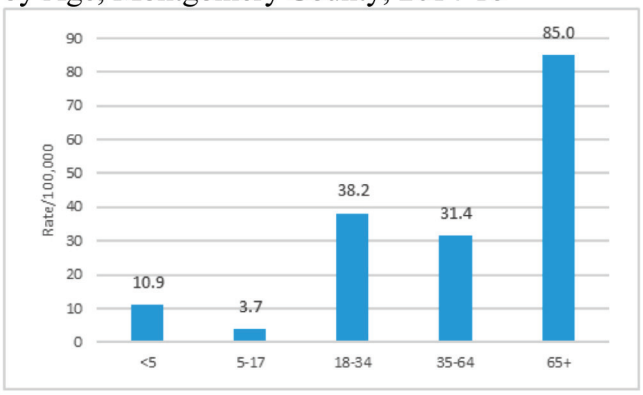
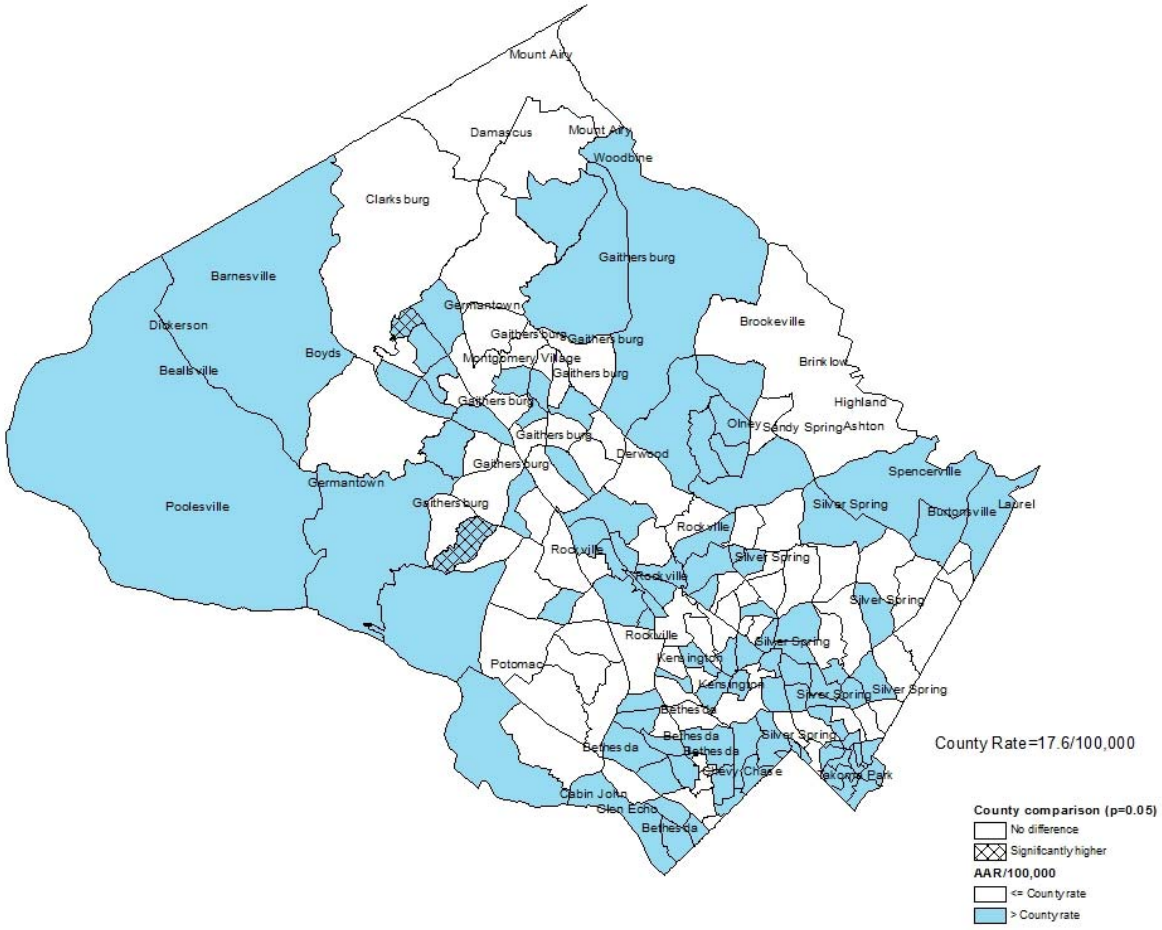


Fig. 147. Overall Injury Related Mortality Rates by Age, Montgomery County, 2014-16



Map 22. Overall Injury Related Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2014-16



- Overall injury hospitalization rates decreased in the County, consistent with those in Maryland; the rates in the County were consistently lower than in Maryland (Fig. 148).
- Among population subgroups, NH-Black had the highest rates, followed by NH-White, Hispanic, and Asian/PI; males had higher rates than females marginally (Fig. 149).
- People 65 and older had the highest rates, as expected (Fig. 150).

Fig. 148. Overall Injury Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

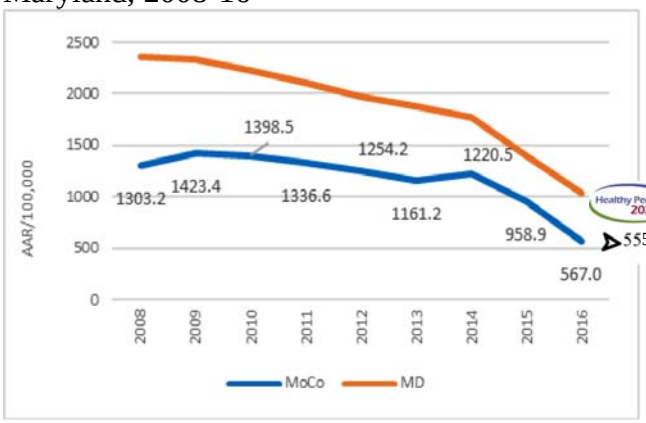


Fig. 149. Overall Injury Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

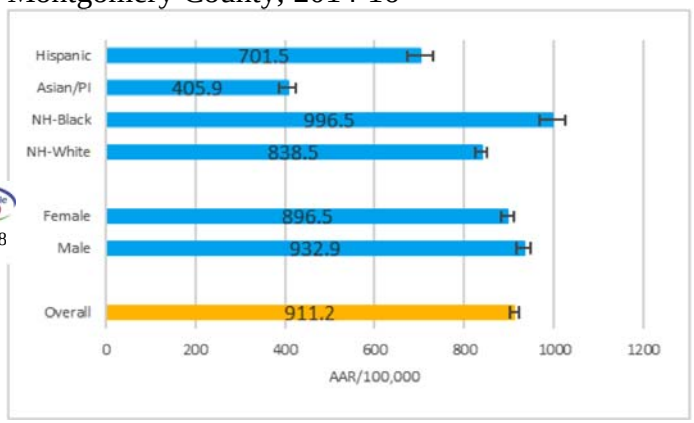
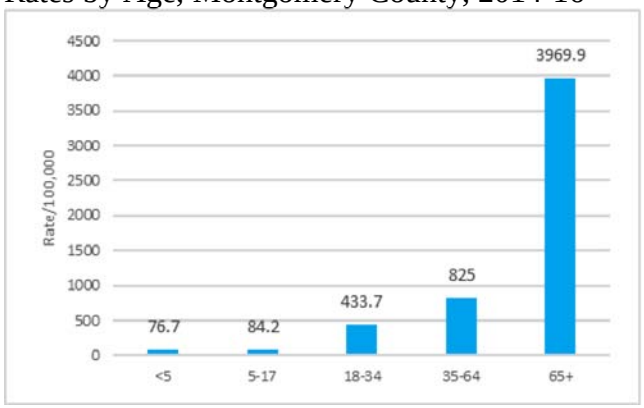
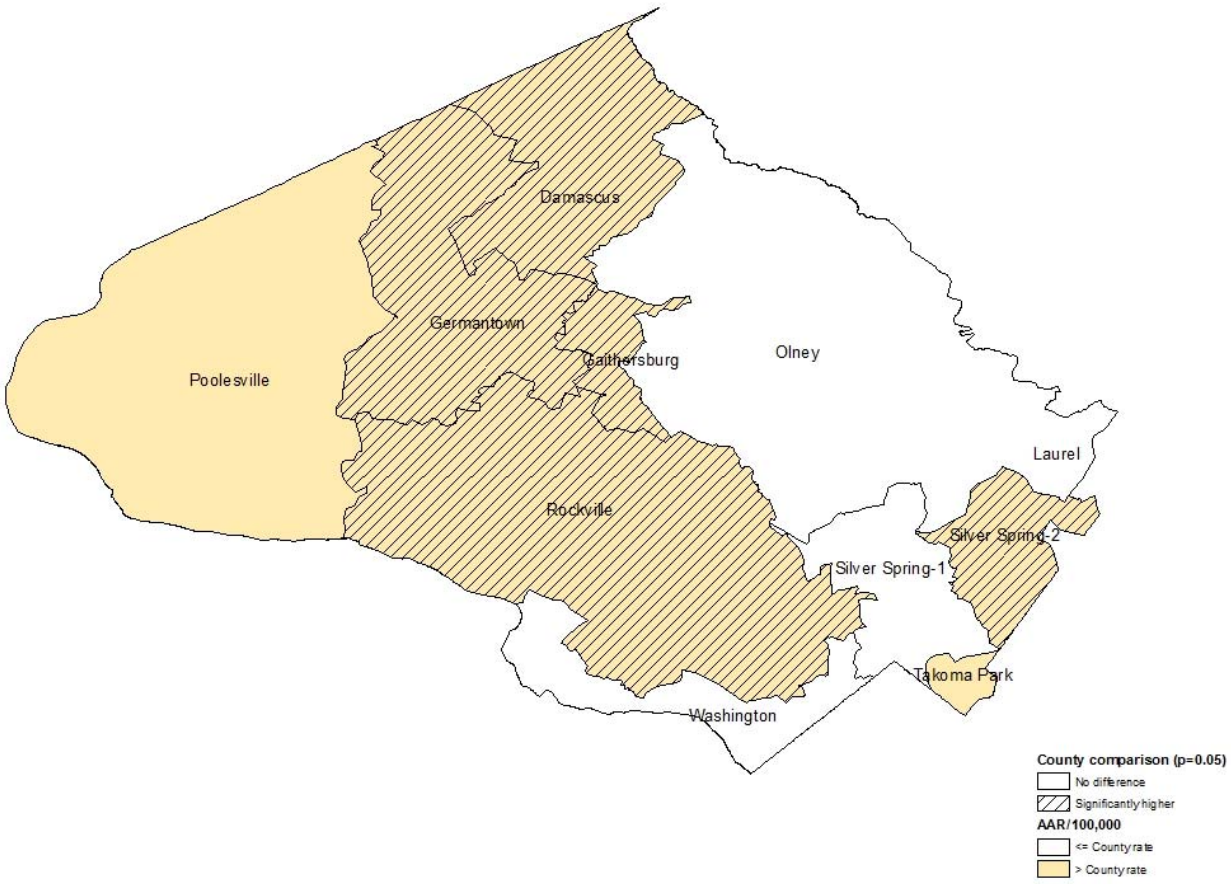


Fig. 150. Overall Injury Related Hospitalization Rates by Age, Montgomery County, 2014-16



Map 23. Overall Injury Related Hospitalization Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



- Overall injury ER visit rates decreased, consistent with those in Maryland; the rates in the County were consistently lower than in Maryland (Fig. 151).
- Among population subgroups, NH-Black had the highest rates, followed by NH-White and Hispanic, and Asian/PI; males had higher rates than females (Fig. 152).
- Young people aged <5 had the highest rates, followed by ages 5-17, and 18-34 (Fig. 153).

Fig. 151. Overall Injury Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

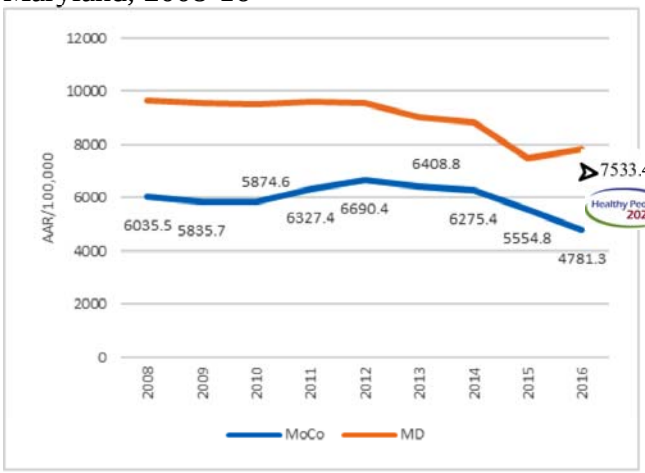


Fig. 152. Overall Injury Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

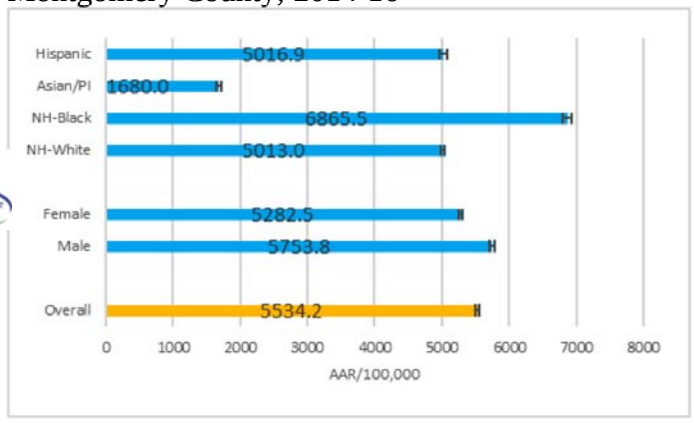
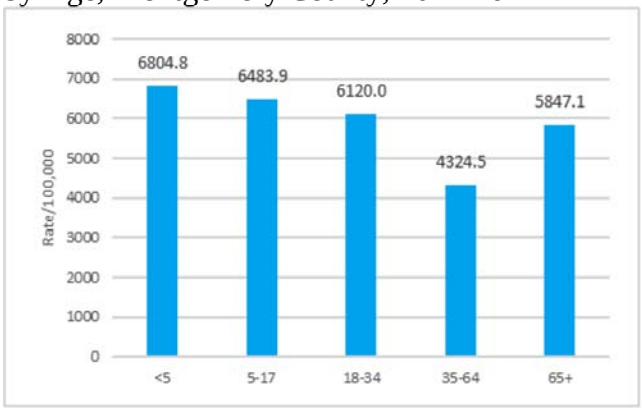
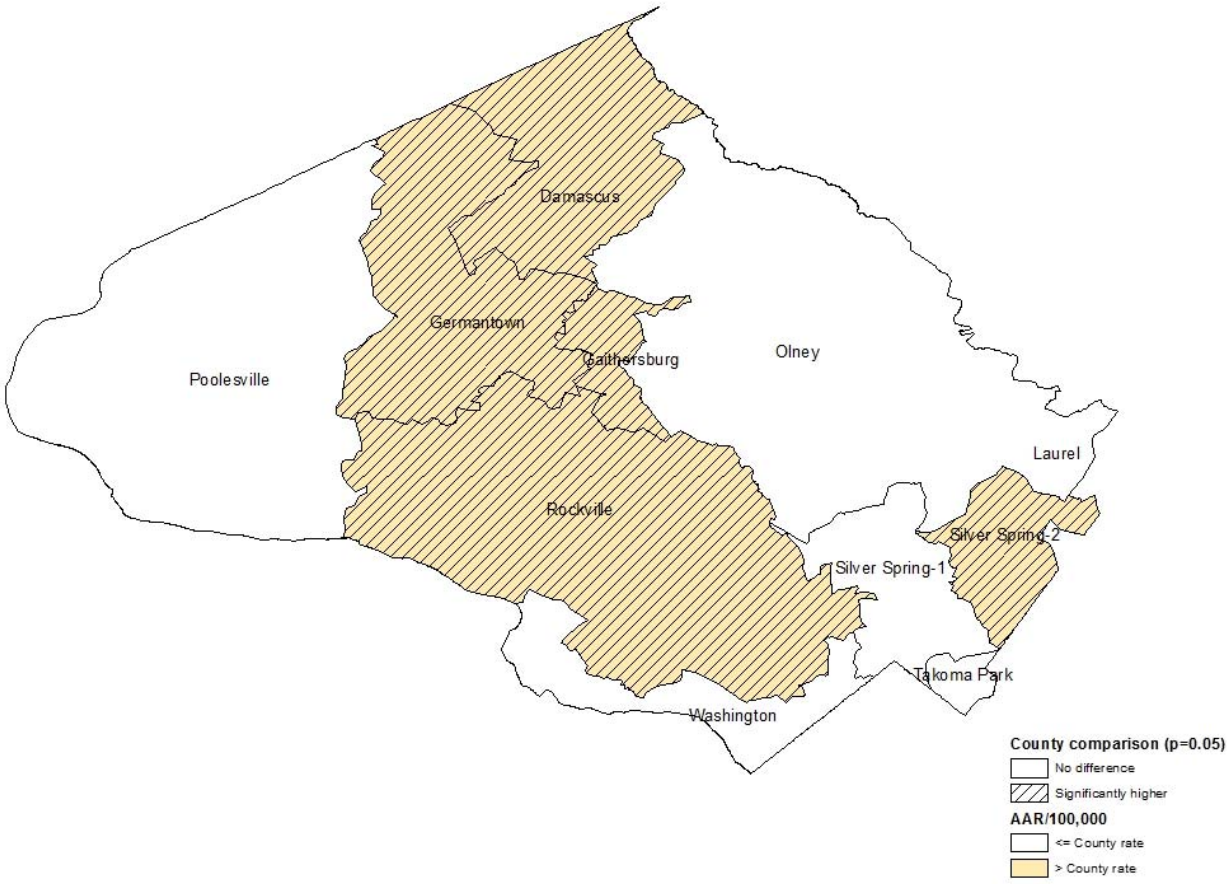


Fig. 153. Overall Injury Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 24. Overall Injury Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



Healthy People 2020

7533.4 ED visits per 100,000 population for nonfatal injuries

Motor Vehicle

- Overall motor vehicle mortality rates decreased in the County over time, consistent with those in Maryland; the rates in the County were consistently lower than in Maryland (Fig. 154).
- Among population subgroups, NH-Black and Hispanic had higher rates than other groups though these were not significantly different; males had much higher rates than females (Fig. 155).
- People aged 65 and older had the highest rates, followed by ages 18-34, and 35-64 (Fig. 156).

Fig. 154. Motor Vehicle Related Age-Adjusted Mortality Rates, Montgomery County and Maryland, 2008-16

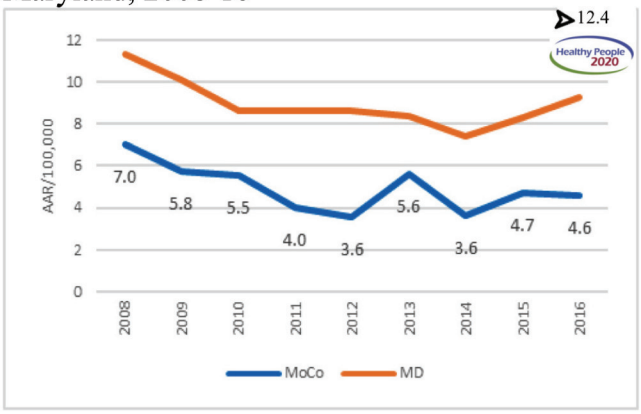


Fig. 155. Motor Vehicle Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

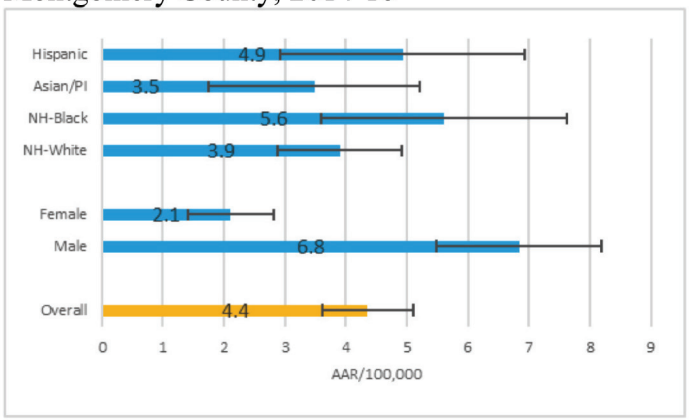
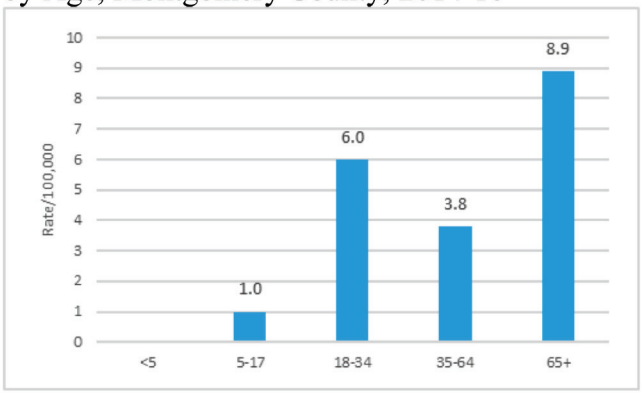


Fig. 156. Motor Vehicle Related Mortality Rates by Age, Montgomery County, 2014-16



- Overall motor vehicle related hospitalization rates decreased in the County, consistent with those in Maryland; the rates in the County were consistently lower than Maryland (Fig. 157).
- Among population subgroups, NH-Black and Hispanics had higher rates, though the differences were not significant; males had higher rates than females (Fig. 158).
- People 65 and older had the highest rates, followed by ages 18-34, and 35-6 (Fig. 159).

Fig. 157. Motor Vehicle Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

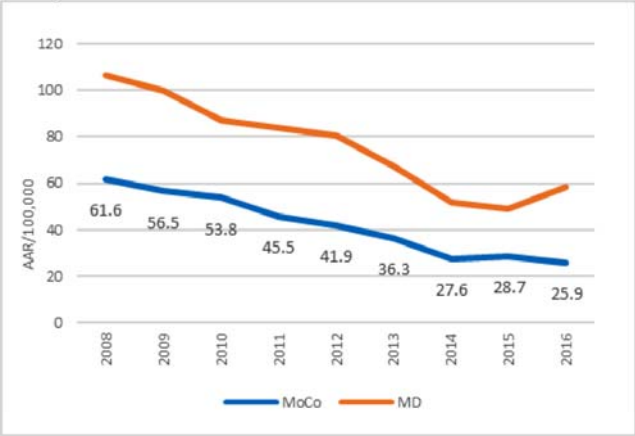


Fig. 158. Motor Vehicle Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

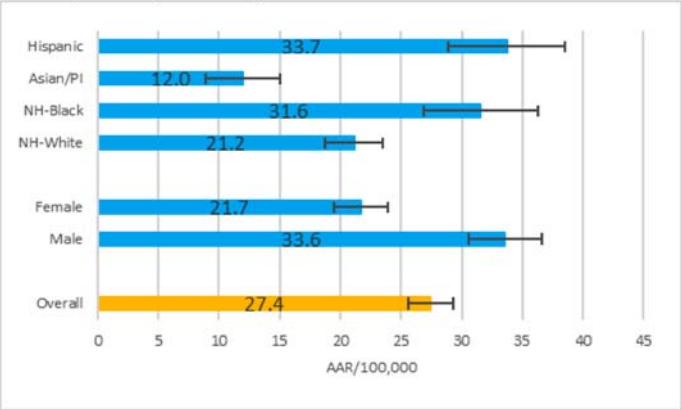
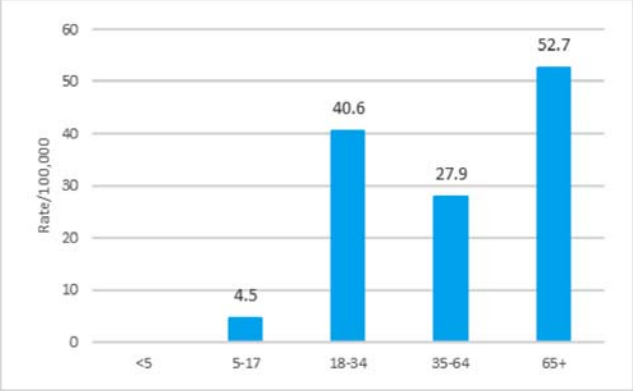
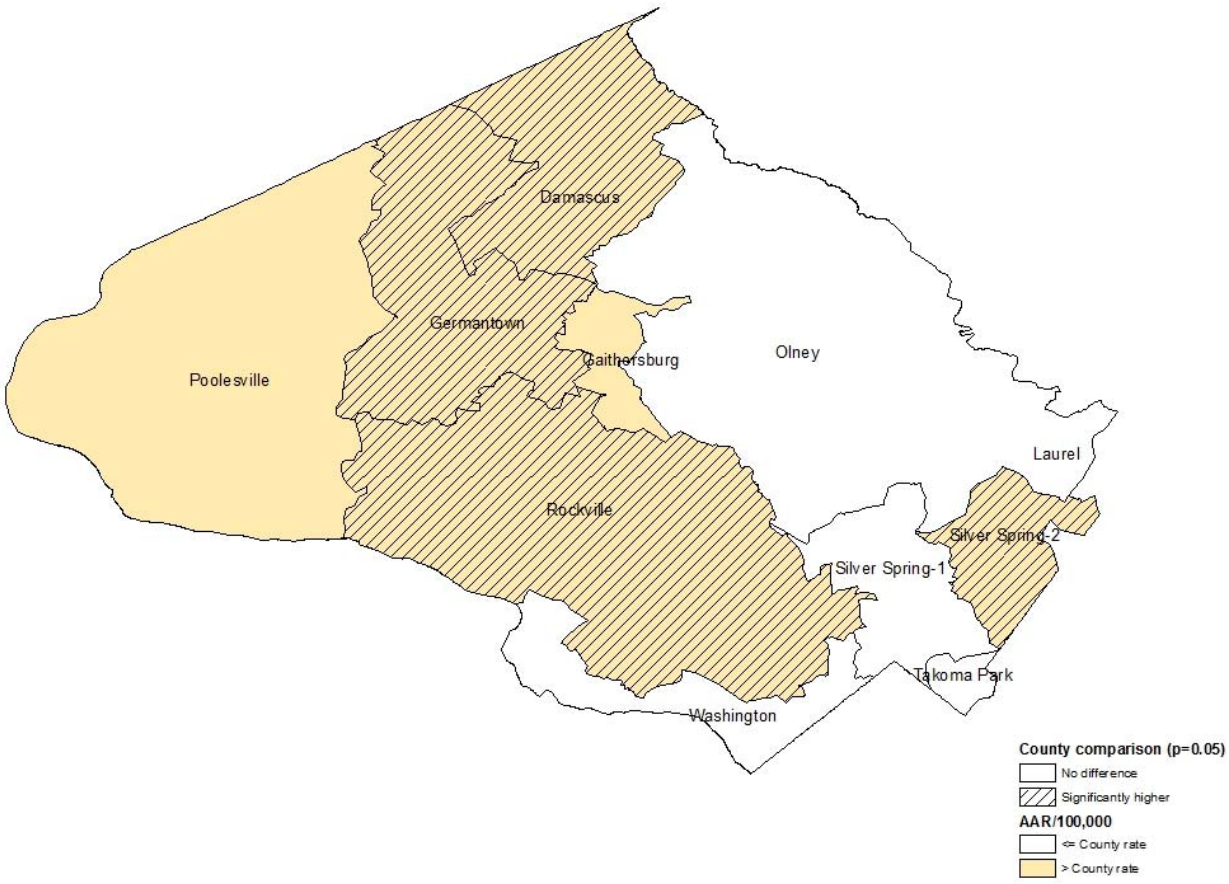


Fig. 159. Motor Vehicle Related Hospitalization Rates by Age, Montgomery County, 2014-16



Map 25. Motor Vehicle Related Hospitalization Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



- Overall motor vehicle related ER visit rates decreased after 2012 but increased again, with a trend similar to Maryland; the rates in the County were consistently lower than Maryland (Fig. 160).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; females had higher rates than males (Fig. 161).
- People ages 18-34 had the highest rates, followed by ages 35-64, and 65+ (Fig. 162).

Fig. 160. Motor Vehicle Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

Fig. 161. Motor Vehicle Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

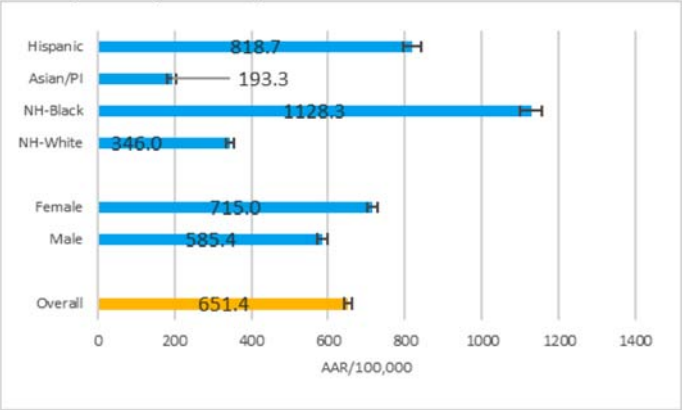
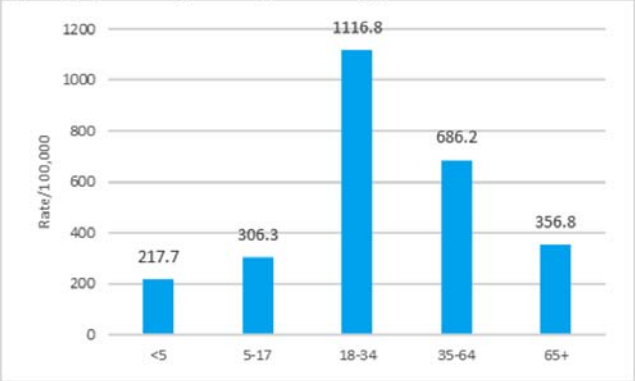
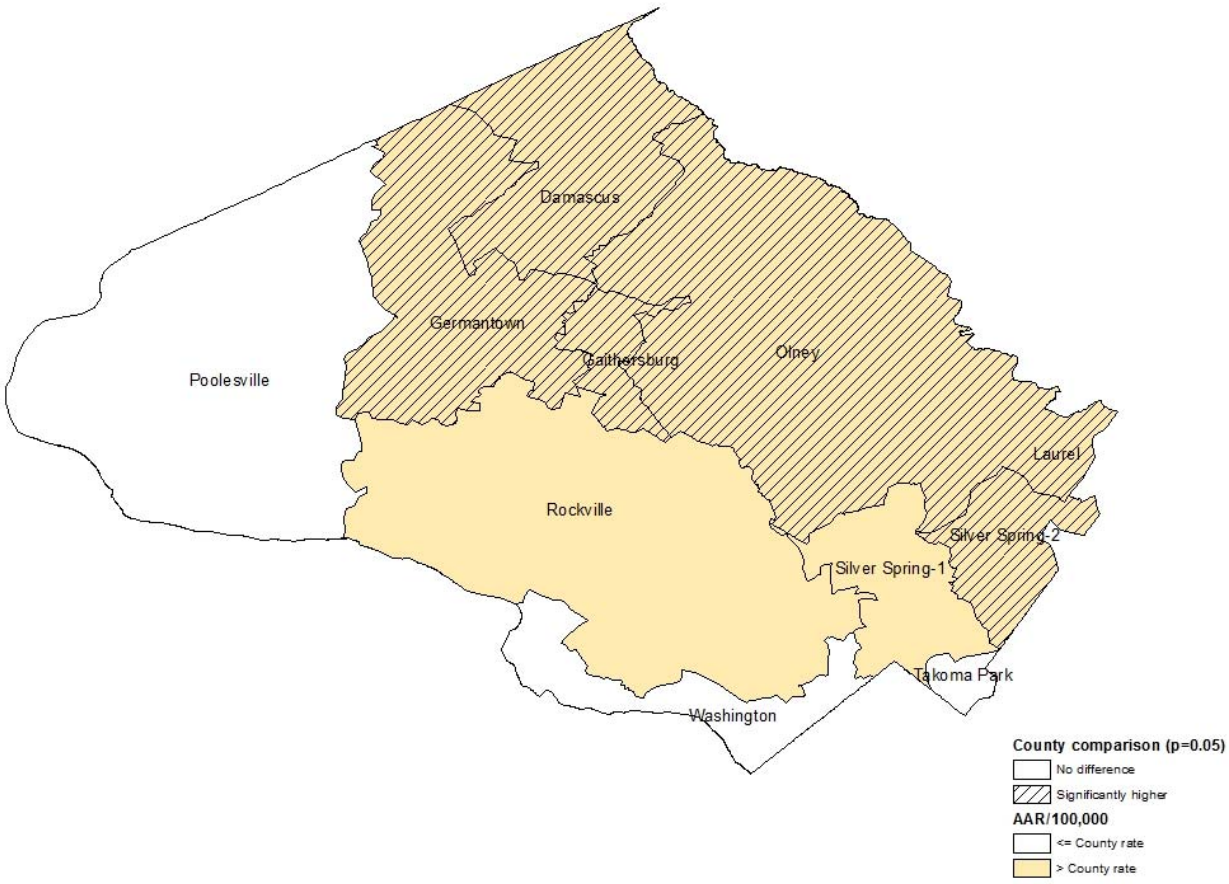


Fig. 162. Motor Vehicle Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 26. Motor Vehicle Related ER Visit Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



94.7% (95% CI: 92.6-96.8) of adults age 18+ were always compliant with seat belt use in Montgomery County, as compared to 91.4% (95% CI: 90.2-92.6) in Maryland.

694.3 nonfatal injuries per 100,000 population for motor vehicle
92% motor vehicle drivers used seat belts

Firearm

- Overall firearm mortality rates decreased in the County over time (Fig. 163).
- Among population subgroups, NH-White had the highest rates, followed by NH-Black, Hispanic, and Asian/PI; males had higher rates than females (Fig. 164).
- People aged 65 and older had the highest rates, followed by ages 35-64, and 18-34 (Fig. 165).

Fig. 163. Firearm Related Age-Adjusted Mortality Rates, Montgomery County, 2008-16

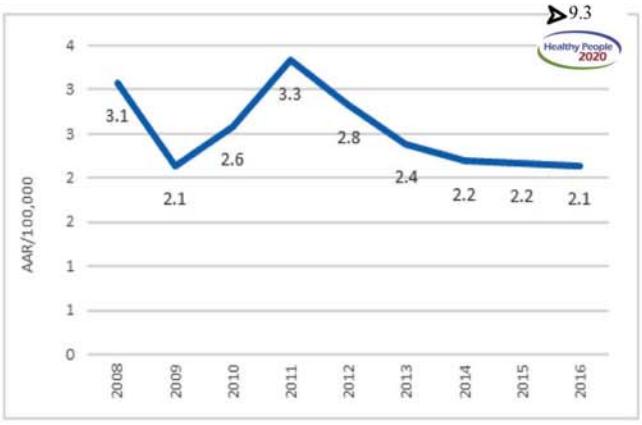


Fig. 164. Firearm Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

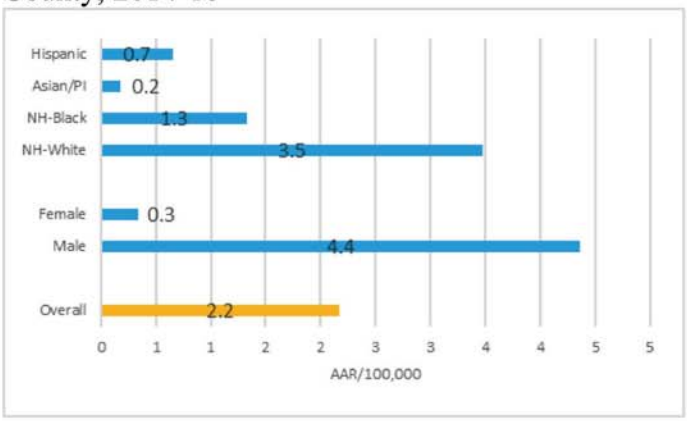
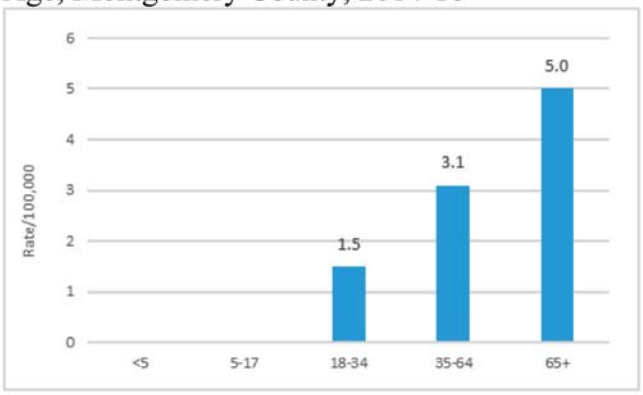


Fig. 165. Firearm Related Mortality Rates by Age, Montgomery County, 2014-16



- Overall firearm related hospitalization rates stayed stable over time in the County; the rates in the County were consistently lower than in Maryland (Fig. 166).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White and Asian/PI; males had higher rates than females (Fig. 167).
- People ages 18-34 had the highest rates, followed by ages 5-17, and 35-64 (Fig. 168).

Fig. 166. Firearm Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

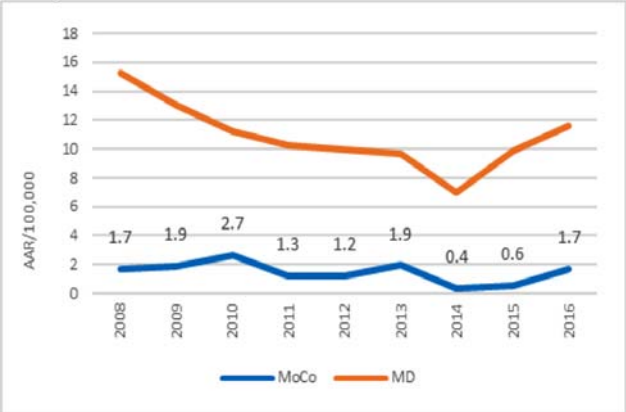


Fig. 167. Firearm Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

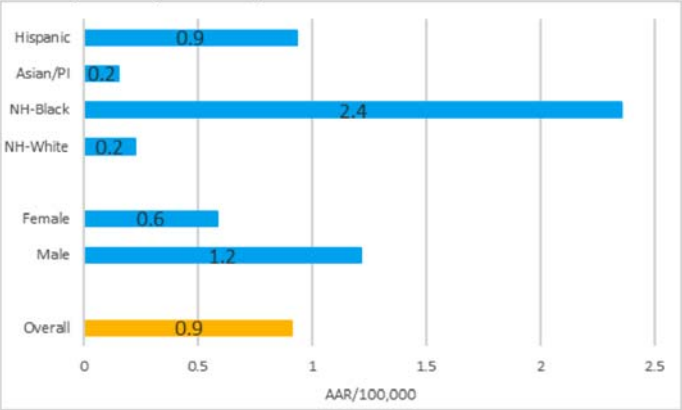
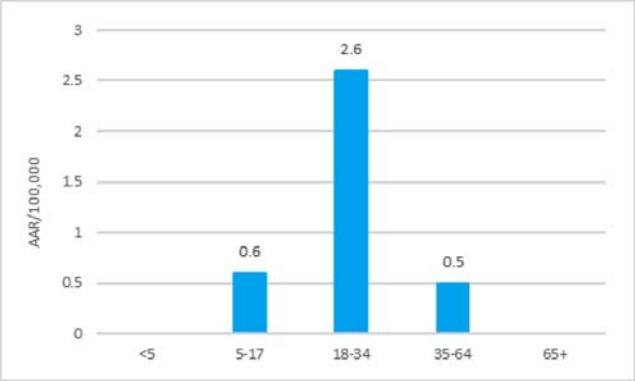


Fig. 168. Firearm Related Hospitalization Rates by Age, Montgomery County, 2014-16



- Overall firearm related ER visit rates decreased over time in the County. Maryland had decreasing rates but these have increased since 2014; the rates in the County were consistently lower than in Maryland (Fig. 169).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; males had higher rates than males (Fig. 170).
- People ages 18-34 had the highest rates, followed by ages 35-64 (Fig. 171).

Fig. 169. Firearm Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

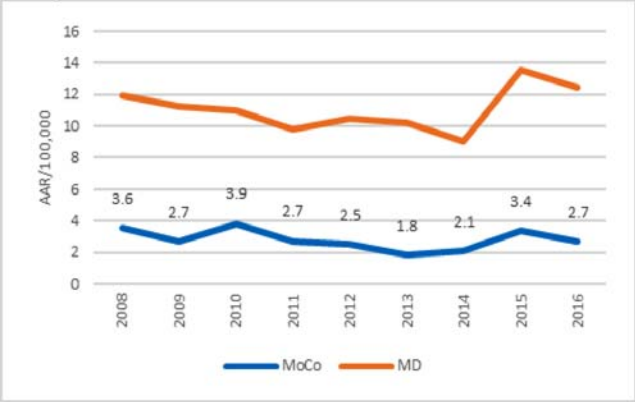


Fig. 170. Firearm Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

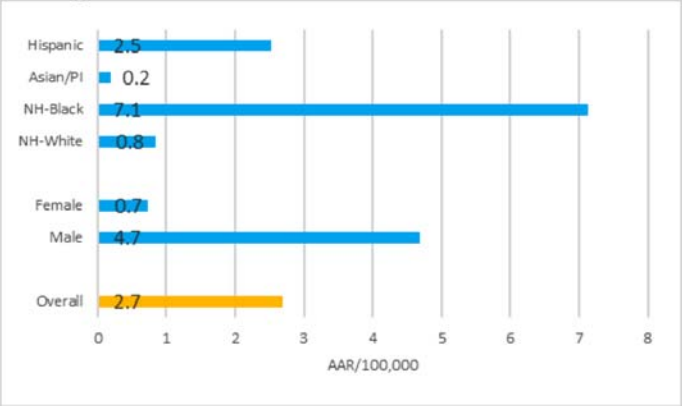
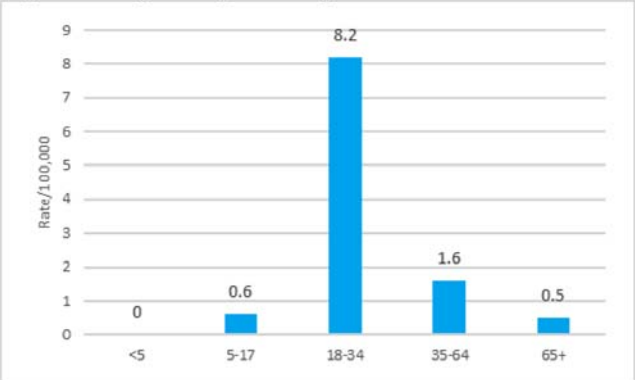


Fig. 171. Firearm Related ER Visit Rates by Age, Montgomery County, 2014-16



Healthy People 2020

18.6 injuries per 100,000 population for nonfatal firearm-related injuries

Fall

- Overall fall mortality rates decreased in the County though they fluctuated (Fig. 172).
- Among population subgroups, NH-White had the highest rates among all groups though this was not statistically significant; males had insignificantly higher rates than females (Fig. 173).
- People aged 65 and older had the highest rates, as expected (Fig. 174).

Fig. 172. Fall Related Age-Adjusted Mortality Rates, Montgomery County, 2008-16

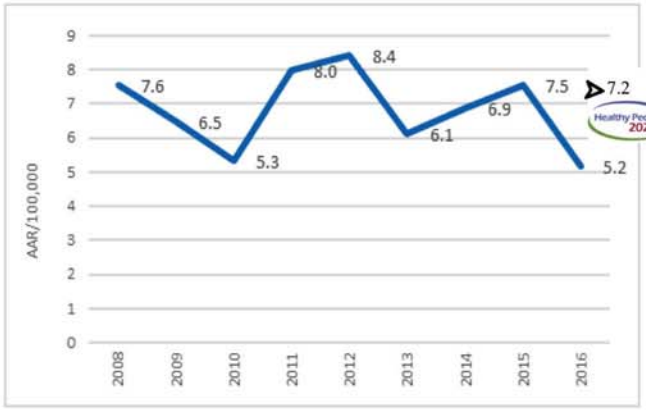


Fig. 173. Fall Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

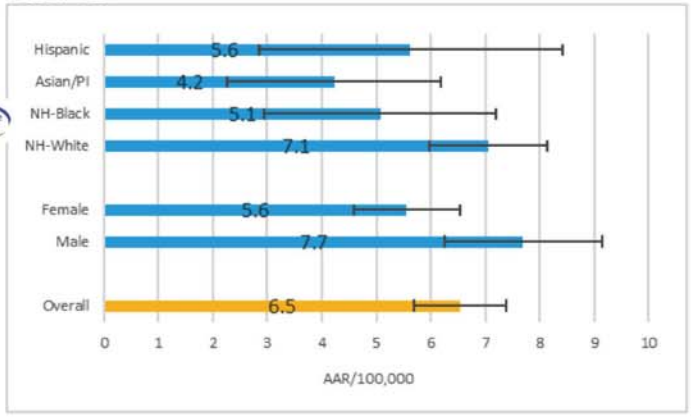
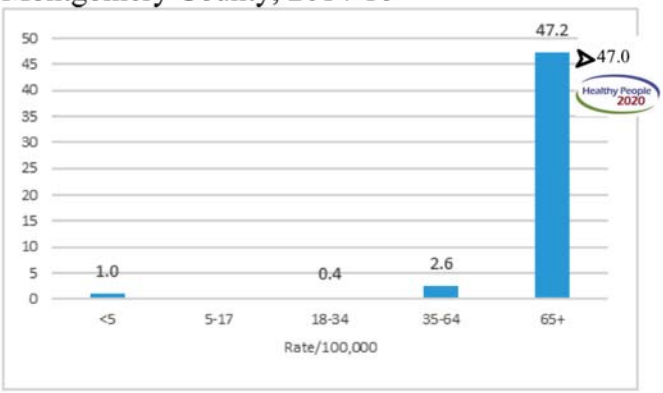


Fig. 174. Fall Related Mortality Rates by Age, Montgomery County, 2014-16



- Fall related hospitalization rates decreased over time in the County, similar to those in Maryland; the rates in the County were consistently lower than Maryland (Fig. 175).
- Among population subgroups, NH-White had the highest rates, followed by NH-Black and Hispanic, and Asian/PI; females had higher rates than males (Fig. 176).
- People age 65+ had the highest rates, as expected (Fig. 177).

Fig. 175. Fall Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

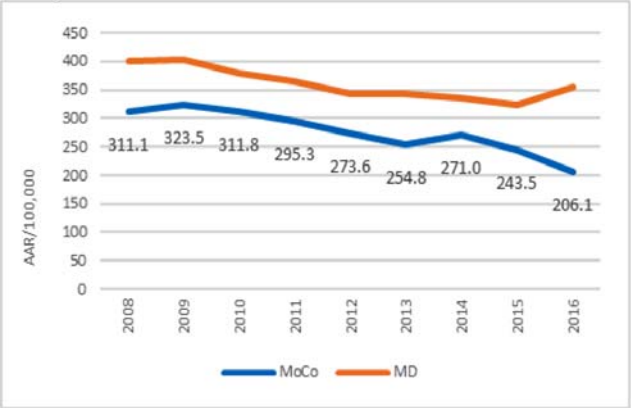


Fig. 176. Fall Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

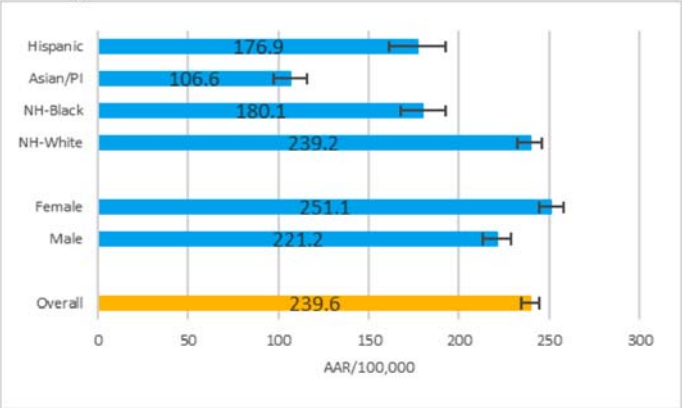
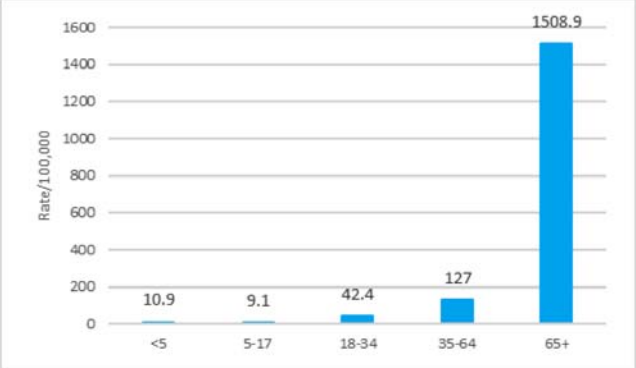
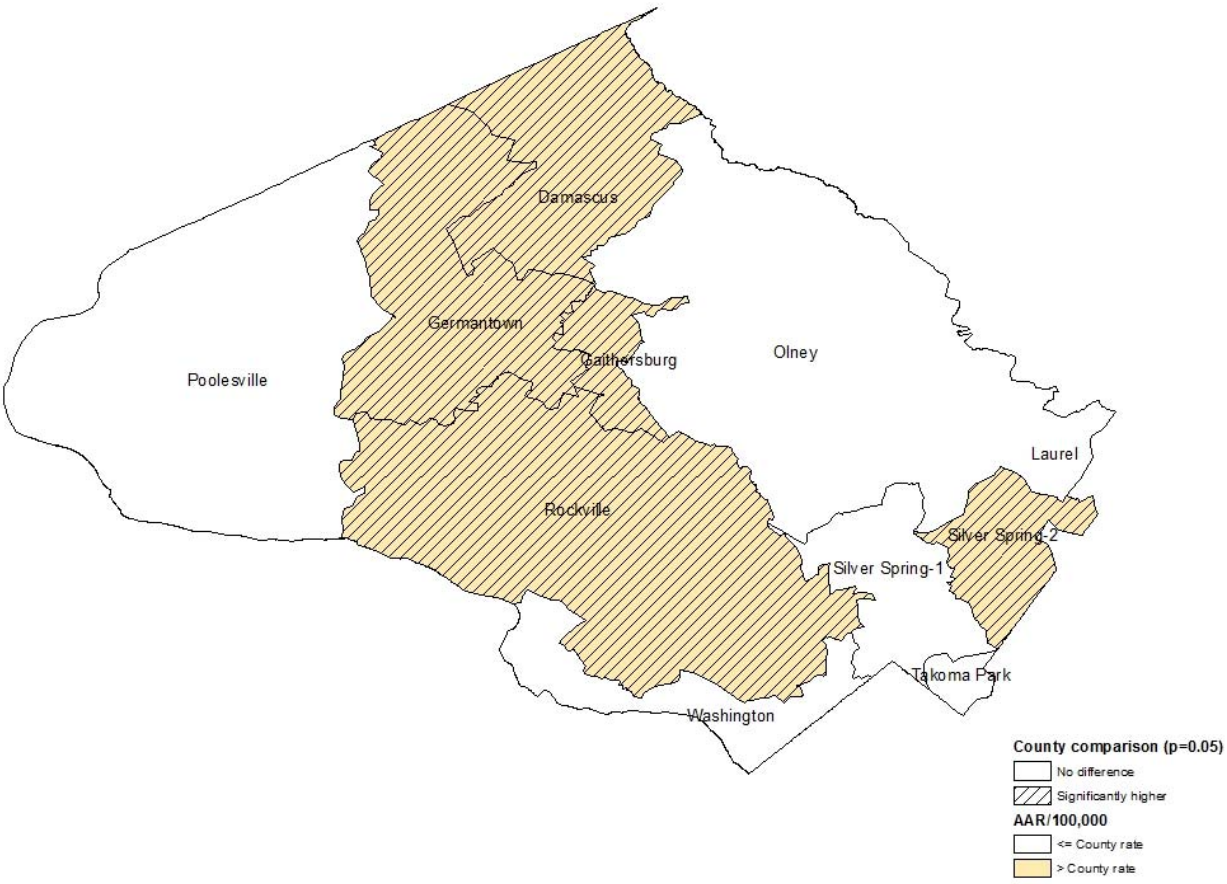


Fig. 177. Fall Related Hospitalization Rates by Age, Montgomery County, 2014-16



Map 27. Fall Related Hospitalization Age-Adjusted Rates by PCSA, Montgomery County, 2014-16



- Overall fall related ER visit rates decreased over time in the County, similar to those in Maryland; the rates in the County were consistently lower than in Maryland (Fig. 178).
- Among population subgroups, NH-White and NH-Black had higher rates, followed by Hispanic, and Asian/PI; females had higher rates than males (Fig. 179).
- People aged 65+ had the highest rates, followed by ages <5, and 5-17 (Fig. 180).

Fig. 178. Fall Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2008-16

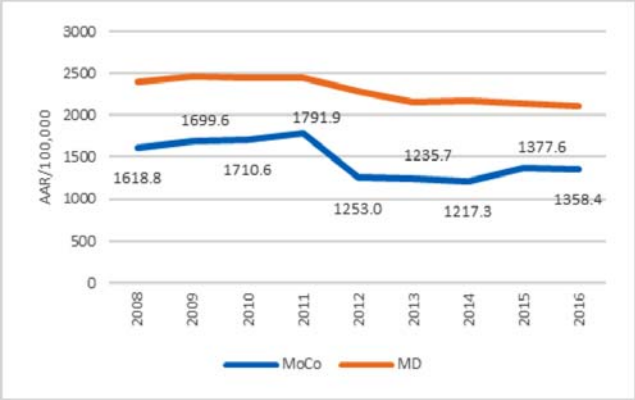


Fig. 179. Fall Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2014-16

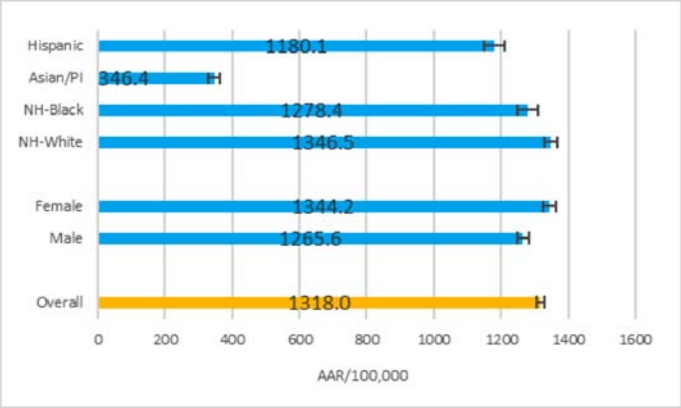
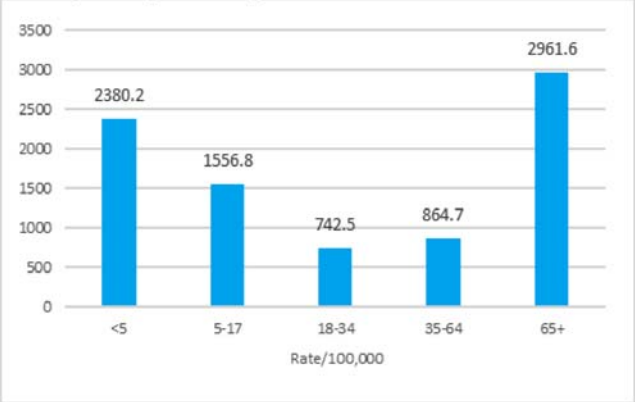
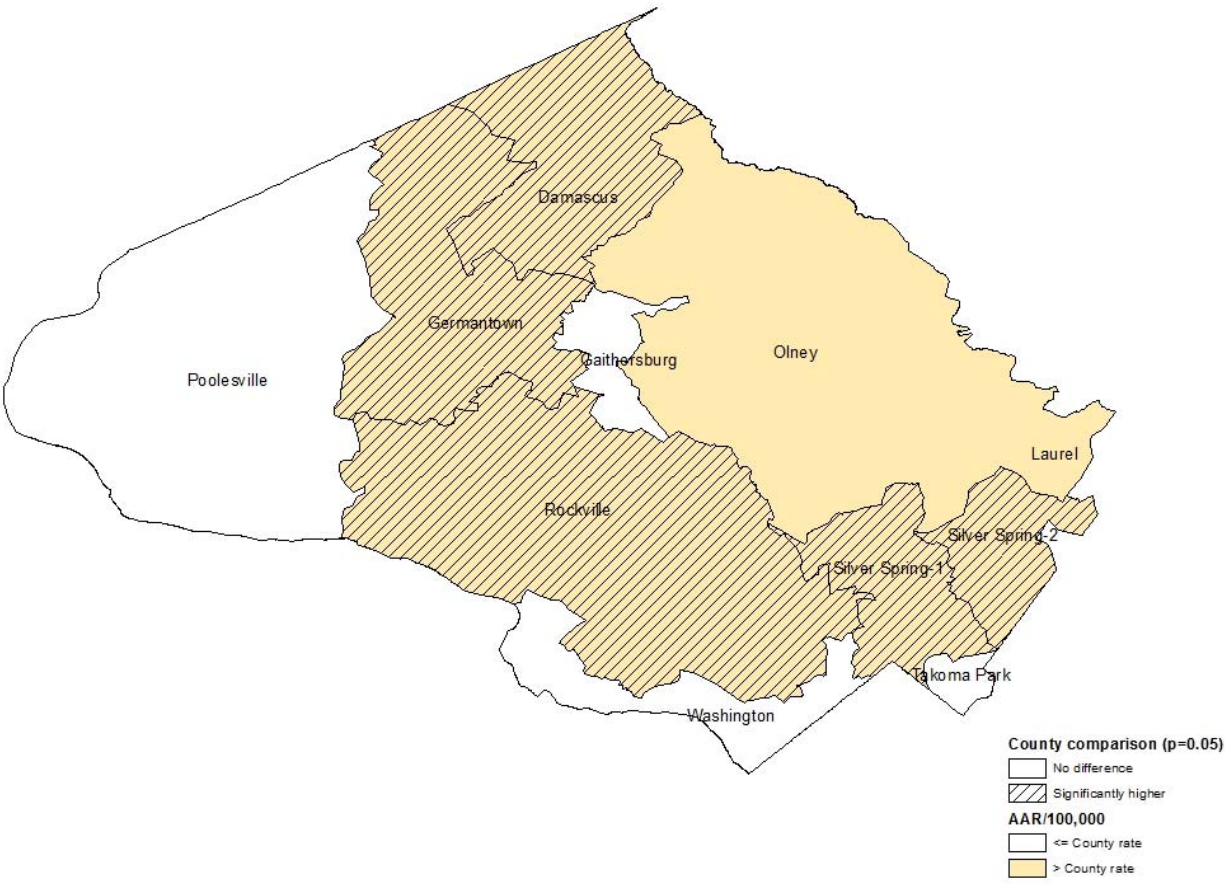


Fig. 180. Fall Related ER Visit Rates by Age, Montgomery County, 2014-16



Map 28. Fall Related ER Visit Age-Adjusted Rates by PCSA,
Montgomery County, 2014-16



VIII Environmental Health

Environmental health is concerned with all aspects of the natural and built environment that may affect human health. The interactions between humans and environment affect quality of life, years of healthy life lived, and health disparities. The World Health Organization (WHO) defines environment, as it relates to health, as "all the physical, chemical, and biological factors external to a person, and all the related behaviors [5]." Environmental health consists of preventing or controlling disease, injury, and disability related to the interactions between people and their environment [31].

Lead Poisoning

- In 2016, the percentage of children ages 0-6 who were found to have blood lead levels of 5-9 ug/dL in Montgomery County was 0.8%, which is much lower than in Maryland (1.5%) (Table 32).
- There was a consistent decrease of children aged 0-6 who had blood lead levels of 5-9 ug/dL in Maryland from 2000 to 2016 (Fig. 181).
- There was also a consistently decreasing trend of children age 0-6 who had blood lead levels >=10 ug/dL in Maryland from 2000 to 2016 (Fig. 182).

Table 32. Children Age 0-6 Tested for Blood Lead Level, Montgomery County and Maryland, 2016

			MoCo	MD
Children Tested	Age 0-6	Total	94,806	541,994
		No Tested	22,392	118,619
		% Tested	23.6	21.9
	Age 1-2	Total	31,877	182,177
		No Tested	13,766	81,125
		% Tested	43.2	44.5
Blood Lead Level 5-9 ug/dL				
	Age 0-6	No	180	1,729
		%	0.8	1.5
Blood Lead Level >=10 ug/dL				
	Age 0-6	No	31	355
		%	0.1	0.3

Fig. 181. Percent Children Age 0-6 Tested with Blood Lead Level 5-9 ug/dL, Maryland, 2000-16

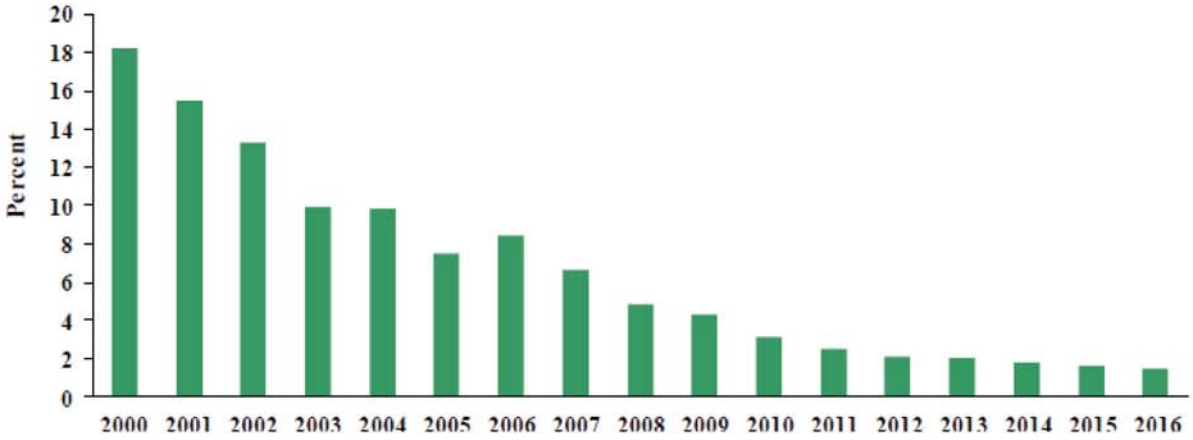
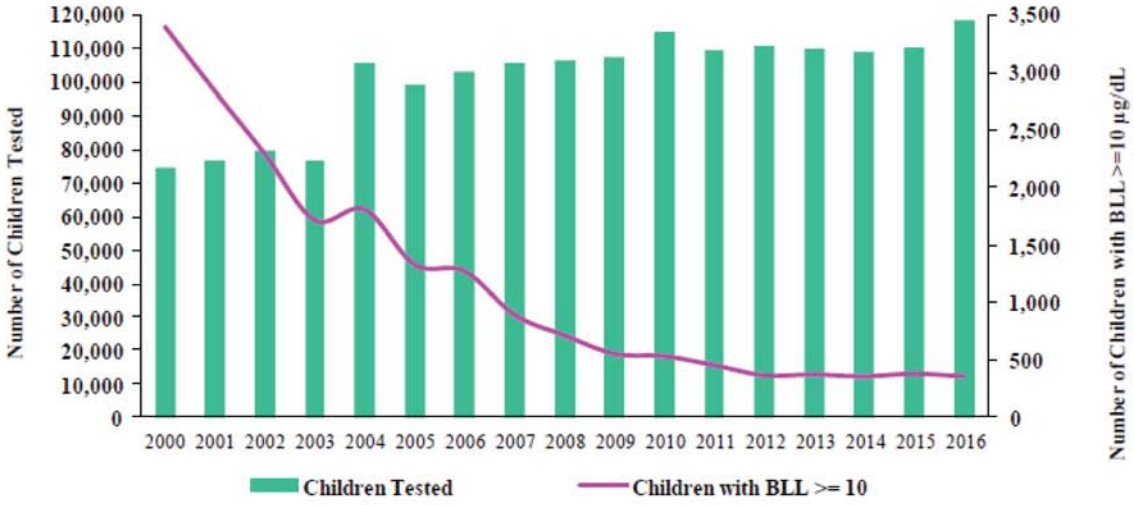


Fig. 182. Children Age 0-6 Tested with Blood Lead Level >=10 ug/dL, Maryland, 2000-16



* Source: Childhood blood lead surveillance report, 2016. Maryland Department of the Environment.
http://mde.maryland.gov/programs/LAND/LeadPoisoningPrevention/Pages/index.aspx

Healthy People 2020

97.5% of the population aged 1-5 years old is below 5.2 ug/dL of lead in blood samples

Air Pollution and Water

- There is a decreasing trend of PM2.5 for both weighted mean and 98th percentile in Montgomery County during 2012-2017 (Table 33).
- Though there were a couple years with O3 8-hr Max above air quality standard, there is a decreasing trend 2012-17 in general (Table 33).
- Though consistently higher than the U.S., Montgomery County mirrors similar trend of average density of fine particulate matter in Maryland with higher averages in few years 2002-2012 (Fig. 183).
- Drinking water quality in Montgomery County meets all the required EPA standards, including inorganic contaminants, metals, disinfection byproduct, and microbial containments (Table 34).

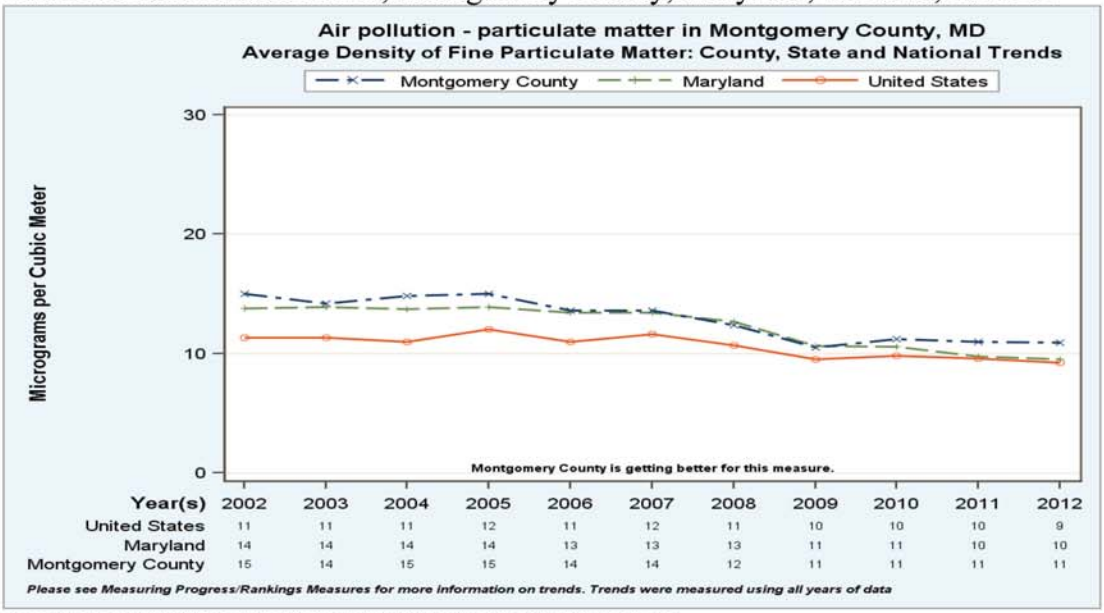
Table 33. Selected Air Quality Indicators, Montgomery County, 2012-17

	2012	2013	2014	2015	2016	2017
PM2.5 Weighted Mean	10.3	8.1	9	9.7	6.4	5.2
PM2.5 98%ile	23	21	20	22	16	12
O3 8-hr Max	0.073	0.069	0.064	0.072	0.068	0.065
% Unhealthy Days/Year	0.3	0	0	0	0	0
% Unhealthy Days for Sensitive Groups/Year	1.7	0.3	0	1.4	0	0.7

* Highlighted cells indicate above air quality standard

** Source: Air Data, U.S. Environmental Protection Agency https://www.epa.gov/outdoor-air-quality-data

Fig. 183. Particulate Matter Level, Montgomery County, Maryland, and U.S., 2002-12



** Source: Consumer Confidence Reports, Maryland Department of the Environment
http://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Pages/index.aspx

Table 34. Water Quality, Montgomery County, 2016

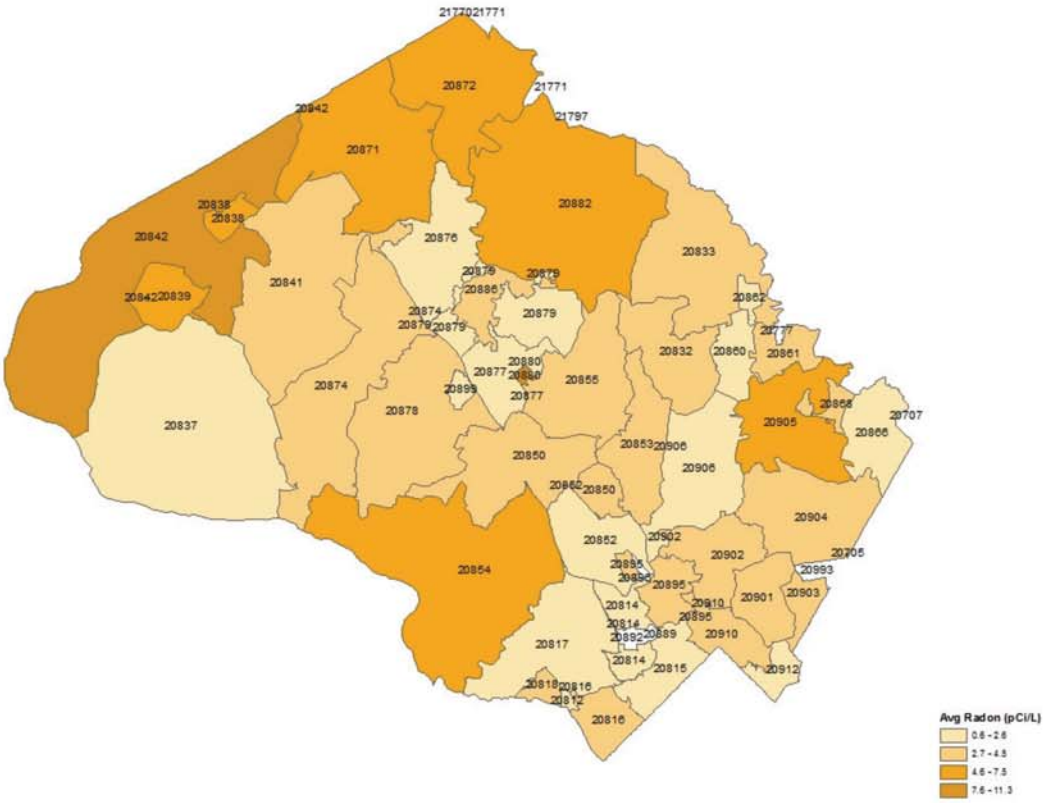
			WSSC			
			Patuxent Tap	Potomac Tap	Rockville	Poolesville
		MCL*				
Inorganic Contaminants						
	Barium (ppm)	2	0.027	0.034	0.038	0.488
	Nitrate (ppm)	10	0.95	1.2	1.5	8
	Fluoride (ppm)	4	0.7	0.7	0.53	
		Action Level				
Metals	Copper (ppm)	1.3	0.087		0.043	0.7
	Lead (ppb)	15	1.2		0.3	0
		MCL				
Disinfection Byproduct						
	Chlorine (ppm)	4	1.4	1.4	1	0.8
	Haloacetic acids (ppb)	60	42	42	37	4
	Trihalomethanes (ppb)	80	59	59	76	10
Microbial Containments		MCL				
	Turbidity (NTU)	TT=0.3	0.03	0.04	0.02	0.258
	Residual Chlorine (ppm)	TT>0.2	>0.2	>0.2	1.9	

* MCL- Maximum Contaminant Level
** Source: Consumer Confidence Reports, Maryland Department of the Environment
http://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Pages/index.aspx

Radon

- Radon is a major risk of lung cancer for non-smokers
- The areas with high average radon level included zip codes of 20854, 20905, 20882, 20872, 20871, 20838, 20939, and 20842 within the County during 2005-16 (Map 29).
- Zip code of 20842 had the highest level of average radon measurements on the northwest side of the County (Map 29).

Map 29. Average Radon Measurements by Zip Code, Montgomery County, 2005-16



Source: Radon in Maryland. Maryland Department of the Environment. https://phpa.health.maryland.gov/OEHFP/EH/Pages/Radon.aspx

Conclusion

Overall, Montgomery County had lower disease morbidity and mortality than Maryland and the U.S., however disparities existed among population subgroups by sex, race/ethnicity, age, and geographic area. Montgomery County has the most diverse population in Maryland and is becoming more diverse over time. The disease morbidity and mortality, as well as health care utilization and costs associated with changing demography, social determinants, health care access are expected to be impacted exponentially. It is therefore critical to monitor and evaluate population health and services provided by DHHS programs on an ongoing basis to anticipate ongoing and future challenges. Efforts and resources should be targeted and allocated to address the findings of this report.

The top five leading causes of death for County residents between 2014 and 2016 include cancer, heart disease, cerebrovascular disease, accidents, and chronic lower respiratory disease. These leading causes of death remain consistent over the years studied. Injury is the leading cause of hospitalization over this period, followed by heart disease, mental health, cerebrovascular disease, and diabetes. Injury is also the leading cause of ER visits during this period, followed by heart disease, mental health, chronic lower respiratory disease, and substance abuse.

Sex

While cancer and heart disease are the top two leading causes of death for both males and females, accidents and cerebrovascular disease are the third leading causes for males and females respectively.

Heart disease and injury are the first and second leading causes of hospitalization respectively among males, injury and heart disease are the first and second causes among females. Both sexes have mental health, cerebrovascular disease, and cancer as the remaining top five causes of hospitalization. Males and females have the same leading causes of ER visits. Injury is the leading cause of ER visits for the period studied, followed by heart disease, mental health, chronic lower respiratory disease, and substance abuse.

The comparison of disease burden between sexes can be summarized as follows:
MORTALITY – males have higher rates of all-cause mortality, as well as deaths from heart disease, accidents, overall cancer, as well as the following types: cancer of lung and bronchus, colon and rectum, and melanoma of skin. They also had higher rates of death from drug, suicide, overall injury, motor vehicles, firearms, and falls.
MORBIDITY – males have higher rates of overall cancer, cancer of lung and bronchus, colon and rectum, melanoma of skin, gonorrhea, syphilis, and motor vehicle-related hospitalization. Females have higher rates of chlamydia, HIV, and suicide hospitalization/ER visit.

Race/Ethnicity

While cancer, heart disease, and cerebrovascular disease are consistently the top three causes of death among NH-Whites, NH-Blacks, and Asian/PIs, accidents are the third leading cause of death among Hispanics.

Injury is the leading cause of hospitalization for NH-Whites, Asian/PIs, and Hispanics, while heart disease is the leading cause for NH-Blacks. Mental health, cerebrovascular disease, and cancer are the remaining top five causes of hospitalizations for NH-Whites, NH-Blacks, and Asian/PIs; diabetes is the fourth leading cause of hospitalization for Hispanics. All population subgroups have the same leading causes of ER visits consistent with that of the overall population. Injury is the leading cause of ER visits for this period, followed by heart disease, mental health, chronic lower respiratory disease, and substance abuse.

The comparison of disease burden among race/ethnicity groups can be summarized as follows:
MORTALITY – NH-Blacks had higher death rates than other groups from cerebrovascular disease, diabetes, infant death, overall cancer, cancer of colon and rectum, female breast, and prostate, and diabetes; while NH-Whites had higher rates from drug, suicide, overall injury, firearms, and falls.
MORBIDITY – NH-Blacks had higher rates than other groups of preterm birth, low birth weight, ER visit for heart disease, cerebrovascular disease, chronic lower respiratory disease, and diabetes, overall cancer, cancer of colon and rectum and prostate, chlamydia, gonorrhea, syphilis, HIV, mental health ER visits, overall injury hospitalization/ER visit, motor vehicle-related ER visit, and firearm hospitalization/ER visit. NH-Whites had higher rates of female breast cancer, hospitalization for suicide and falls. Asian/PIs had higher rates of tuberculosis.

Age

While cancer, heart disease, and cerebrovascular disease are among the leading cause of deaths across different age groups, the leading cause of death for people aged 5-17 and 18-34 is accidents. Chronic lower respiratory disease is another leading cause of death that impacts people in different age groups.

Mental health is the leading cause of hospitalization for ages 5-17 and 18-34, injury for ages 35-64, and heart disease for age 65 and over. Though variations in the order of causes for hospitalization exist among age groups, chronic lower respiratory disease and cerebrovascular disease are consistently among the other leading causes. Substance abuse is the third leading cause of hospitalization for persons aged 18-34, and suicide is the fourth leading cause for ages 5-17.

While injury is the leading cause of ER visits consistently across all age groups, variations exist for other leading causes. Heart disease is the second leading cause of ER visits for people age 65 and over and for those aged 35-64, mental health is the second leading cause for ages 5-17 and 18-34. Diabetes is the third leading cause for people age 65and over, chronic lower respiratory disease is the third leading cause for ages 5-17 and 17-34, and mental health for ages 35-64.

The comparison of disease burden among age groups can be summarized as follows:
MORTALITY – People age 65 and over had higher rates than other groups of most health conditions while ages 18-34 had higher rates of drug induced death.
MORBIDITY – Younger people (20-24 and 15-19 years.) had higher rates than other groups of chlamydia, gonorrhea and syphilis (25-44 and 20-24 years), mental health ER visit (18-34 and 5-17 years), suicide hospitalization (18-34 and 35-64 years) and ER visit (5-17 and 18-34 years), motor vehicle-related ER visit (18-34 years), and firearm-related hospitalization/ER visit (18-34 years).

Geographic Variations

Geographic variations in morbidity and mortality of health conditions are presented by census tract and PCSA. Age-adjusted rates and 95% confidence intervals associated with point estimates are compared with County total rates for statistically significant differences. Geographic variations of conditions such as infectious diseases are presented by zip code, due to the limitation that data for smaller geographical units are not available.

The risks of health conditions vary by sex, race/ethnicity, age, and geographic area for population subgroups. Information presented in this surveillance report can be used to target intervention efforts for population subgroups at high risk of disease morbidity and mortality, to evaluate services provided by DHHS programs, and to better plan and allocate resources. An important use of surveillance data is to monitor trends following the initiation of prevention programs to evaluate their effectiveness.

This report is strengthened using data from multiple sources that provide a more comprehensive picture of disease burden and population health than would a single source. Ongoing efforts are being made to further enhance data variety and quality for population health surveillance. Consumer and provider education is a critical component of disease prevention and health promotion. This can be accomplished through the dissemination of population health statistics and prevention information at professional meetings and conferences. Pamphlets and brochures with information on disease prevention and health promotion can be provided to patients and clients at providers' offices. This information can also be made available through traditional and online media.

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Frequently Asked Questions

1. I am interested in looking at a health condition rates by year, but when I read the report, I find only 3 or more years combined rates. Why?

Calculating a rate based on less than 20 events in the numerator creates an unstable estimate that is not statistically reliable and varies greatly from year to year by chance alone. Therefore, generating rates based on small numbers can lead to misinterpretation. For this reason, 3 or more years of data are aggregated to create a more stable rate that can be used to compare health conditions by type or another variable of interest.

2. I would like to see the different types of health conditions in the community I live but cannot find this information in the report. Why doesn't this report show data in smaller geographic area and where can I find this information?

Montgomery County consists three cities, four villages, and thirty-three census-designated places. In a given year, the number of people with specific health conditions may be too small to generate meaningful results for a community or certain geographic areas. Data are summarized in multiple years by Census tract, zipcode, or PCSA as appropriate to provide information that is more detailed than county level data. For information on specific geographic area, please contact the Office of Planning and Epidemiology at 240-777-1872.

3. I have noticed many cancer cases or people with certain diseases on my street and in my community. Who can I contact if I want this investigated further?

One out of every three Americans will develop some form of cancer in their lifetime and it is therefore not uncommon to see the occurrence of the disease in a neighborhood. However, there are rare circumstances where cancer clusters are observed. Please contact Office of Planning and Epidemiology at 240-777-1872 for concerns cancer clusters for advice and further investigations.

4. Where can I get more detailed information on disease prevention and health promotion activities?

The Office of Planning and Epidemiology can be reached at 240-777-1872 for information regarding this report. The CDC Chronic Disease Prevention and Health Promotion (https://www.cdc.gov/chronicdisease/about/prevention.htm) and the Maryland Prevention and Health Promotion Administration (https://phpa.health.maryland.gov/Pages/home.aspx) are good resources for information on disease prevention and health promotion.

5. How are health conditions defined in this report?

Specific diagnostic and procedural codes of the International Classification of Disease (ICD), 9th Revision and 10th Revision (after October 2015) are used to define specific health conditions in this report, they are included in the Appendix. These codes are consistent with those used by the state and federal level to define specific health conditions. The health conditions included in this report are those commonly monitored in the state and federal level, as well as those considered important specific to Montgomery County for surveillance and reporting.

6. I am interested in some types of health conditions, but I do not see mention of them in this report. Why? How do I get this information?

The health conditions included in this report are those commonly monitored in the state and federal level, as well as those considered important specific to Montgomery County for surveillance and reporting. Many rare types of health conditions are not included in this report because the numbers are too small for meaningful tabulations. Please contact Office of Planning and Epidemiology at 240-777-1872 for more information.

7. This report summarizes data from 2008-2016. It is now 2018. Why is there such a long time between data acquisition and publication?

There is a considerable lag time in the data acquisition process. Data from vital records, hospitalization, disease registry, population survey, and Census population estimates are used to generate statistics in this report. Each data source undergoes a quality assurance process that is time-intensive, after it is received, before it can be used for analysis. All these factors contribute to the length of time between the events and reporting.

8. Why prevalence is used for certain health conditions while incidence is used for others in this report? How are they different?

Some certain health conditions are commonly reported as prevalence, while others reported as incidence. revalence refers to a condition that tells how widespread a disease is in a population whereas incidence refers to new cases of the disease in the population for a given time. Prevalence is the ratio of the total number of patients with certain health conditions to the total population, whereas incidence is the ratio of total new cases with specific health conditions in a population divided by total population. Some health conditions are better measured and presented by prevalence than incidence, and vice versa.

Appendix A: Technical Notes

1. Data Sources

The Office of Planning and Epidemiology uses various data sources to compile information on population health, including vital records, inpatient and outpatient hospitalization, disease registry, surveys, area health resources file, and Census. Vital records including births and deaths are provided by the Vital Statistics Administration of Maryland Department of Health. Hospitalization data including inpatient and outpatient visits are provided by the Maryland Health Services Cost Review Commission. Cancer incidence data are provided by Maryland Cancer Registry, whereas data on infectious diseases are provided by Infectious Disease Bureau of Maryland Department of Health. Behavioral Risk Factor Surveillance System (BRFSS) data and Youth Risk Behavior Survey (YRBS) data are provided by the Cancer and Chronic Disease Bureau of Maryland Department of Health. Information on prevalence estimates of certain behavioral health topics is from the National Survey on Drug Use and Health (NSDUH) of Substance Abuse and Mental Health Services Administration (SAMHSA). Vaccination coverage estimates are from the National Immunization Survey (NIS) of CDC. Area Health Resource File (AHRF) is from the U.S. DHHS's Health Resources & Services Administration (HRSA). Data on population estimates are derived from the American Community Survey (ACS) of U.S. Census Bureau.

In addition, Office of Planning and Epidemiology uses other data sources such as program data collected in electronic medical records and electronic integrated case management system to conduct surveillance and program evaluation. These datasets are used to produce statistical information for health care professionals, researchers, and policy makers as part of surveillance activities.

2. Data Quality and Confidentiality

Data quality is assessed on a routine basis, in terms of completeness, timeliness and accuracy, and is documented to help interpret results from analyzing these population datasets. All data collected and housed by the Office of Planning and Epidemiology complies with the state and federal privacy and confidentiality regulations. Data or data analysis may be requested through the Office of Planning and Epidemiology.

3. Disparities on Race and Ethnicity

The Office of Planning and Epidemiology follows the recommendation of the National Center for Health Statistics of classifying health conditions according to the self-reported race/ethnicity of the individual. Information on race/ethnicity recorded in each data source is used to illustrate disease burdens for population subgroups. There are variations of data quality on race/ethnicity recorded in each population dataset, in terms of completeness and accuracy, thus interpretations of results are to take this into consideration. Though this information can be used to address important topic such as health equity, race/ethnicity is a self-reported item and is subject to the usual limitations of this type of information.

4. Rate

The rates provided in this report are estimations of the proportion of population with specific health conditions. This rate is usually expressed as per 100,000 population and is calculated by the formula:

$$\text{Rate} = \frac{\text{Number of Persons wwith Specific Conditions}}{\text{Total Population}} * 100{,}000$$

5. Population Weights

Population estimates for Montgomery County are based on data from the US Census Bureau. The 2000 U.S. standard population weights are used in calculating age-adjusted rates in this report as shown below.

Table 1. Master list: 2000 U.S. projected population and age-adjustment weights

Age	Population in thousands	Adjustment weight
All ages	**274,634**	**1.000000**
Under 1 year	3,795	0.013818
1 year	3,759	0.013687
2–4 years	11,433	0.041630
5 years	3,896	0.014186
6–8 years	11,800	0.042966
9 years	4,224	0.015380
10–11 years	8,258	0.030069
12–14 years	11,799	0.042963
15–17 years	11,819	0.043035
18–19 years	8,001	0.029133
20–24 years	18,257	0.066478
25–29 years	17,722	0.064530
30–34 years	19,511	0.071044
35–39 years	22,180	0.080762
40–44 years	22,479	0.081851
45–49 years	19,806	0.072118
50–54 years	17,224	0.062716
55–59 years	13,307	0.048454
60–64 years	10,654	0.038793
65–69 years	9,410	0.034264
70–74 years	8,726	0.031773
75–79 years	7,415	0.027000
80–84 years	4,900	0.017842
85 years and over	4,259	0.015508

6. Age-adjusted Rates

Age-adjusted rates refer to the number of events that would be expected per 100,000 persons in a selected population if that population had the same age distribution as a standard population. For this report, the standard population used is the U.S. 2000 standard population. Age-adjusted rates allow for comparisons of different population groups bycontrolling for the effects of differences in age between populations. Age-adjusted rates were calculated using the direct method as follows

$$\hat{R} = \sum_{i=1}^{m} s_i(d_i/p_i) = \sum_{i=1}^{m} w_i d_i$$

where,

m = number of age groups

d_i = number of events in age group i

P_i = population in age group i

S_i = proportion of the standard population in age group i

This is a weighted sum of Poisson random variables, with the weights being (S_i/p_i)

* Reliability of Rates

Several important notes should be kept in mind when examining rates.

- Rates based on small numbers of events can show considerable variation (e.g. less than 20 events). This limits the usefulness of these rates in comparisons and estimations of future occurrences.
- Unadjusted rates are not reliable for drawing definitive conclusions when making comparisons, because they do not take factors such as age distribution among populations into account. Age-adjusted rates offer a more refined measurement when comparing events over geographic areas or time periods.
- When a difference in rates appears to be significant, care should be exercised in attributing the difference to any particular factor or set of factors. Many variables may influence rate differences. Interpretation of a rate difference requires substantial data and exacting analysis.

7. Graphs

Graphs have varying scales depending on the range of the data displayed. Therefore, cautionshould be exercised when comparing such graphs.

8. Standard Errors

The standard errors (S.E.) of the rates were calculated using the following formula:

$$S.E.= \sqrt{\frac{w_j^2 n_j}{p_j^2}}$$

where,

- w_j = fraction of the standard population in age category
- n_j = number of cases in that age category
- p = person-years denominator

9. Confidence Intervals (CI)

The confidence interval is a method of assessing the magnitude and stability of a rate or ratio. The 95% CI represents a range of values that has a 95% probability of including the true rate or ratio. Observed rates are subject to statistical variation. Thus, even if the underlying risk of specific health condition is identical in two subpopulations, the observed rates for the subpopulations may differ because of random variation. The confidence interval describes the precision of the observed rate as an estimate of the underlying risk of having a specific health condition, with a wider interval indicating less certainty about this estimate. The width of the interval reflects the size of the subpopulation and the number of cases with specific health conditions. Smaller subpopulations with fewer health conditions lead to wider confidence intervals. The 95% confidence intervals used in the report are based on the Poisson distribution.

The standard error can be used to calculate the confidence interval. If the interval produced for one rate does not overlap the interval for another, the probability that the rates are statistically different is 95% or higher.
(This test can be inaccurate for rates based on fewer than 10 events.) The formula used is:

$$R \pm z\,(SE)$$

where,

- R=age-adjusted rate of one population
- z = 1.96 for 95% confidence limits
- SE= standard error as calculated above

Appendix B: Codes for Health Conditions

	Hospitalization and ER Visit		Mortality
	ICD-9	ICD-10	ICD-10
Suicide	E950–E959	T1491, T360-T375, T378-T394, T398-T712, X710-X838	X60–X84, Y87.0, U03
Fall	E880–E886, E888	W00–W19	W00–W19
Firearm	E922.0–E922.3, E922.8, E922.9, E955.0–E955.4, E965.0–E965.4, E985.0–E985.4, E970, E979.4	W32-W34, X73-X74, X93-X95, Y22-Y24, Y35, Y38	W32–W34, X72–X74, X93–X95, Y22–Y24, Y35.0, U01.4
Motor Vehicle	E810–E819	V02–V04(1,9), V05(1), V09(2), (V12-V14)(4,5,9), V19(4-6), V20(4,5,9), V21(3-5,9), V22(9), (V23-V28)(4,5,9), V29(4-6,8,9), (V30-V38, V40-V48, V50-V58, V60-V68, V70-V78)(5-7,9), (V39, V49, V59, V69, V79)(4-6,8,9), V80(3-5), (V81, V82)(1), (V84-V86)(0-3), V87(0-9), V89(2,3,9)	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2)
Mental Health	295-299, 301, 306, 308-309,311-314, 316, 293(8,9), (295-296)(0-9), 297(1-3,8-9), 298(1-4,8-9), 299(0-1,8-9), (301,302,306)(0-9), 307(1-8), 308(0-4,9), (309,313)(0-4,8-9), 310(1), 312(1-4,8), 314(0-2,8-9), 648(4), 293.8(1-4,9), 295(0-9)(0-5), 296(0-6)(0-6), 296.8(0-2,9), 296.9(0,9), 299(0-1,8-9)(0-1), 300.0(0-2,9), 300.1(0-6,9), 300.2(0-3,9), 300.8(1-2,9), 301.1(0-3), 301.2(0-2), (301.5,307.8)(0-1,9), 301.8(1-4,9), 302.5(0-3), (302.7,307.4)(0-9), 302.8(1-5,9), 306.5(0-3,9), 307.2(0-3), 307.5(0-4,9), 309.2(1-4,8-9), 312(0-2)(0-4), 312.3(0-5,9), 312.8(1-2,9), 313.2(1-3), 313.8(1-3,9), 314.0(0-1), 648.4(0-4), E950-E959, E950(0-9), E951(0-1,8), 95(2,3) (0-1,8-9), (955,958) (0-9), 957(0-2,9), V40(2,3), V403(1,9), V409, V628.4, V673.	F01.50, F02.81, F03.9(0-1), F04-F05, F06.0-F06.2, F063.0, F06.4, F06.8, F07.0, F20.0-F20.2, F20.5, F20.9, F21-F24, F25.9, F28-F29, F30.1(0-3), F30(2-4,8,11-13), F31.2, F313(0 -5), F316(0-4), F31.7(3-8), F31.81, F31.9, F32.0-F33.3, F33.4(1-2), F33.9-F34.1, F34.8, F39, F40.0(1-2), F40.10, F40.218, F40.24(0-1), F40.8-F41.1, F41.8-F41.9, F42, F43.0, F43.1(0,2), F43.12, F43.2(0-5,9), F43.8, F44(0,1,4,6), F44.8(1,9), F44.9-F45.1, F45.2(1,2), F45.4(1,2,8,9), F45.4, F45.8-F45.9, F48(1,2,8,9), F50.00 F50(2,8,9), F51.0(1,2,3,9), F51.1(1,2,9), F51.1(2,9), F51(3,8,9), F52.0, F52.1,F52.21, F52.3(1,2), F524 , F525, F526, F528, F53, F54, F59, F60(0,3-7), F60.8(1,9), F60.89, F60.9, F63.0-F63, F63.8(1,9), F63.9, F64.1, F64.2, F65.4, F65.5(1,2), F65.8(1,9), F65.9, F66, F68.1(1,2,8), F69-F73, F79, F80(0,1,2,4,81,89), F810, F812, F81.8, F81.8(1,9), F82, F84(0,3,5,8,9), F88, F89, F90(0,1,2,8,9), F90(1,2,8,9), F91.1-F91.3, F91.8, F91.9, F93.0, F93, F93.9, F94.1, F94.8, F95.0-F95.2, F95.9, F98.0-F98.2, F98.2(1,9), F98.3-F98.5, F98.8, F98.9, F99; G21.0, G30.9, G31.0(1,9), G31.1, G31.83, G44.209, G62.1, H93.25, I42.6, K29.20, K29.21, K70.0,	

	Hospitalization and ER Visit		Mortality
	ICD-9	ICD-10	ICD-10
		K70.10, K70.30, K70.9, O90.6, O99.34(0-5), R37, R41.81, R45.1, R45.7, R45.85(0,1), R48.0, R78.0, Z00.8, Z03.89, Z04.6, Z09, Z13.4, Z13.89, Z51.89, Z65.8, Z86.5(1,9), Z87.89(0,1), Z91.41(0-2), Z91.49, Z9183, X71.8, X71.9, X72, X73.0, X73.1, X73.2, X73.9, X74.0(1,2,8,9), X75, X76, X77.2, X78.9, X80, X81, X82.8, X83.0, X83.1, X83.2, X83.8, Y92.009, Y92.828, Y92.838, Y92.89, Y92.9	
Substance Abuse	E850–E858 E860–E869 E950–E952 E962 E972 E980–E982 E979(.6–.7)	F10.10, F10.180, F10.20, F10.229, F10.231, F10.239, F10.27, F10.929, F10.950, F10.951, F10.96, F10.982, F10.99, F11.10, F11.159, F11.18(1,2,8), F11.2(0,22,59,81,82,88), F11.9(22, 59,81,88,), F12.1(0,22,59,80,88), F12.2(0,22,59,20,88), F12.9(22,59,88), (F13.1,132,139)(0,59,80,81,82,88), F14.1(0,22,59,80,81,82,88), F14.2(0,1,22,59,80,81,82,88), F14.9(22,59,80,81,82,88), (F15.1,15.2) (0,22,59,80,81,82,88) F15.9(20,22,59,80,81,82,88), F16.10, F16.1(22,59,80,83,88), F16.2,59,80,83,88), F16.9(59,80,83,88), F17.2(08,18, 28,98), F18.10, (F181,182,189) (59,80,88), F19.1(0,22,59,80,81,82,88), F19.2(0,1,22,59,80,81,82,88), F19.9(21,22,39,4,50,51,59,6,7,80,81,82,88,9), O35(0,5), O99.3(20,21,22,23,24,25) P04.3, P04.4(1,9), P96.1, P96.2, Q86.0, T40(0-4)X(1-4)A, T40.60(1-4)A, T40.69(1-4)A, T51.0X(1-4)A, Z71.41.	Drug Induced Death D52.1,D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0- F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-18.9, F19.0-F19.5, F19.7-F19.9, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, K85.3, L10.5, L27.0-L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2, R78.1-R78.5, X40-X44, X60-X64, X85,Y10-14)
Accidents			V01–X59, Y85-Y86
All injury	All E-codes	R50.2, T14.91, T15.0, T15.1, T15.8, T15.9, T16.1, T16.2, T16.9-T17.4, T17.8-T18.5, T18.8-T194, T19.8-T19.9, T36.0-T50.9, T50.A (A, B, Z), T51.0-T51.3, T51.8-T52.4, T52.8-T74.0, T75.3, V00.01-V00.02, V00.09, V00.11-V00.158, V00.18, V00.21, V00.22, V00.28, V00.28, V00.31, V00.32, V00.38, V00.81, V00.82-V00.83,	V01–Y36, Y85–Y87, Y89, U01–U03

	Hospitalization and ER Visit		Mortality
	ICD-9	ICD-10	ICD-10
		V00.89, V01.00-V01.02, V01.09-V01.12, V01.19, V01.90-V01.92, V01.99-V02.02, V02.09-V02.12, V02.19-V029.2, V02.99-V03.02, V03.09-V03.12, V03.19, V03.90, V03.99-V04.12, V04.19, V04.90-V04.92, V04.99-V05.02, V05.09-V05.12XS, V05.19-V05.92, V05.99-V06.02, V06.09-V06.12, V06.19, V06.90-V06.92, V06.99, V09.00-V09.01, V09.09, V09.1, V09.20, V09.21, V09.21, V09.29, V09.3, V09.9-V10.5, V10.9-V11.5, V11.9-V12.5, V12.9-V13.5, V13.9-V145, V14.9-V15.5, V15.9-V16.5, V16.9-V17.5, V17.9-V18.5, V18.9-V19.5, V19.9-V20.5, V19.9-V20.5, V20.9-V21.5, V21.9-V22.5, V22.9-V23.5, V23.9-V24.5, V24.9-V25.5, V25.9-V26.5, V26.9-V27.5, V27.9-V28.5, V28.9-V29.5, V29.59-V29.60, V29.69, V2981, V29.88-V99, W00.0-W00.2, W00.9-W01.111, W01.118-W01.119, W01.198, W03-W05, W12, W13.0-W13.4, W13.8, W13.9, W14-W16, W17.0, W17.4, W17.8-W17.82, W17.89-W18.12, W18.2, W18.31, W18.39-W18.43, W18.49, W19-X99, Y00-Y021, Y02.8, Y030, Y038, Y040-Y042, Y04.8, Y07.01-Y07.04, Y07.11-Y07.14, Y07.4-Y07.5, Y07.9, Y08, Y08.8, Y09, Y21.0, Y21.4-Y21.9, Y22-Y38, Y62.0-Y66, Y69, Y83.0-Y83.6, Y83.8-Y84.9, Y92.00(0,1,2,3,7,8,9), Y92.0(10-46,48,49,00,91-96,98,99), Y92.10, Y92.1(10,11-16,18-31,33,35-63,68,69,90-99), Y92.2(6,9,10-15,18,19,22,23,31-34,38-43,48,50-54), Y92.3(10-12,18,20-22,28,30-31,34,39), Y92.4(10-15,80,82,88), Y92.5(10-13,20-24), Y92.5(30-32,38,59), Y92.6(1-5,9), Y92.7(1-4,9), Y92.8(4-6,9,10-16,18,20-21,28,30-34,38), Y92.9, Y930(1,2), Y93.1(1-9), Y93.2(1-4,9), Y93.29, Y93.3(1-5,9), Y93.4(1-5,9), Y93.5(1-5,6,7,9), Y93.6(1-9,A), Y93.7(1-5,9), Y93.8(1-4,8,9), Y93.9(A1-A6,A9,B1-B4,B9,C1-C2,C9,D1-D3,D9,E1-E6,E8,E9,F1-F2,F9,G1-G3,G9, H1-H3,H9,I1,I9,J1-J4, K1-K3,K9),	

	Hospitalization and ER Visit		Mortality
	ICD-9	ICD-10	ICD-10
		Y99.0, Y99.1, Y99.2, Y99.8, Y99.9	
All cancers	140-142(0-9), 143-144(0,1,8,9), 145-148(0-9), 149(01,,8,9), 150(0-5,8,9), 151(0-6,8,9), 152(0-3,8,9), 153(0-9), 154(0-3,8), (155,156)(0,2), 157(0-4,8,9), 158(0,8,9), 159(0,1,8,9), 160(0-9), 161(1,3,8,9), 162(0,2,3-5,8,9), 163(9), 164(0,1,3,8,9), 165(0,8,9), 170(0-9), 171(0,2-9), 172(0-9), 173(10,-12,19-22,29-32,39-42,49-52,59-62, 69-72,79 -82, 89-92,99), 174(0-6,8,9), 175(0,9), 176(0-6,8,9), 179, 180(0,1,8,9), 181, 182(0,1,8), 183(0,2-5,9), 184(0-4,8,9), 185, 186(0,9), (187,188)(1-9), 189(0-4,8,9), (190,191)(0-9), 192(0-3,8,9), 193, 194(0-7,8,9), 195(0-5,8), 196(0-3,5,6,8,9), 197(0-8), 198(0-7,81,82,89), 199.1, 209 3(1-6)	C00-C97	C00-C97
Lung and bronchus			C33-C34
Female breast			C50, C50(1-9)
Colorectal			C18-C21
Prostate			C61, C61(0-9)
Heart Disease	390-398, 400-405, 410-417, 420-429	I00-I51	I00-I51
Cerebrovascular disease	463, 348, 430-438, 443	I60-I69	I60-I69
Chronic lower respiratory disease	490, 491, 493, 496	J40-J47	J40-J47
Diabetes	249(00,10-90), 250(00,01,10,11,20,30,31,40,41,50,51,60,61,70,71,80,81,90,91), 349.89, 353.5, 355.9, 357.2, 362.0(1,2,4-7), 366.41, 443.81, 523.8, 536.3, 713.5, 716.80, 785.4	E10-E13	E10-E13

Appendix C: Sources of Additional Information

For more information on population, health conditions, risk factors, prevention, disease burdens, programs and efforts to address specific health conditions in the county, state, and national level please refer to the following resources:

- Montgomery County Department of Health and Human Services
http://www.montgomerycountymd.gov/hhs/

- Healthy Montgomery
http://www.healthymontgomery.org/

- Maryland Department of Health
https://health.maryland.gov/pages/index.aspx

- Maryland Health Services Cost Review Commission (HSCRC)
http://www.hscrc.state.md.us/Pages/default.aspx

- American Community Survey (ACS), U.S. Census Bureau
https://www.census.gov/programs-surveys/acs/

- American Health Ranking
https://www.americashealthrankings.org

- National Center for Health Statistics (NCHS), Center for Disease Control and Prevention
https://www.cdc.gov/nchs/index.htm

- Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention
https://www.cdc.gov/brfss/index.html

- Maryland Your Risk Behavior Survey
https://phpa.health.maryland.gov/ccdpc/Reports/Pages/yrbs.aspx

- Healthy People 2020. U.S. Department of Health and Human Services
https://www.healthypeople.gov/

- County Health Rankings and Roadmaps. A Robert Wood Johnson Foundation Program
http://www.countyhealthrankings.org/

- Dartmouth Atlas of Health Care
  http://www.dartmouthatlas.org/

- Health Resources and Services Administration (HRSA)
  https://www.hrsa.gov/

- Substance Abuse and Mental Health Services Administration (SAMHSA)
  https://www.samhsa.gov/

- Air Data, U.S. Environmental Protection Agency (EPA)
  https://www.epa.gov/outdoor-air-quality-data

- Consumer Confidence Reports, Maryland Department of the Environment
  http://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Pages/index.aspx

- National Immunization Survey (NIS)
  https://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/index.html

Public Health Services
Office of Planning and Epidemiology