

HEALTH

IN MONTGOMERY COUNTY

2010-2019

A Surveillance Report on Population Health



Montgomery County, Maryland
Department of Health and Human Services
Public Health Services
Office of Health Planning and Epidemiology



County Executive's Message



Dear Friends:

On behalf of the residents of Montgomery County, I am delighted to present the Montgomery County Department of Health and Human Services' (DHHS) second health status surveillance report on population health. 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 to further 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 continues to make significant strides in not only providing innovative, cutting-edge care, but also ensuring that those services are accessible and affordable to all our residents. We continue to focus on 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

A handwritten signature in black ink, appearing to read "Marc Elrich". The signature is stylized with a large, flowing "M" and "E".

Marc Elrich

County Executive

DHHS Director's Message



Dear Friends:

I am delighted to share with you our 2nd *Health in Montgomery County 2010-2019* surveillance report on population health. This is the result of hard work from our senior epidemiologist Dr. Liu and his team in Public Health Services under the leadership of our acting health officer Dr. Bridgers. Montgomery County has long been a thought leader and innovator in supporting the health and social service needs of its residents. As a community that is now 32% foreign born and 52% ethnic minority, understanding the health conditions and outcomes as they impact our various populations is an important and ongoing function. 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 ranging 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.

The intent of this report 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 at 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. 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,

Raymond L. Crowel

Raymond L. Crowel, Psy.D.
Director

Acting Health Officer's Message



Dear Friends:

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, the data suggests several concerning trends, including increases in sexually transmitted infections, tuberculosis rates, substance use (e.g., opioid use and overdoses), utilization of emergency rooms for management of chronic diseases (e.g., diabetes) and controlling the spread of infectious disease. Numerous gaps and disparities in outcomes remain, including infant mortality, and mortality associated with chronic diseases, such as diabetes, heart disease and cancer as well as communicable diseases.

The report serves to further the deeper conversations to understand the root causes driving these disparate outcomes. Our goal is to continue utilizing data to enhance our many successful current health programs and develop innovative and effective programs that are directly applicable to meeting the public health needs of Montgomery County residents.

Sincerely,

A handwritten signature in cursive script that reads "James C. Bridgers, Jr.".

James C. Bridgers, Jr., Ph.D., M.B.A.
*Acting Health Officer and Chief
Public Health Services*

Health in Montgomery County 2010-2019

A Surveillance Report on Population Health

Marc Elrich
County Executive

Raymond L. Crowel, Psy.D.
Director
Department of Health and Human Services

James C. Bridgers, Jr., Ph.D., M.B.A.
Acting Health Officer and Chief
Public Health Services

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

401 Hungerford Drive
Rockville, Maryland 20850
(240) 777-1872
Email: Chunfu.Liu@MontgomerycountyMD.gov
Web: <http://www.MontgomeryCountyMD.gov/hhs/>

April 2022

Suggested citation: Montgomery County, Maryland, Department of Health and Human Services, Office of Health Planning and Epidemiology. *Health in Montgomery County, 2010-2019: A Surveillance Report on Population Health*. Rockville, Maryland. 2022.

Health in Montgomery County 2010-2019

A Surveillance Report on Population Health

PREPARED BY:

Office of Health Planning and Epidemiology
Rita Deng, M.H.S., Senior Planning Specialist
Chunfu Liu, Sc.D., Chief Epidemiologist

University of Maryland
Katya Kaplow, M.P.H.

ACKNOWLEDGEMENT:

Data

Vital Records – Vital Statistics Administration, Maryland Department of Health

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

Pregnancy Risk Assessment Monitoring System (PRAMS) – Maryland Department of Health

* Special thanks to Stella Sharif-Chikiar for layout and design.

Table of Contents

4	Executive Summary	19
	Introduction	22
	Summary of Mortality and Hospitalization	27
	I. Demographics, Social Determinants, and Health Care Access	39
	1) Demographics	40
	2) Social Determinants	41
	3) Health Care Access	44
	II. Vital Statistics	46
	1) Births	46
	2) Deaths	47
	III. Maternal and Infant Health	56
	1) Maternal and Infant	57
	IV. Chronic Diseases	64
	1) Cardiovascular Diseases	64
	2) Cancers	78
	3) Diabetes Mellitus	89
	V. Infectious Diseases	93
	1) Reportable Diseases	93
	2) Tuberculosis	95
	3) Sexually Transmitted Infections	96
	4) HIV	101
	5) Immunization	103
	VI. Behavioral Health	104
	1) Mental Health	104
	2) Substance Abuse	107
	3) Suicide	112
	VII. Injuries	119
	1) Overall Injury	120
	2) Motor Vehicle	126
	3) Firearm	131
	4) Fall	134
	VIII. Environmental Health	138
	1) Lead Poisoning	138
	2) Air Pollution and Water	140
	3) Radon	143
	Conclusions	144
	References	147
	Frequently Asked Questions	149
	Appendices	151
	A) Technical Notes	154
	B) Codes for Health Conditions	159
	C) Other Resources	165

List of Tables

Table 1. Leading Cause of Deaths by Year, Montgomery County, 2017-19	27
Table 2. Leading Cause of Deaths by Sex, Montgomery County, 2017-19	28
Table 3. Leading Cause of Deaths by Race/Ethnicity, Montgomery County, 2017-19	29
Table 4. Leading Cause of Deaths by Age, Montgomery County, 2017-19	32
Table 5. Leading Cause of Hospitalization by Year, Montgomery County, 2017-19	31
Table 6. Leading Cause of Hospitalization by Sex, Montgomery County, 2017-19	32
Table 7. Leading Cause of Hospitalization by Race/Ethnicity, Montgomery County, 2017-19	33
Table 8. Leading Cause of Hospitalization by Age, Montgomery County, 2017-19	34
Table 9. Leading Cause of ER Visit by Year, Montgomery County, 2017-19	35
Table 10. Leading Cause of ER Visit by Sex, Montgomery County, 2017-19	36
Table 11. Leading Cause of ER Visit by Race/Ethnicity, Montgomery County, 2017-19	37
Table 12. Leading Cause of ER Visit by Age, Montgomery County, 2017-19	38
Table 13. Percent Population Estimates by Selected Characteristics, Montgomery County, Maryland, and U.S., 2015-19	40
Table 14. Percent Families below Poverty Level by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2013-17	41
Table 15. Unemployment Rate by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2013-17	43
Table 16. Percent Individuals with College Degree or Higher by Race/Ethnicity, Montgomery County, Maryland, and U.S., 2015-19	43
Table 17. Percent Individuals without Health Insurance, Montgomery County, Maryland, and U.S., 2011-15	44
Table 18. Population/PCP Ratio, Montgomery County, Maryland, and U.S., 2011-15	44
Table 19. Leading Causes of Death by Sex and Race/Ethnicity, Montgomery County, 2017-19	47
Table 20. Chronic Disease Mortality by Sex and Race/Ethnicity, Montgomery County, 2017-19	65
Table 21. Incidence by Sex and Race/Ethnicity, Selected Infectious Diseases, Montgomery County, 2017-19	96
Table 22. Immunization Coverage for Selected Vaccines by Age 24 Months, Maryland and U.S., 2017	102
Table 23. Coverage with ≥ 1 HPV Vaccine for Adolescents Aged 13-17 Years, Maryland and U.S., 2015-18	102
Table 24. Any Mental Illness in the Past Year among Adults Aged 18 or Older, Montgomery County, Maryland, and U.S., 2012-16	103
Table 25. Illicit Drug Use in the Past Month among Individuals Aged 12 or Older, Montgomery County, Maryland, and U.S., 2010-14	106
Table 26. Percent High School Students Ever Taken a Prescription Drug without Prescription, Montgomery County, Maryland, and U.S., 2014-18	106
Table 27. Percent High School Students Ever Used Needle to Inject Illegal Drug, Montgomery County, Maryland, and U.S., 2014-19	106
Table 28. Drug and Alcohol Related Intoxication Deaths, Montgomery County, 2014-18	110

Table 29. Had Serious Thoughts of Suicide in the Past Year among Adults Aged 18 or Older, Montgomery County, Maryland, and U.S., 2012-16	<u>111</u>
Table 30a. Percent High School Students Report Seriously Considering Suicide Past Year, Montgomery County, Maryland, and U.S., 2014-16	<u>111</u>
Table 30b. Percent High School Students Report Seriously Considered Attempting Suicide Past Year, Montgomery County and Maryland, 2018	<u>111</u>
Table 31. Injury Related Mortality by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>118</u>
Table 32. Children Age 0-6 Tested for Blood Lead Level, Montgomery County and Maryland, 2019	<u>138</u>
Table 33. Selected Air Quality Indicators, Montgomery County, 2012-19	<u>140</u>
Table 34. Water Quality, Montgomery County, 2018-19	<u>142</u>

List of Figures

Fig. 1. Leading Cause of Deaths, Montgomery County, 2017-19	27
Fig. 2. Leading Cause of Deaths by Sex, Montgomery County, 2017-19	28
Fig. 3. Leading Cause of Deaths by Race/Ethnicity, Montgomery County, 2017-19	29
Fig. 4. Leading Cause of Deaths by Age, Montgomery County, 2017-19	30
Fig. 5. Leading Cause of Hospitalization, Montgomery County, 2017-19	31
Fig. 6. Leading Cause of Hospitalization by Sex, Montgomery County, 2017-19	32
Fig. 7. Leading Cause of Hospitalization by Race/Ethnicity, Montgomery County, 2017-19	33
Fig. 8. Leading Cause of Hospitalization by Age, Montgomery County, 2017-19	34
Fig. 9. Leading Cause of ER Visit, Montgomery County, 2017-19	35
Fig. 10. Leading Cause of ER Visit by Sex, Montgomery County, 2017-19	36
Fig. 11. Leading Cause of ER Visit by Race/Ethnicity, Montgomery County, 2017-19	37
Fig. 12. Leading Cause of ER Visit by Age, Montgomery County, 2017-19	38
Fig. 13. Crude Birth Rate, Montgomery County, Maryland, and U.S., 2010-19	46
Fig. 14. Birth Rate by Race/Ethnicity, Montgomery County, 2010-19	46
Fig. 15. Adolescent Birth Rate, Montgomery County, Maryland, and U.S., 2010-19	47
Fig. 16. Adolescent Birth Rate by Race/Ethnicity, Montgomery County, 2010-19	47
Fig. 17. Top 10 Leading Causes of Death, Montgomery County, 2017-19	48
Fig. 18. Age-Adjusted Mortality Rate, All Causes, Montgomery County, Maryland, and U.S., 2010-19	49
Fig. 19. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, All Causes, Montgomery County, 2017-19	49
Fig. 20. Mortality Rate by Age, All Causes, Montgomery County, 2017-19	49
Fig. 21. Age-Adjusted Mortality Rate, Heart Disease, Montgomery County, Maryland, and U.S., 2010-19	50
Fig. 22. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Heart Disease, Montgomery County, 2017-19	50
Fig. 23. Mortality Rate by Age, Heart Disease, Montgomery County, 2017-19	50
Fig. 24. Age-Adjusted Mortality Rate, Cancer, Montgomery County, Maryland, and U.S., 2010-19	51
Fig. 25. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Cancer, Montgomery County, 2017-19	51
Fig. 26. Mortality Rate by Age, Cancer, Montgomery County, 2017-19	51
Fig. 27. Age-Adjusted Mortality Rate, Cerebrovascular Disease, Montgomery County, Maryland, and U.S., 2010-19	52
Fig. 28. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Cerebrovascular Disease, Montgomery County, 2017-19	52
Fig. 29. Mortality Rate by Age, Cerebrovascular Disease, Montgomery County, 2017-19	52
Fig. 30. Age-Adjusted Mortality Rate, Accidents, Montgomery County, Maryland, and U.S., 2010-19	53
Fig. 31. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Accidents, Montgomery County, 2017-19	53
Fig. 32. Mortality Rate by Age, Accidents, Montgomery County, 2017-19	53

Fig. 33. Age-Adjusted Mortality Rate, Chronic Lower Respiratory Disease, Montgomery County, Maryland, and U.S., 2010-19	54
Fig. 34. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Chronic Lower Respiratory Disease, Montgomery County, 2017-19	54
Fig. 35. Mortality Rate by Age, Chronic Lower Respiratory Disease, Montgomery County, 2017-19	54
Fig. 36. Age-Adjusted Mortality Rate, Diabetes Mellitus, Montgomery County, Maryland, and U.S., 2010-19	55
Fig. 37. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Diabetes Mellitus, Montgomery County, 2017-19	55
Fig. 38. Mortality Rate by Age, Diabetes Mellitus, Montgomery County, 2017-19	55
Fig. 39. Percent Births among Women Ages 35-44, Montgomery County and Maryland, 2012-19	57
Fig. 40. Percent Births among Women Ages 35-44 by Race/Ethnicity, Montgomery County, 2012-19	57
Fig. 41. Percent Births to Unmarried Women, Montgomery County, Maryland, and U.S., 2012-19	58
Fig. 42. Percent Births to Unmarried Women by Race/Ethnicity, Montgomery County, 2015-19	58
Fig. 43. Percent Births to Women without High School Education, Montgomery County and Maryland, 2012-19	58
Fig. 44. Percent Births to Women without High School Education by Race/Ethnicity, Montgomery County, 2015-19	58
Fig. 45. Percent Plurality Births, Montgomery County and Maryland, 2012-19	59
Fig. 46. Percent Plurality Births by Race/Ethnicity, Montgomery County, 2015-19	59
Fig. 47. Percent Birth with Late or No Prenatal Care, Montgomery County and Maryland, 2012-19	59
Fig. 48. Percent Birth with Late or No Prenatal care by Race/Ethnicity, 2015-19	59
Fig. 49. Tobacco Use during Pregnancy, Montgomery County, 2012-19	60
Fig. 50. Tobacco Use during Pregnancy by Race/Ethnicity, Montgomery County, 2015-19	60
Fig. 51. Percent Preterm Births, Montgomery County and Maryland, 2012-19	61
Fig. 52. Percent Preterm Births by Race/Ethnicity, Montgomery County, 2015-19	61
Fig. 53. Percent Low Weight Births, Montgomery County, Maryland, and U.S., 2012-19	62
Fig. 54. Percent Low and Very Low Weight Births by Race/Ethnicity, Montgomery County, 2015-19	62
Fig. 55. Infant Mortality Rate, Montgomery County, Maryland, and U.S., 2010-19	62
Fig. 56. Infant Mortality Rate by Race/Ethnicity, Montgomery County, 2015-19	62
Fig. 57. Heart Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19	66
Fig. 58. Heart Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	66
Fig. 59. Heart Disease Mortality Rates by Age, Montgomery County, 2017-19	66
Fig. 60. Heart Disease Related ER Visit Rates, Montgomery County and Maryland, 2010-19	68
Fig. 61. Heart Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	68
Fig. 62. Heart Disease Related ER Visit Rates by Age, Montgomery County, 2017-19	68
Fig. 63. Cerebrovascular Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19	70

Fig. 64. Cerebrovascular Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>70</u>
Fig. 65. Cerebrovascular Disease Mortality Rates by Age, Montgomery County, 2017-19	<u>70</u>
Fig. 66. Cerebrovascular Disease Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>72</u>
Fig. 67. Cerebrovascular Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>72</u>
Fig. 68. Cerebrovascular Disease Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>72</u>
Fig. 69. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19	<u>74</u>
Fig. 70. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>74</u>
Fig. 71. Chronic Lower Respiratory Disease Mortality Rates by Age, Montgomery County, 2017-19	<u>74</u>
Fig. 72. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>76</u>
Fig. 73. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>76</u>
Fig. 74. Chronic Lower Respiratory Disease Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>76</u>
Fig. 75. Cancer Age-Adjusted Incidence Rates, All Sites, Montgomery County, Maryland, and US, 2010-16	<u>78</u>
Fig. 76. Cancer Age-Adjusted Mortality Rates, All Sites, Montgomery County, Maryland, and US, 2010-16	<u>78</u>
Fig. 77. Cancer Age-Adjusted Incidence Rates by Sex and Race, All Sites, Montgomery County, 2012-16	<u>79</u>
Fig. 78. Cancer Age-Adjusted Mortality Rates by Sex and Race, All Sites, Montgomery County, 2012-16	<u>79</u>
Fig. 79. Cancer Age-Adjusted Incidence Rates, Lung and Bronchus, Montgomery County, Maryland, and US, 2010-16	<u>79</u>
Fig. 80. Cancer Age-Adjusted Mortality Rates, Lung and Bronchus, Montgomery County, Maryland, and US, 2010-16	<u>79</u>
Fig. 81. Cancer Age-Adjusted Incidence Rates by Sex and Race, Lung and Bronchus, Montgomery County, 2012-16	<u>80</u>
Fig. 82. Cancer Age-Adjusted Mortality Rates by Sex and Race, Lung and Bronchus, Montgomery County, 2012-16	<u>80</u>
Fig. 83. Cancer Age-Adjusted Incidence Rates, Colon and Rectum, Montgomery County, Maryland, and US, 2010-16	<u>81</u>
Fig. 84. Cancer Age-Adjusted Mortality Rates, Colon and Rectum, Montgomery County, Maryland, and US, 2010-16	<u>81</u>
Fig. 85. Cancer Age-Adjusted Incidence Rates by Sex and Race, Colon and Rectum, Montgomery County, 2012-16	<u>81</u>
Fig. 86. Cancer Age-Adjusted Mortality Rates by Sex and Race, Colon and Rectum, Montgomery County, 2012-16	<u>81</u>
Fig. 87. Cancer Age-Adjusted Incidence Rates, Female Breast, Montgomery County, Maryland, and US, 2010-16	<u>83</u>

3Fig. 88. Cancer Age-Adjusted Mortality Rates, Female Breast, Montgomery County, Maryland, and US, 2010-16	<u>83</u>
Fig. 89. Cancer Age-Adjusted Incidence Rates by Race, Female Breast, Montgomery County, 2012-16	<u>83</u>
Fig. 90. Cancer Age-Adjusted Mortality Rates by Race, Female Breast, Montgomery County, 2012-16	<u>83</u>
Fig. 91. Cancer Age-Adjusted Incidence Rates, Prostate, Montgomery County, Maryland, and US, 2010-16	<u>85</u>
Fig. 92. Cancer Age-Adjusted Mortality Rates, Prostate, Montgomery County, Maryland, and US, 2010-16	<u>85</u>
Fig. 93. Cancer Age-Adjusted Incidence Rates by Race, Prostate, Montgomery County, 2012-16	<u>85</u>
Fig. 94. Cancer Age-Adjusted Mortality Rates by Race, Prostate, Montgomery County, 2012-16	<u>85</u>
Fig. 95. Cancer Age-Adjusted Incidence Rates, Melanoma of Skin, Montgomery County, Maryland, and US, 2010-16	<u>87</u>
Fig. 96. Cancer Age-Adjusted Mortality Rates, Melanoma of Skin, Montgomery County, Maryland, and US, 2010-16	<u>87</u>
Fig. 97. Cancer Age-Adjusted Incidence Rates by Sex, Melanoma of Skin, Montgomery County, 2012-16	<u>87</u>
Fig. 98. Cancer Age-Adjusted Mortality Rates by Sex, Melanoma of Skin, Montgomery County, 2012-16	<u>87</u>
Fig. 99. Diabetes Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19	<u>89</u>
Fig. 100. Diabetes Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>89</u>
Fig. 101. Diabetes Mortality Rates by Age, Montgomery County, 2017-19	<u>89</u>
Fig. 102. Diabetes Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>90</u>
Fig. 103. Diabetes Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>90</u>
Fig. 104. Diabetes Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>90</u>
Fig. 105. Incidence Rates, Campylobacteriosis, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 106. Incidence Rates, Salmonellosis, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 107. Incidence Rates, Vibriosis, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 108. Incidence Rates, Legionellosis, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 109. Incidence Rates, Pertussis, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 110. Incidence Rates, Rabies-Animal, Montgomery County, Maryland, and U.S., 2012-19	<u>93</u>
Fig. 111. Incidence Rates, Lyme Disease, Montgomery County, Maryland, and U.S., 2012-19	<u>94</u>
Fig. 112. Incidence Rates, Shiga Toxin Producing E. Coli, Montgomery County, Maryland, and U.S., 2012-19	<u>94</u>
Fig. 113. Incidence Rates, Tuberculosis, Montgomery County, Maryland, and U.S., 2012-19	<u>94</u>
Fig. 114. Incidence Rates by Sex and Race/Ethnicity, Tuberculosis, Montgomery County, 2015-19	<u>94</u>

Fig. 115. Incidence Rates by Age, Tuberculosis, Montgomery County, Maryland, and U.S., 2015-19	<u>95</u>
Fig. 116. Incidence Rates, Chlamydia, Montgomery County, Maryland, and U.S., 2012-19	<u>96</u>
Fig. 117. Incidence Rates by Sex and Race/Ethnicity, Chlamydia, Montgomery County, 2015-19	<u>96</u>
Fig. 118. Incidence Rates by Age, Chlamydia, Montgomery County, 2015-19	<u>96</u>
Fig. 119. Incidence Rates, Gonorrhea, Montgomery County, Maryland, and U.S., 2012-19	<u>98</u>
Fig. 120. Incidence Rates by Sex and Race/Ethnicity, Gonorrhea, Montgomery County, 2015-19	<u>98</u>
Fig. 121. Incidence Rates by Age, Gonorrhea, Montgomery County, 2015-19	<u>98</u>
Fig. 122. Incidence Rates, Syphilis, Montgomery County, Maryland, and U.S., 2012-19	<u>100</u>
Fig. 123. Incidence Rates by Sex and Race/Ethnicity, Syphilis, Montgomery County, 2015-19	<u>100</u>
Fig. 124. Incidence Rates by Age, Syphilis, Montgomery County, 2015-19	<u>100</u>
Fig. 125. Incidence Rates, HIV, Montgomery County, Maryland, and U.S., 2012-19	<u>101</u>
Fig. 126. Incidence Rates by Sex and Race/Ethnicity, HIV, Montgomery County, Maryland, and U.S., 2015-19	<u>101</u>
Fig. 127. Mental Health Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>104</u>
Fig. 128. Mental Health Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>104</u>
Fig. 129. Mental Health Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>104</u>
Fig. 130. Drug-induced Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>107</u>
Fig. 131. Drug-induced Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>107</u>
Fig. 132. Drug-induced Mortality Rates by Age, Montgomery County, 2017-19	<u>107</u>
Fig. 133. Substance Abuse Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>109</u>
Fig. 134. Substance Abuse Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>109</u>
Fig. 135. Substance Abuse Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>109</u>
Fig. 136. Suicide Related Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>112</u>
Fig. 137. Suicide Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>112</u>
Fig. 138. Suicide Related Mortality Rates by Age, Montgomery County, 2017-19	<u>112</u>
Fig. 139. Suicide Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>114</u>
Fig. 140. Suicide Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>114</u>
Fig. 141. Suicide Related Hospitalization Rates by Age, Montgomery County, 2017-19	<u>114</u>
Fig. 142. Suicide Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>116</u>
Fig. 143. Suicide Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>116</u>
Fig. 144. Suicide Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>116</u>
Fig. 145. Overall Injury Related Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>119</u>

Fig. 146. Overall Injury Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>119</u>
Fig. 147. Overall Injury Related Mortality Rates by Age, Montgomery County, 2017-19	<u>119</u>
Fig. 148. Overall Injury Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>121</u>
Fig. 149. Overall Injury Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>121</u>
Fig. 150. Overall Injury Related Hospitalization Rates by Age, Montgomery County, 2017-19	<u>121</u>
Fig. 151. Overall Injury Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>123</u>
Fig. 152. Overall Injury Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>123</u>
Fig. 153. Overall Injury Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>123</u>
Fig. 154. Motor Vehicle Related Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>125</u>
Fig. 155. Motor Vehicle Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>125</u>
Fig. 156. Motor Vehicle Related Mortality Rates by Age, Montgomery County, 2017-19	<u>125</u>
Fig. 157. Motor Vehicle Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>126</u>
Fig. 158. Motor Vehicle Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>126</u>
Fig. 159. Motor Vehicle Related Hospitalization Rates by Age, Montgomery County, 2017-19	<u>126</u>
Fig. 160. Motor Vehicle Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>128</u>
Fig. 161. Motor Vehicle Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>128</u>
Fig. 162. Motor Vehicle Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>128</u>
Fig. 163. Firearm Related Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>130</u>
Fig. 164. Firearm Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>130</u>
Fig. 165. Firearm Related Mortality Rates by Age, Montgomery County, 2017-19	<u>130</u>
Fig. 166. Firearm Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>134</u>
Fig. 167. Firearm Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>131</u>
Fig. 168. Firearm Related Hospitalization Rates by Age, Montgomery County, 2017-19	<u>131</u>
Fig. 169. Firearm Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>132</u>
Fig. 170. Firearm Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>132</u>
Fig. 171. Firearm Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>132</u>
Fig. 172. Fall Related Age-Adjusted Mortality Rates, Montgomery County, 2010-19	<u>133</u>
Fig. 173. Fall Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>133</u>
Fig. 174. Fall Related Mortality Rates by Age, Montgomery County, 2017-19	<u>133</u>

Fig. 175. Fall Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>134</u>
Fig. 176. Fall Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>134</u>
Fig. 177. Fall Related Hospitalization Rates by Age, Montgomery County, 2017-19	<u>134</u>
Fig. 178. Fall Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19	<u>136</u>
Fig. 179. Fall Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19	<u>136</u>
Fig. 180. Fall Related ER Visit Rates by Age, Montgomery County, 2017-19	<u>136</u>
Fig. 181. Percent Children Ages 0-6 Tested with Blood Lead Level 5-9 ug/dL, Maryland, 2000-19	<u>139</u>
Fig. 182. Children Ages 0-6 Tested with Blood Lead Level ≥ 10 ug/dL, Maryland, 2000-19	<u>139</u>
Fig. 183. Particulate Matter Level, Montgomery County, Maryland, and U.S., 2002-14	<u>141</u>

List of Maps

Map 1. Median Household Income by Census Tract, Montgomery County, 2019	43
Map 2. Infant Mortality Rate by Census Tract, Montgomery County, 2010-19	64
Map 3. Heart Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	68
Map 4. Heart Disease Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	70
Map 5. Cerebrovascular Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	72
Map 6. Cerebrovascular Disease Related ER Visit Age-Adjusted Rate by Zip Code, Montgomery County, 2017-19	74
Map 7. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	76
Map 8. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	78
Map 9. Cancer Age-Adjusted Mortality Rates by Census Tract, Lung and Bronchus, Montgomery County, 2010-18	81
Map 10. Cancer Age-Adjusted Mortality Rates by Census Tract, Colon and Rectum, Montgomery County, 2010-18	83
Map 11. Cancer Age-Adjusted Mortality Rates by Census Tract, Female Breast, Montgomery County, 2010-2018	85
Map 12. Cancer Age-Adjusted Mortality Rates by Census Tract, Prostate, Montgomery County, 2010-18	87
Map 13. Diabetes Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	91
Map 14. Incidence Rates by Zip Code, Chlamydia, Montgomery County, 2015-19	98
Map 15. Incidence Rates by Zip Code, Gonorrhea, Montgomery County, 2015-19	100
Map 16. Mental Health Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	106
Map 17. Drug-induced Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	110
Map 18. Substance Abuse Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	112
Map 19. Suicide Related Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	116
Map 20. Suicide Related Hospitalization Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	118
Map 21. Suicide Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	120
Map 22. Overall Injury Related Age-Adjusted Mortality Rates by Census Tract, Montgomery County, 2017-19	123

Map 23. Overall Injury Related Hospitalization Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>125</u>
Map 24. Overall Injury Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>127</u>
Map 25. Motor Vehicle Related Hospitalization Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>130</u>
Map 26. Motor Vehicle Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>132</u>
Map 27. Fall Related Hospitalization Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>138</u>
Map 28. Fall Related ER Visit Age-Adjusted Rates by Zip Code, Montgomery County, 2017-19	<u>140</u>
Map 29. Average Radon Measurements by Zip Code, Montgomery County, 2005-16	<u>146</u>

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 a number of health conditions with increasing trends, and disparities by race/ethnicity, age, sex, and geographic area warrant special attention. It is critical to highlight these areas in order to target efforts and resources to meet the evolving needs of a changing population in the County.

The leading mortality among Montgomery County residents 2017-19 included cancer (23%), heart disease (22.3%), and cerebrovascular disease (5.1%). Leading causes of hospitalizations included heart disease (13.9%), injuries (11.2%), and mental health (7.2%), while injuries (19.4%), heart disease (9.9%), and mental health (6.5%) were leading causes of ER visits. Variations exist among population subgroups in sex, age, and race/ethnicity on mortality, hospitalization, and ER visits. 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) From 2018 to 2019, there is an increase in the percentage of families living in poverty in the County. However, the County's overall level in 2019 (7.4%) is lower than Maryland's (9%) and much lower than that of the U.S. (12.3%). Hispanic and NH-Black families had the highest percentages of families living in poverty between 2015 and 2019.
- (3) The overall percentage of individuals without health insurance in the County has decreased over time, similar to trends in 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 of adolescent births in the County.
- (2) The leading causes of death in the County were cancer (23%), 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 (7.5%) has been consistently lower than that in Maryland (8.7%); NH-Blacks had the highest percentage.
- (3) The infant mortality rate in the County (4.2/1000 live births) is consistently lower than that in Maryland (5.9/1,000 live births); NH-Blacks had the highest rates.

Chronic Disease

- (1) Even though heart disease mortality decreased in the County over time, heart disease related ER visit rates increased. However, the County had consistently lower rates of mortality and ER visits than in Maryland. NH-Blacks had the highest heart disease mortality and ER visit rates.
- (2) Overall cancer incidence and mortality rates are decreasing in the County. County rates are consistently lower than those in Maryland and the U.S.
- (3) Diabetes mortality and diabetes related ER visits rates increased in the County, even though County rates are consistently lower than those for Maryland. NH-Blacks had the highest diabetes mortality and ER visit rates.

Infectious Disease

- (1) Tuberculosis rates in the County were consistently higher than in Maryland and the U.S. (5.4, 2.4, and 2.2/100,000 respectively in 2020); Asian/PI had the highest rates. The County reached its Healthy Montgomery 2023 goal for Tuberculosis in 2020.
- (2) Even 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 those aged 20-24 had the highest rates of Chlamydia and Gonorrhea. NH-Blacks and those aged 25-44 had the highest rate of Syphilis.
- (3) HIV rates in the County (15.4/100,000) decreased over time and were consistently lower than in Maryland (18.6/100,000); NH-Blacks had the highest rates.

Behavioral Health

- (1) Mental health related ER visit rates in the County increased over time even though they are lower compared to rates in Maryland; NH-Blacks and those aged 18-34 had the highest rates.
- (2) Substance abuse related ER visit rates stayed stable overall in the County since 2010-19, though fluctuated. County rates were consistently lower than those in Maryland. NH-Whites and those aged 18-34 had the highest drug-induced mortality rates.
- (3) Suicide mortality, hospitalization, and ER visit rates were consistently lower than those in Maryland. NH-Whites and those aged 18-34 had the highest suicide related hospitalization rate while NH-Blacks and those aged 18-34 had the highest suicide related ER rate.

Injury

- (1) Overall injury hospitalization and ER visit rates decreased in the County. County rates were consistently lower than those in Maryland.
- (2) Motor vehicle related mortality rates and hospitalization rates decreased in the County. County rates were consistently lower than those in Maryland. Hispanics and those aged 18-34 had the highest motor vehicle mortality rates. NH-Blacks and those aged 18-34 had the highest motor vehicle ER visit rates.
- (3) Firearm related ER visit rates decreased in the County while the mortality and hospitalization rates fluctuated. County hospitalization and ER visit rates were consistently lower than in Maryland. NH-Blacks and those aged 18-34 had the highest firearm 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 (0.4% and 0.8% respectively in 2018).
- (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 1.05 million in 2019 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 (31.4%) of residents over 25 years of age who hold post-graduate degrees. In 2011, Montgomery County was ranked by *Forbes* as the 10th richest in the country, with a median household income of \$92,213 [2] that has grown to \$108,820 between 2015 and 2019. Montgomery County has a very diverse population and there is an increasing trend towards becoming more diverse over time. In 2019, there were 44.2% Non-Hispanic Whites, 19.4% Non-Hispanic Blacks, 16.1% Asians/Pacific Islanders, and 20% Hispanics or Latinos based on the estimate from the U.S. Census. Of the County's population, 32.5% 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]. Topic areas including maternal and infant health, behavioral health, chronic disease, infectious disease, and injury are identified by Healthy Montgomery to be addressed through 4 lenses – access to care, equity, social determinants of health, and data and surveillance.

This report includes all the priority areas identified by Healthy Montgomery, in addition, it comprehensively covers all the major public health areas not addressed by 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.

- Comparisons of disease rates between sub-county areas (i.e., Census Tract, Zip Codes, etc.) and the County overall through Geographic Information System (GIS) mapping are available to identify potential risks of diseases associated with different lifestyles and possible environmental/occupational exposures.
- Comparison of disease rates between the County, Maryland and U.S. are made where appropriate.
- Information from the 2017-19 Maryland Behavioral Risk Factor Surveillance System (BRFSS) and 2017-19 Youth Risk Behavior Survey (YRBS) are included to provide information on both risky and health-prompting behaviors, as well as prevalence estimates of certain health conditions.
- Information from 2012-17 Maryland Pregnancy Risk Assessment Monitoring System (PRAMS) is included to provide maternal attitudes and experience during pregnancy.
- Information from the Healthy People 2030 is included to provide a benchmark for the progress made and areas for ongoing efforts. Among Healthy Montgomery Core Indicators, Healthy Montgomery 2023 Goals and Objectives are used.
- Findings from report of Health Equity in Montgomery County, MD: Healthy Montgomery Core Indicators 2008-17 are included to highlight the trend of health disparity over time among population subgroups on race/ethnicity.
- 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 (DHHS) 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. The 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 Services to End and Prevent Homelessness.

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 Health Planning and Epidemiology

The DHHS Public Health Services program entails Divisions of Community and Population Health, Communicable Disease and Epidemiology, Maternal and Child Health Services, School Health Services, Licensure and Regulatory Services, and Health Planning and Epidemiology.

The Office of Health 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 continues to be made to improve the quality of life and survival for people with these conditions. Prevention 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 2017-19 Maryland Behavioral Risk Factor Surveillance System (BRFSS) survey, 2017-19 Youth Risk Behavior Survey (YRBS), and 2012-17 Pregnancy Risk Assessment Monitoring System (PRAMS) whenever possible and appropriate.



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



This icon indicates data from the Maryland Pregnancy Risk Assessment Monitoring System (PRAMS), a CDC surveillance system to assess maternal attitudes and experience before, during, and shortly after pregnancy.

*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 ultimate 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 2030, 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 2030 are included in this report whenever possible and appropriate.



This icon indicates goals of Healthy People 2030 from the United States Department of Health and Human Services, Office of Disease Prevention and Health Promotion.



This icon indicates goals and objectives of Healthy Montgomery 2023 Core Indicators.



This icon indicates findings from the Report of Health Equity in Montgomery County, Maryland: Healthy Montgomery Core Indicators 2008-17.

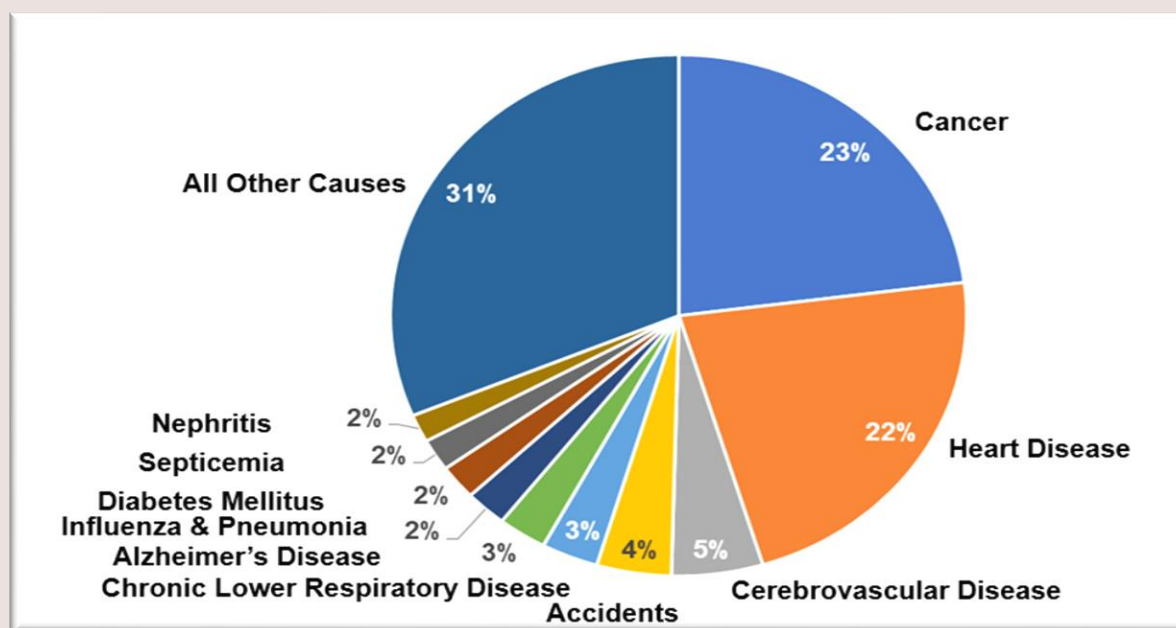
Summary of Mortality and Hospitalization

Mortality

**Table 1. Leading Causes of Death by Year, Montgomery County
2017-19**

	2017		2018		2019		2017-19	
	%	Rank	%	Rank	%	Rank	%	Rank
Cancer	23.4	1	23.4	1	22.1	2	23.0	1
Heart Disease	21.8	2	22.2	2	23.0	1	22.3	2
Cerebrovascular Disease	4.9	3	5.2	3	5.2	3	5.1	3
Accidents	4.4	4	3.8	5	4.4	4	4.2	4
Chronic Lower Respiratory Disease	2.8	7	3.8	4	3.0	5	3.2	5
Alzheimer's Disease	3.0	5	2.7	6	2.5	6	2.7	6
Influenza & Pneumonia	2.8	6	2.4	7	1.9	8	2.3	7
Diabetes Mellitus	2.3	8	1.9	9	2.3	7	2.2	8
Septicemia	2.2	9	2.0	8	1.8	9	2.0	9
Nephritis	2.1	10	1.6	10	1.5	10	1.7	10
All Other Causes	30.6		31.0		32.3		31.3	

**Fig. 1. Leading Causes of Death, Montgomery County
2017-19**

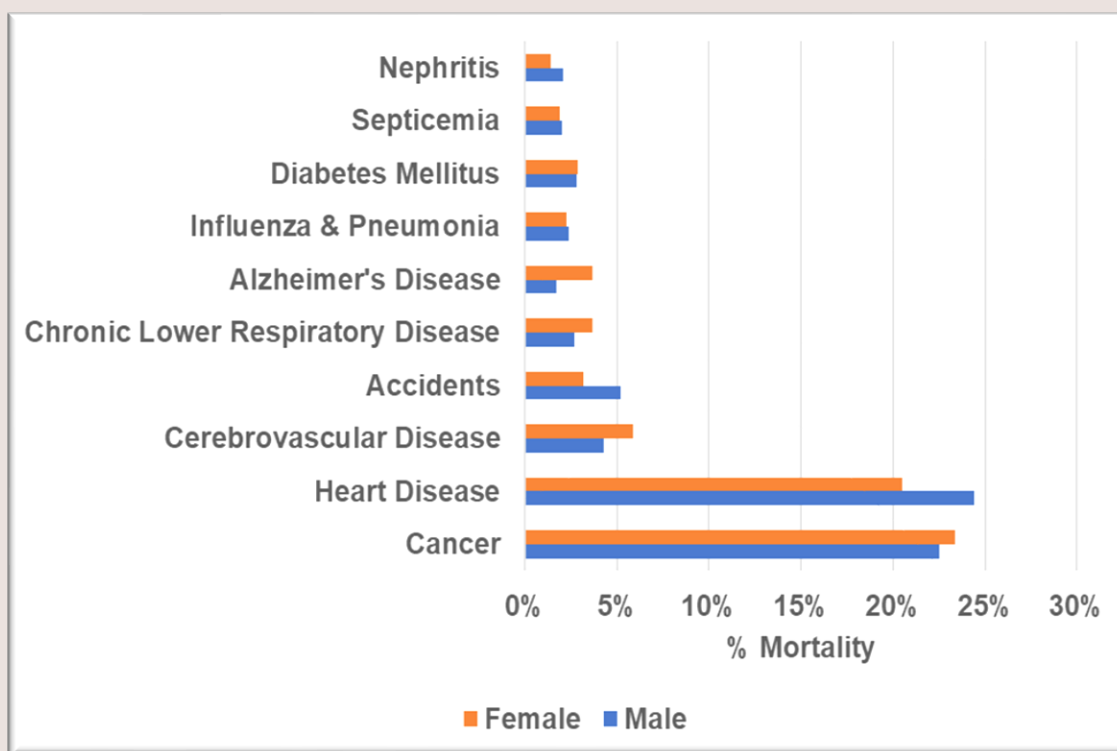


**Table 2. Leading Causes of Death* by Sex, Montgomery County
2017-19**

	Male		Female	
	%	Rank	%	Rank
Cancer	22.5	2	23.4	1
Heart Disease	24.4	1	20.5	2
Cerebrovascular Disease	4.3	4	5.9	3
Accidents	5.2	3	3.2	6
Chronic Lower Respiratory Disease	2.7	6	3.7	5
Alzheimer's Disease	1.7	10	3.7	4
Influenza & Pneumonia	2.4	7	2.3	8
Diabetes Mellitus	2.8	5	2.9	7
Septicemia	2.0	9	1.9	9
Nephritis	2.1	8	1.4	10

*based on list of leading causes of death for overall population only

**Fig 2. Leading Causes of Death by Sex, Montgomery County
2017-19**

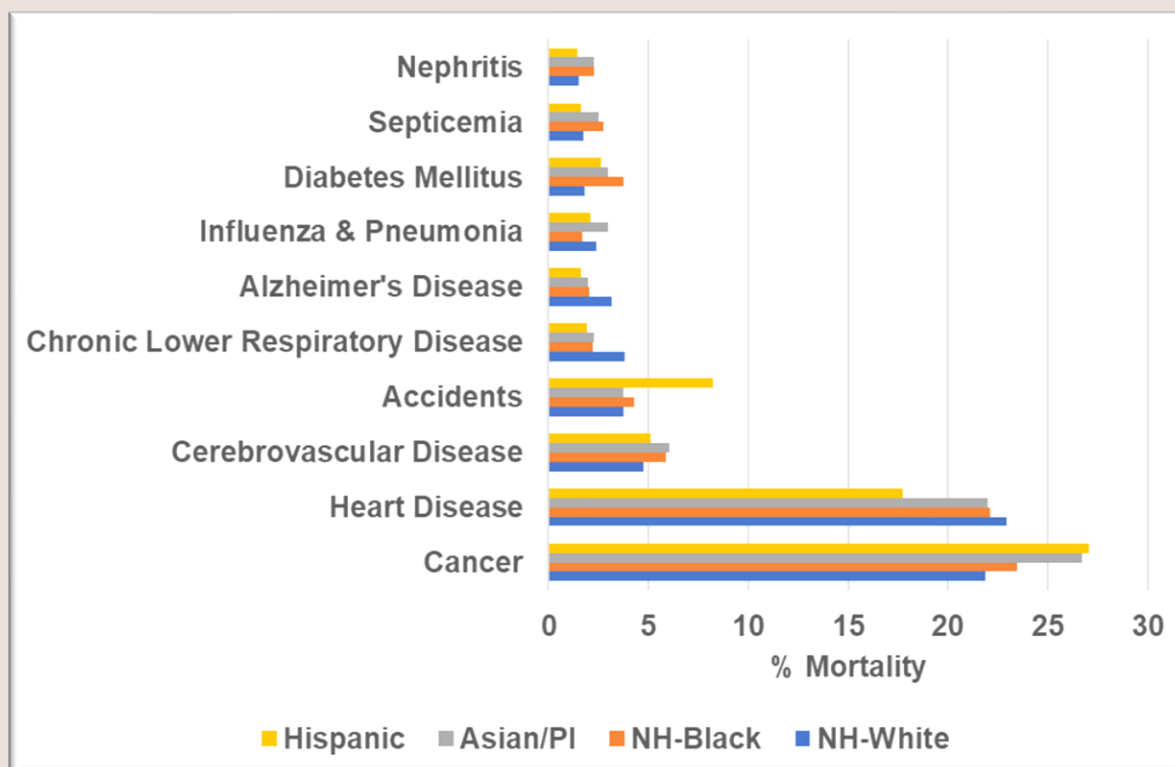


**Table 3. Leading Causes of Death* by Race/Ethnicity, Montgomery County
2017-19**

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Cancer	21.9	2	23.5	1	26.7	1	27.1	1
Heart Disease	22.9	1	22.1	2	22	2	17.8	2
Cerebrovascular Disease	4.8	3	5.9	3	6.1	3	5.1	4
Accidents	3.8	5	4.3	4	3.8	4	8.2	3
Chronic Lower Respiratory Disease	3.8	4	2.2	8	2.3	7	1.9	7
Alzheimer's Disease	3.1	6	2.1	9	2	8	1.6	8
Influenza & Pneumonia	2.4	7	1.7	10	3	5	2.1	6
Diabetes Mellitus	1.8	8	3.8	5	3	5	2.6	5
Septicemia	1.8	9	2.8	6	2.5	6	1.6	8
Nephritis	1.5	10	2.3	7	2.3	7	1.5	9

*based on list of leading causes of death for overall population only

**Fig 3. Leading Causes of Death by Race/Ethnicity, Montgomery County
2017-19**

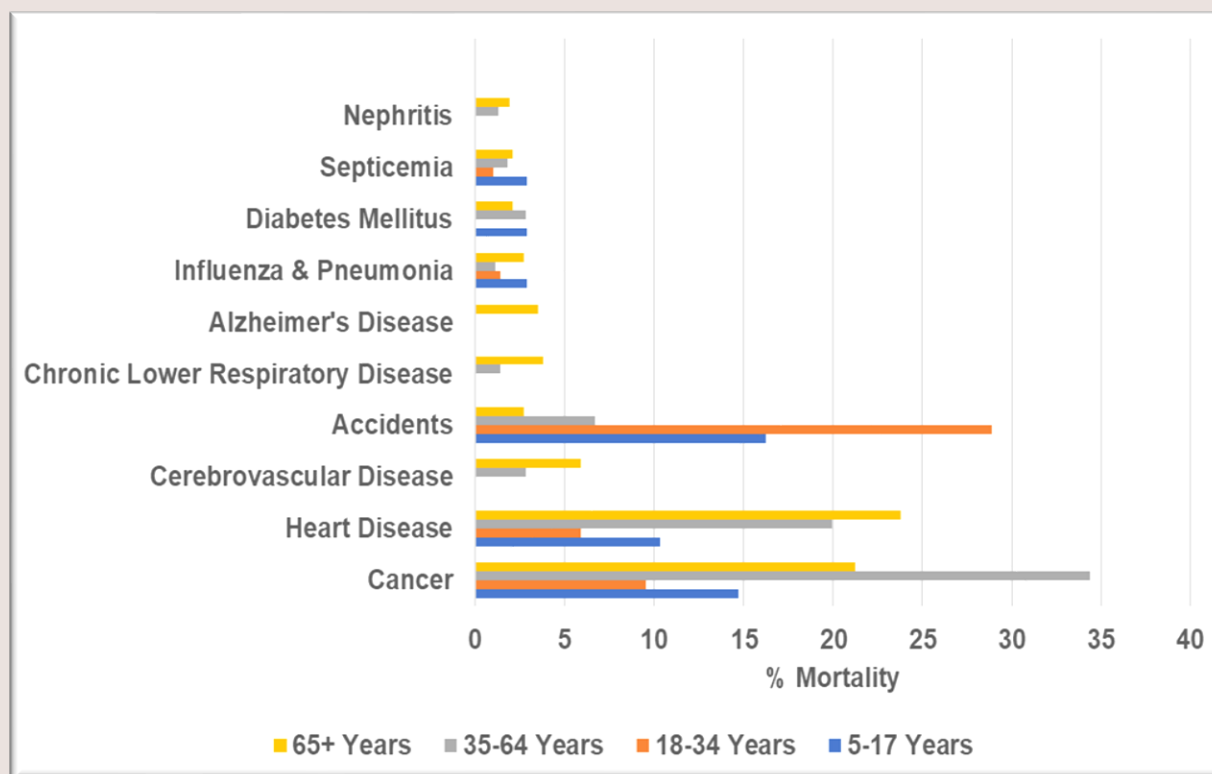


**Table 4. Leading Causes of Death* by Age, Montgomery County
2017-19**

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Cancer	14.7	2	9.5	2	34.4	1	21.2	2
Heart Disease	10.3	3	5.9	3	19.9	2	23.8	1
Cerebrovascular Disease					2.8	4	5.9	3
Accidents	16.2	1	28.9	1	6.7	3	2.7	6
Chronic Lower Respiratory Disease					1.4	7	3.8	4
Alzheimer's Disease							3.5	5
Influenza & Pneumonia	2.9	4	1.4	4	1.1	9	2.7	7
Diabetes Mellitus	2.9	4			2.8	5	2.1	8
Septicemia	2.9	4	1	5	1.8	6	2.1	9
Nephritis					1.3	8	1.9	10

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

**Fig 4. Leading Causes of Death by Age, Montgomery County
2017-19**

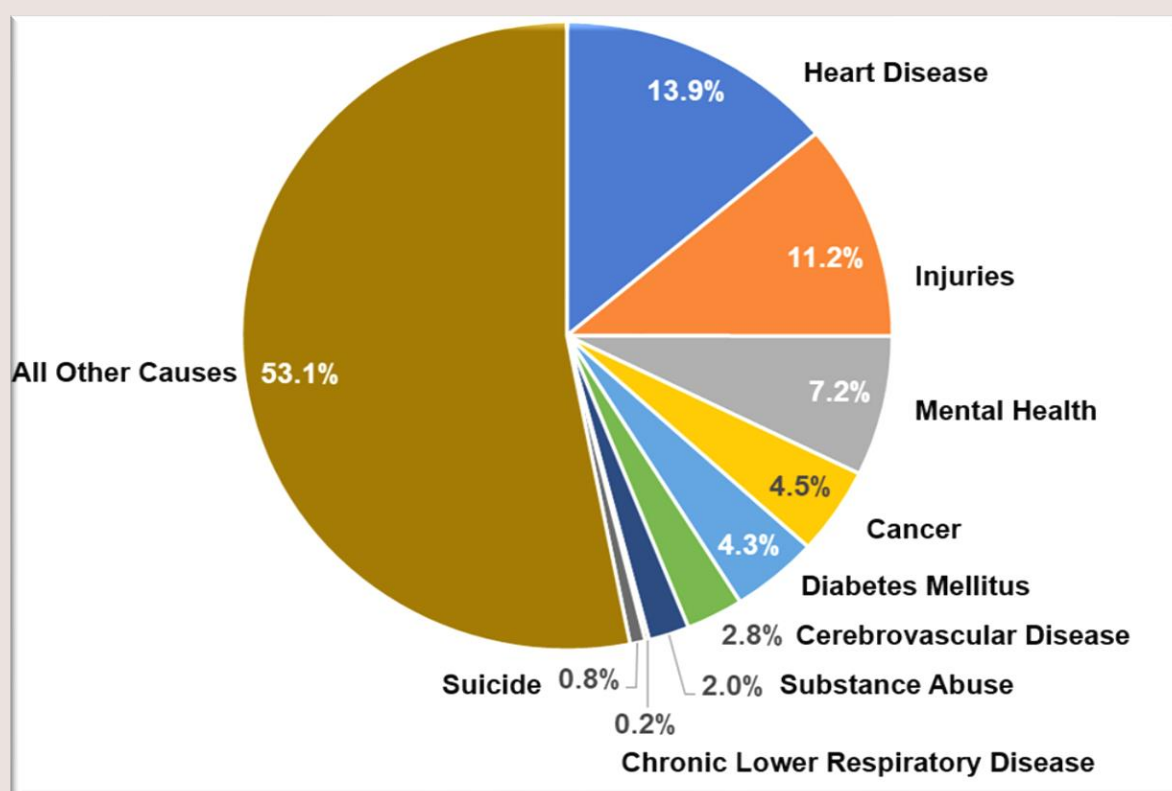


Hospitalization

**Table 5. Leading Causes of Hospitalization by Year, Montgomery County
2017-19**

	2017		2018		2019		2017-19	
	%	Rank	%	Rank	%	Rank	%	Rank
Heart Disease	15.4	1	12.9	1	13.2	1	13.9	1
Injuries	11.7	2	11.2	2	10.6	2	11.2	2
Mental Health	6.3	3	7.1	3	8.3	3	7.2	3
Cancer	4.6	4	4.5	4	4.4	5	4.5	4
Diabetes Mellitus	4.0	5	4.4	5	4.6	4	4.3	5
Cerebrovascular Disease	2.7	7	2.9	6	2.9	6	2.8	6
Substance Abuse	2.8	6	1.6	8	1.7	7	2.0	7
Chronic Lower Respiratory Disease	2.4	8	2.1	7	0.2	9	0.2	9
Suicide	0.1	9	0.1	9	0.7	8	0.8	8
All Other Causes	50.0		53.4		53.3		53.1	

**Fig. 5. Leading Causes of Hospitalization, Montgomery County
2017-19**

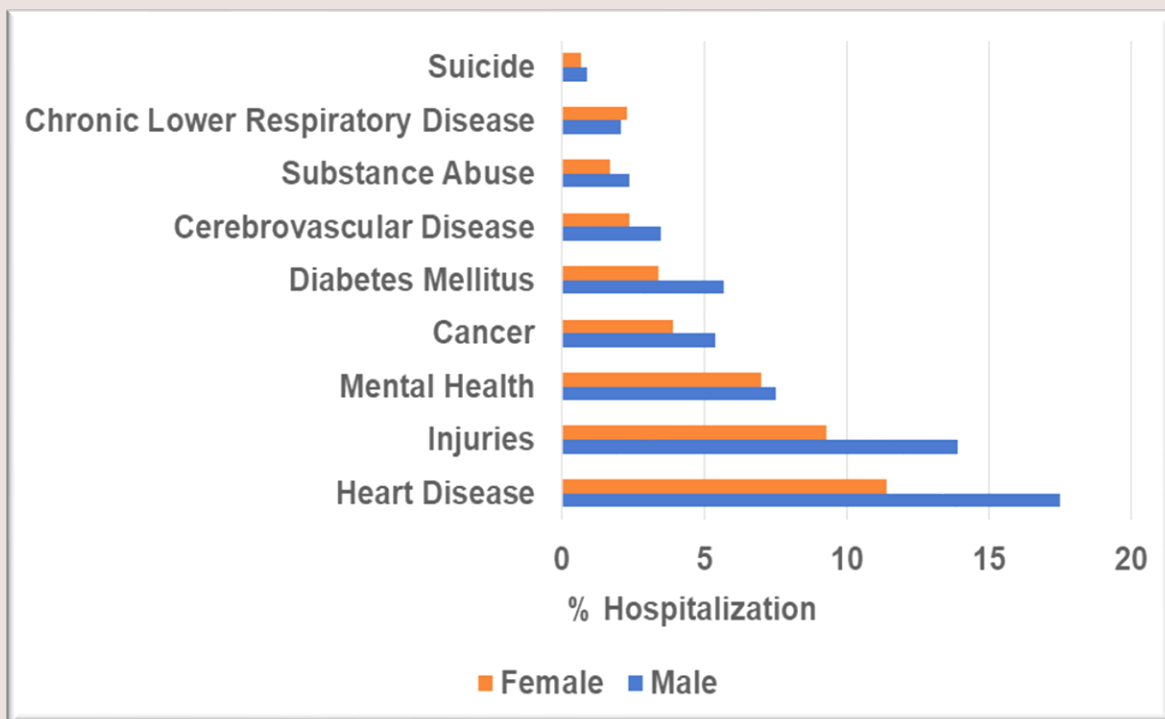


**Table 6. Leading Causes of Hospitalization* by Sex, Montgomery County
2017-19**

	Male		Female	
	%	Rank	%	Rank
Heart Disease	17.5	1	11.4	1
Injuries	13.9	2	9.3	2
Mental Health	7.5	3	7.0	3
Cancer	5.4	5	3.9	4
Diabetes Mellitus	5.7	4	3.4	5
Cerebrovascular Disease	3.5	6	2.4	6
Substance Abuse	2.4	7	1.7	8
Chronic Lower Respiratory Disease	2.1	8	2.3	7
Suicide	0.9	9	0.7	9

*based on list of leading causes for overall population only

**Fig. 6. Leading Causes of Hospitalization by Sex, Montgomery County
2017-19**

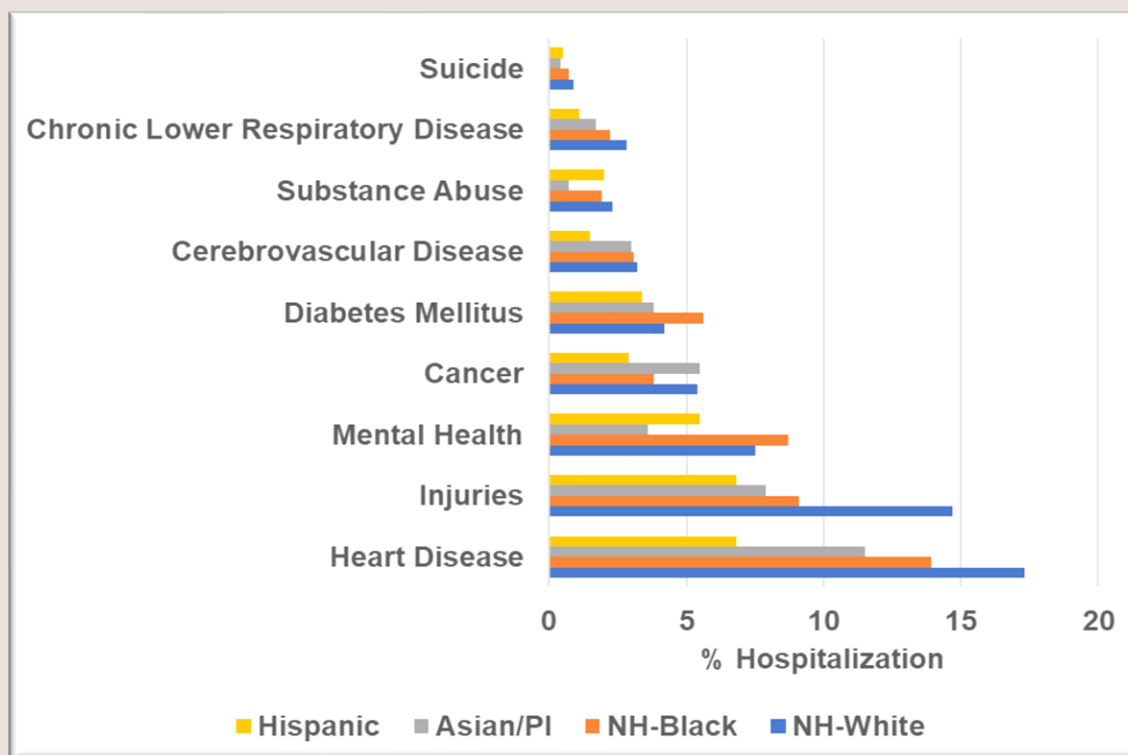


**Table 7. Leading Causes of Hospitalization* by Race/Ethnicity, Montgomery County
2017-19**

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Heart Disease	17.3	1	13.9	1	11.5	1	6.8	2
Injuries	14.7	2	9.1	2	7.9	2	6.8	1
Mental Health	7.5	3	8.7	3	3.6	5	5.5	3
Cancer	5.4	4	3.8	5	5.5	3	2.9	5
Diabetes Mellitus	4.2	5	5.6	4	3.8	4	3.4	4
Cerebrovascular Disease	3.2	6	3.1	6	3	6	1.5	7
Substance Abuse	2.3	8	1.9	8	0.7	8	2	6
Chronic Lower Respiratory Disease	2.8	7	2.2	7	1.7	7	1.1	8
Suicide	0.9	9	0.7	9	0.4	9	0.5	9

*based on list of leading causes for overall population only

**Fig. 7. Leading Causes of Hospitalization by Race/Ethnicity, Montgomery County
2017-19**

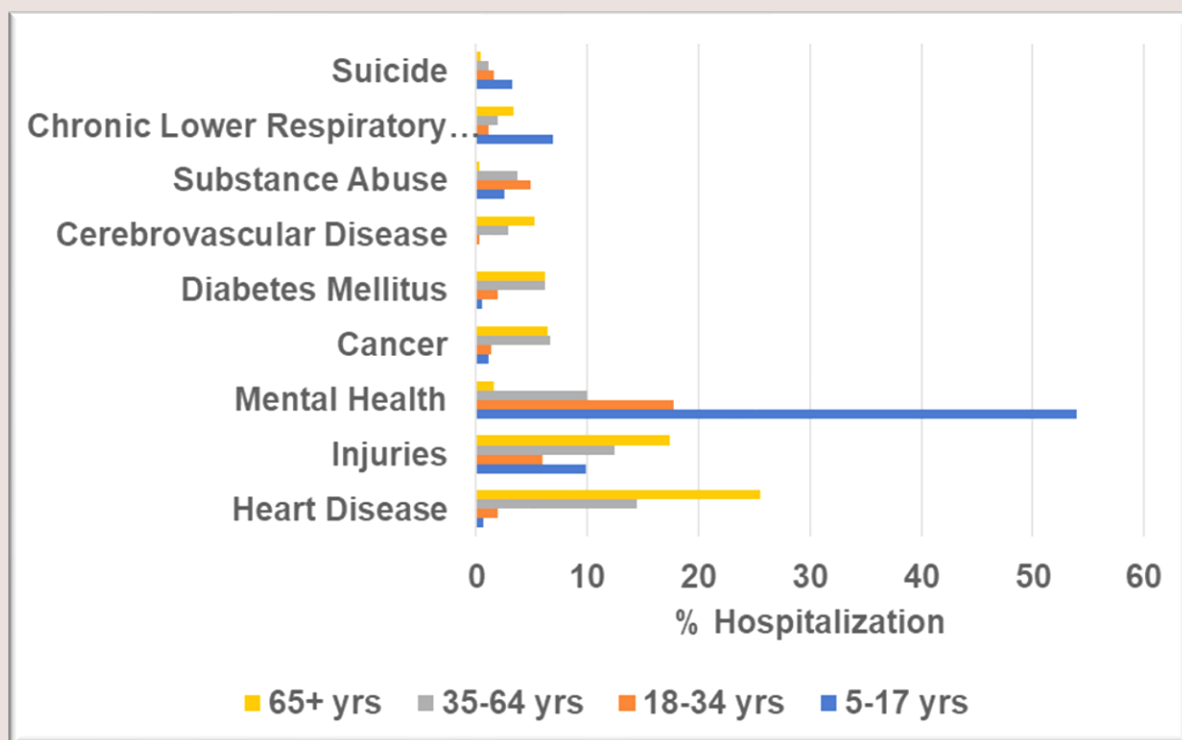


**Table 8. Leading Causes of Hospitalization* by Age, Montgomery County
2017-19**

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Heart Disease	0.7	7	1.9	5	14.4	1	25.5	1
Injuries	9.9	2	5.9	2	12.5	2	17.4	2
Mental Health	53.9	1	17.8	1	10	3	1.6	7
Cancer	1.1	6	1.3	7	6.7	4	6.4	3
Diabetes Mellitus	0.5	8	1.9	4	6.2	5	6.2	4
Cerebrovascular Disease	0	9	0.3	9	2.9	7	5.3	5
Substance Abuse	2.5	5	4.9	3	3.7	6	0.3	9
Chronic Lower Respiratory Disease	6.9	3	1.1	8	2	8	3.4	6
Suicide	3.2	4	1.6	6	1.1	9	0.4	8

*Based on list of leading causes for overall population only

**Fig. 8. Leading Cause of Hospitalization by Age, Montgomery County
2017-19**

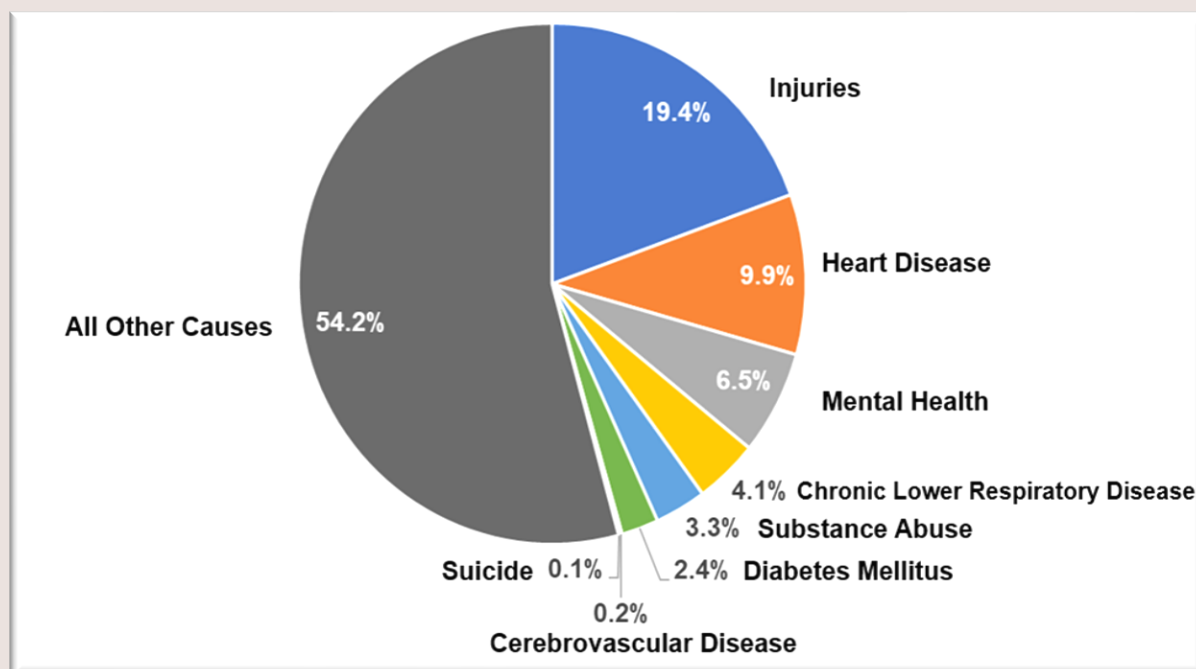


ER Visit

Table 9. Leading Causes of ER Visit by Year, Montgomery County, 2017-19

	2017		2018		2019		2017-19	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	20.2	1	19.6	1	18.6	1	19.4	1
Heart Disease	9.8	2	10.2	2	9.8	2	9.9	2
Mental Health	6.5	3	6.7	3	6.2	3	6.5	3
Chronic Lower Respiratory Disease	4.1	4	4.1	4	4.0	4	4.1	4
Substance Abuse	3.9	5	3.1	5	2.9	5	3.3	5
Diabetes Mellitus	2.4	6	2.4	6	2.4	6	2.4	6
Cerebrovascular Disease	0.1	7	0.2	7	0.2	7	0.2	7
Suicide	0.1	8	0.1	8	0.1	8	0.1	8
All Other Causes	53.0		53.8		55.9		54.2	

Fig. 9. Leading Causes of ER Visit, Montgomery County, 2017-19

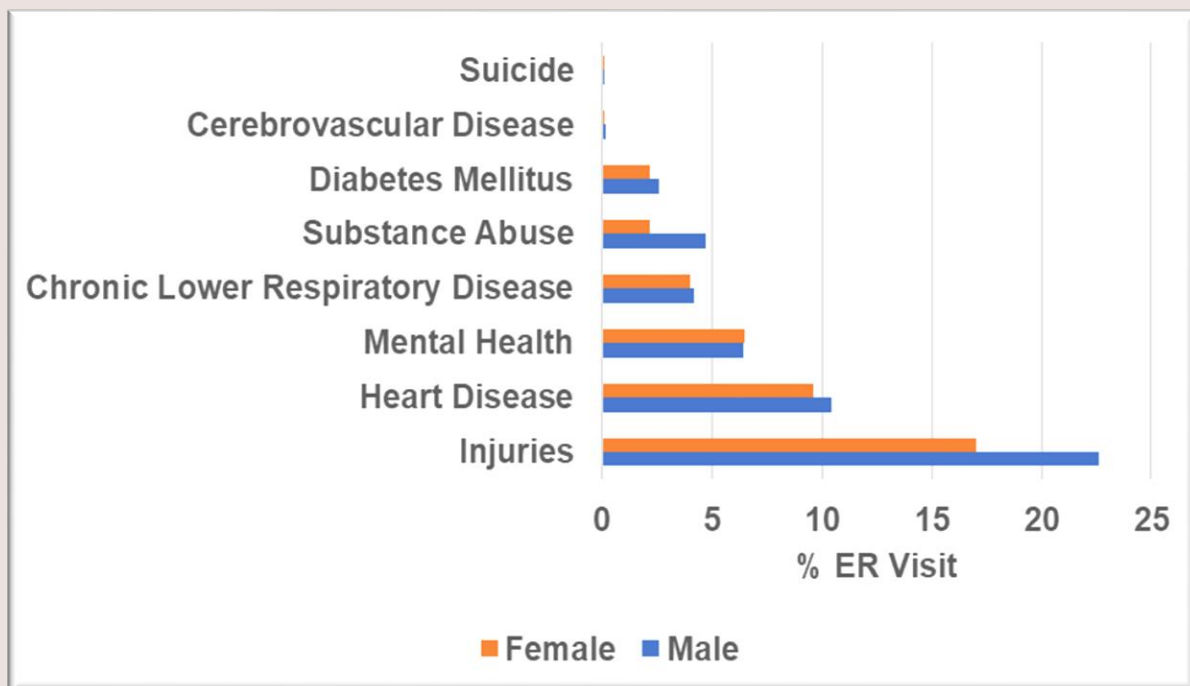


**Table 10. Leading Causes of ER Visit* by Sex, Montgomery County
2017-19**

	Male		Female	
	%	Rank	%	Rank
Injuries	22.6	1	17.0	1
Heart Disease	10.4	2	9.6	2
Mental Health	6.4	3	6.5	3
Chronic Lower Respiratory Disease	4.2	5	4.0	4
Substance Abuse	4.7	4	2.2	6
Diabetes Mellitus	2.6	6	2.2	5
Cerebrovascular Disease	0.2	7	0.1	7
Suicide	0.1	8	0.1	8

*based on list of leading causes for overall population only

**Fig. 10. Leading Causes of ER Visit by Sex, Montgomery County
2017-19**

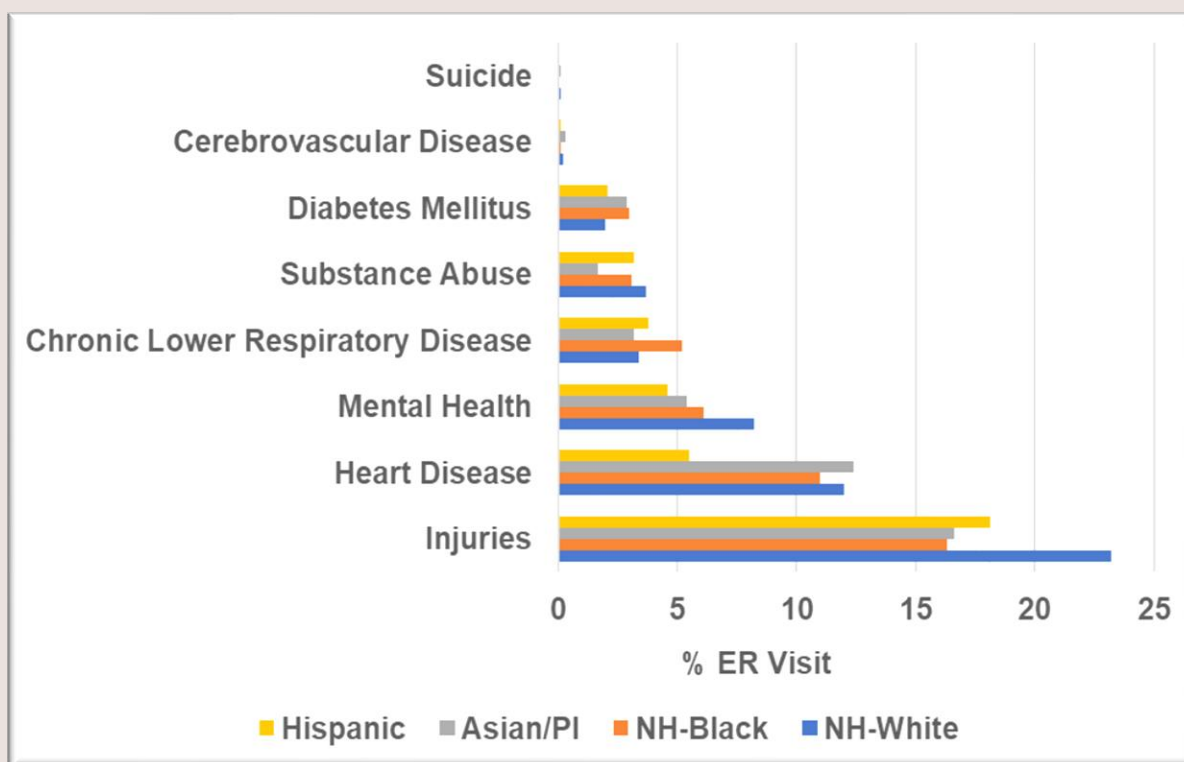


**Table 11. Leading Causes of ER Visit* by Race/Ethnicity, Montgomery County
2017-19**

	NH-White		NH-Black		Asian/PI		Hispanic	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	23.2	1	16.3	1	16.6	1	18.1	1
Heart Disease	12.0	2	11	2	12.4	2	5.5	2
Mental Health	8.2	3	6.1	3	5.4	3	4.6	3
Chronic Lower Respiratory Disease	3.4	5	5.2	4	3.2	4	3.8	4
Substance Abuse	3.7	4	3.1	5	1.7	6	3.2	5
Diabetes Mellitus	2.0	6	3	6	2.9	5	2.1	6
Cerebrovascular Disease	0.2	7	0.1	7	0.3	7	0.1	7
Suicide	0.1	8	0.0	8	0.1	8	0.0	8

*based on list of leading causes for overall population only

**Fig. 11. Leading Causes of ER Visit by Race/Ethnicity, Montgomery County
2017-19**

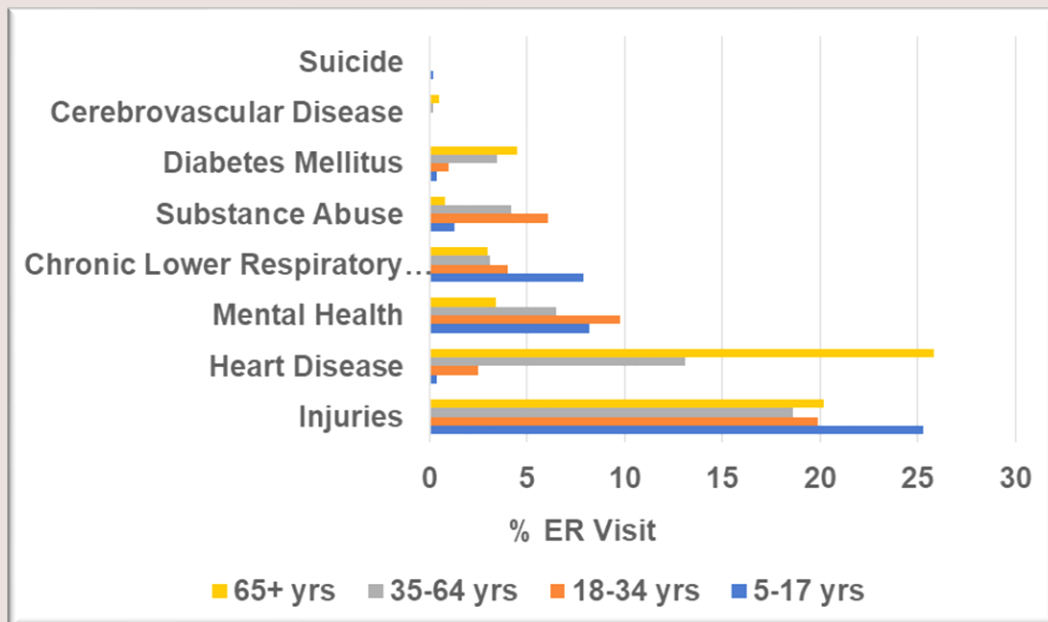


**Table 12. Leading Causes of ER Visit* by Age
Montgomery County
2017-19**

	5-17 yrs		18-34 yrs		35-64 yrs		65+ yrs	
	%	Rank	%	Rank	%	Rank	%	Rank
Injuries	25.3	1	19.9	1	18.6	1	20.2	2
Heart Disease	0.4	5	2.5	5	13.1	2	25.8	1
Mental Health	8.2	2	9.8	2	6.5	3	3.4	4
Chronic Lower Respiratory Disease	7.9	3	4	4	3.1	6	3	5
Substance Abuse	1.3	4	6.1	3	4.2	4	0.8	6
Diabetes Mellitus	0.4	6	1	6	3.5	5	4.5	3
Cerebrovascular Disease	0	8	0	8	0.2	7	0.5	7
Suicide	0.2	7	0.1	7	0.0	8	0.0	8

*based on list of leading causes for overall population only

**Fig. 12. Leading Cause of ER Visit by Age
Montgomery County
2017-19**



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 2019, the County's population was over 1.05 million people (Table 13).
- The sex distribution in the County is consistent over time and similar to 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.
2015-19**

		2015	2016	2017	2018	2019		
		MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
Total		1,050,688						
Sex	Male	48.2	48.2	48.2	48.4	48.3	48.4	49.2
	Female	51.8	51.8	51.8	51.6	51.7	51.6	50.8
Age Group	< 5	6.5	6.4	6.3	6.3	6.2	5.9	5.9
	5-17	17.0	17.0	17	17.0	16.9	16.1	16.3
	18-34	21.2	20.9	20.7	20.5	20.3	22.3	23.1
	35-64	41.3	41.1	40.9	40.7	40.6	39.8	38.2
	65+	14.1	14.5	15.0	15.5	16.1	15.9	16.5
Race/Ethnicity	NH-White	44.7	44.5	44.2	43.4	44.2	49.8	60.0
	NH-Black	17.6	17.8	18.5	18.5	19.4	29.7	12.4
	Asian/PI	14.9	14.8	15.6	15.5	16.1	6.3	5.6
	Hispanic	19.0	19.1	19.8	19.9	20.1	10.6	18.4

Social Determinants

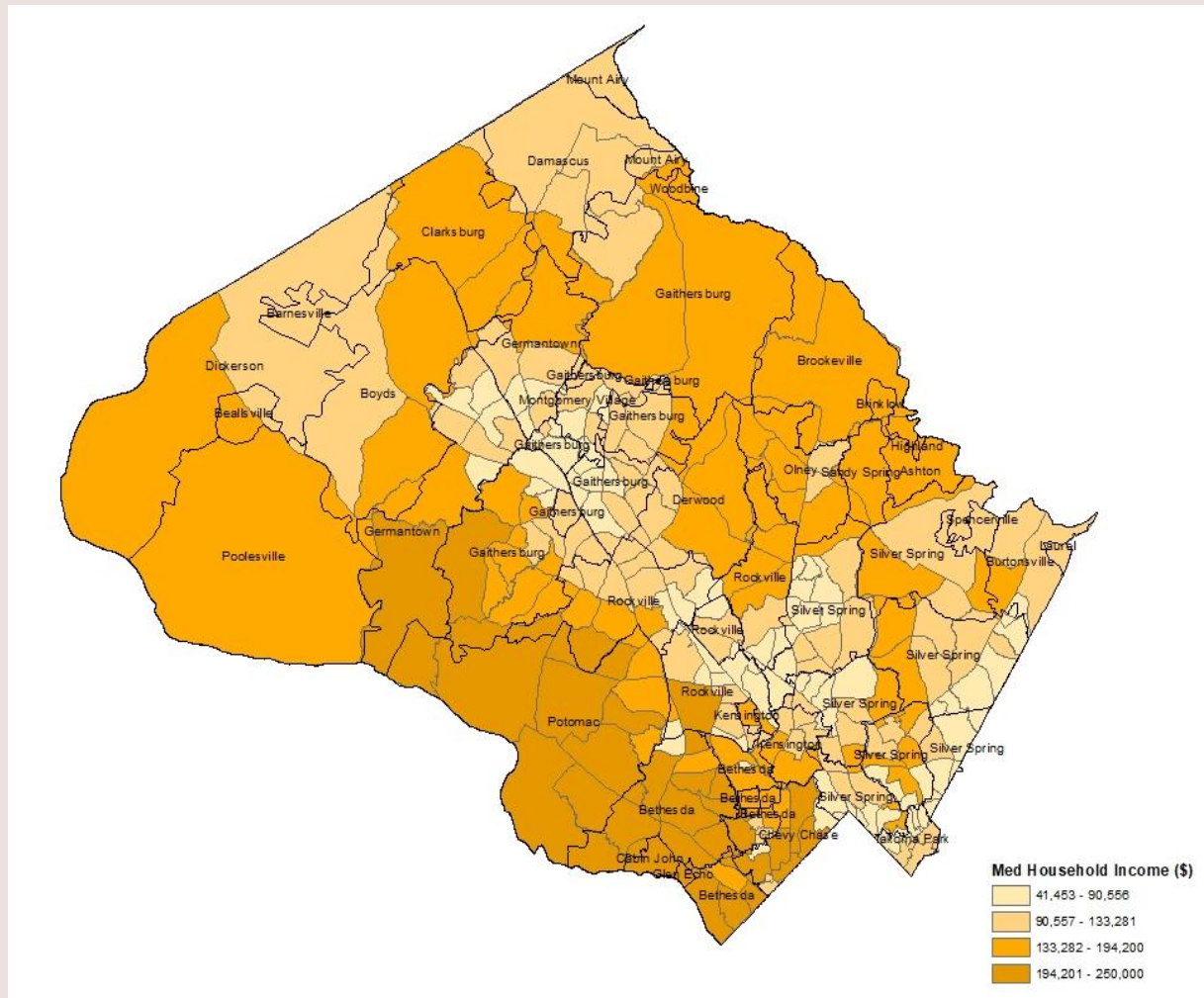
- There is an increasing trend of percent families below poverty level in the County over time (Table 14).
- NH-Black and Hispanic groups have much higher percent of families living below poverty level compared to NH-White and Asian/PI (Table 14).
- The overall percent of families below poverty level 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.
2015-19***

	2015	2016	2017	2018	2019		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	7.5	6.7	6.9	6.9	7.4	9	12.3
NH-White	3.6	3.8	3.6	3.7	3.3	6.1	9
NH-Black	12.1	10.1	11.2	11.1	13.6	12.9	21.2
Asian/PI	7	5.4	5.8	6.3	5.9	7.4	9.6
Hispanic	13.1	10.7	11.1	9.7	11.5	11.7	17.2

*Last available year as of 4/15/21

**Map 1. Median Household Income by Census Tract
Montgomery County
2019**



- 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.
2015-19***

	2015	2016	2017	2018	2019		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	3.9	3.5	3.4	3.2	3.1	4.5	4.5
NH-White	3.2	3.4	3.3	3.2	3.1	3.3	3.7
NH-Black	8.1	6.9	7.5	6.1	7.4	6.9	7.7
Asian/PI	4.1	4.4	3.3	3.3	3.5	3	3.5
Hispanic	6.4	6	5	4.2	5.3	4.6	5.1

*Last available year as of 4/15/21

- The overall percent of 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 US, and 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.
2015-19**

	2015	2016	2017	2018	2019		
	MoCo	MoCo	MoCo	MoCo	MoCo	MD	US
All	58.0	59.2	57.8	58.6	57.2	40.9	33.1
NH-White	71.1	71.6	71.5	73.1	72.5	46.5	36.9
NH-Black	44.5	49.1	43.2	44.2	44.8	30.8	22.5
Asian/PI	67.7	67.3	66.8	67.4	68.5	63.3	55.6
Hispanic	23.0	24.6	25.1	25.0	24.6	22.0	17.6

Health Care Access

- The overall percentage of individuals without health insurance in the County has decreased up to 2018 but increased in 2019, similar to that in Maryland and the U.S. (Table 17).
- The percentage of individuals without health insurance in the County is higher than Maryland but lower than the U.S. (Table 17).

**Table 17. Percent Individuals without Health Insurance
Montgomery County, Maryland, and U.S.
2015-19***

	2015	2016	2017	2018	2019
MoCo	8.2%	6.5%	7.1%	6.9%	7.5%
MD	9%	8.1%	6.4%	6.1%	6.1%
US**	13%	11.7%	9%	8.7%	8.8%

** 10th percentile

* Most recent year available as of 4/15/20



12.0% (95% CI: 9.5-14.5) of adults age 18+ have no health insurance in Montgomery County, as compared to 10.4% (95% CI: 9.5-11.3) in Maryland.



92.1% of population have health insurance
59.8% of population have dental insurance
70.6% of population have prescription drug insurance

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

**Table 18. Population/PCP Ratio, Montgomery County
Maryland, and U.S.
2015-19#**

	2015	2016	2017	2018	2019
MoCo	741	720	720	730	740
MD	1131	1120	1130	1140	1140
US*	127	145	150	157	160

* 90th percentile

** Source: County Health Ranking <http://www.countyhealthrankings.org/>;
America's Health Ranking <https://www.americashealthrankings.org>

Most recent year available as of 1/14/20



81.7% (95% CI: 79.0-84.4) of adults age 18+ have a PCP in Montgomery County, as compared to 83.3% (95% CI: 82.3-84.4) in Maryland.

77.8% (95% CI: 74.9 -80.7) of adults age 18+ visited a doctor for a routine checkup within the past year in Montgomery County, as compared to 78.9% (95% CI: 77.9 -80.0) in Maryland.

12.7% (95% CI: 10.2-15.2) of adults age 18+ are unable to see a doctor within the past year due to cost in Montgomery County, as compared to 11.4% (95% CI: 10.5-12.2) in Maryland.

70.0% (95% CI: 66.7-73.3) of adults age 18+ had a dental visit within the past year in Montgomery County, as compared to 66.3% (95% CI: 65.1-67.6) in Maryland.



84.0% of persons had a regular primary care physician

Vital Statistics



Vital Statistics include data from both birth and death certificates operated by the Maryland Department of Health, Vital Statistics Administration. Birth and death data include information for all Montgomery County residents, regardless of where the birth or death occurred. 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 2010-2019, 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 had 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 had 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., 2010-19

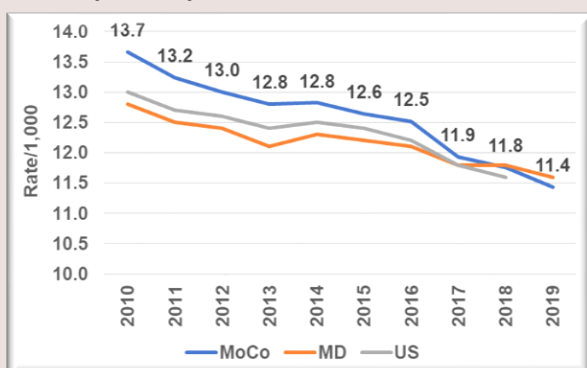


Fig. 14. Birth Rate by Race/Ethnicity Montgomery County, 2010-19

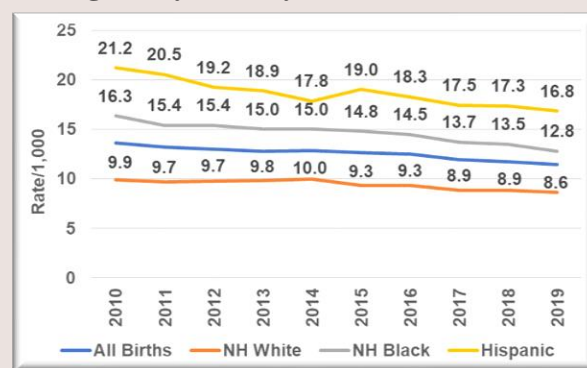


Fig. 15. Adolescent Birth Rate, Montgomery County, Maryland, and U.S., 2010-19

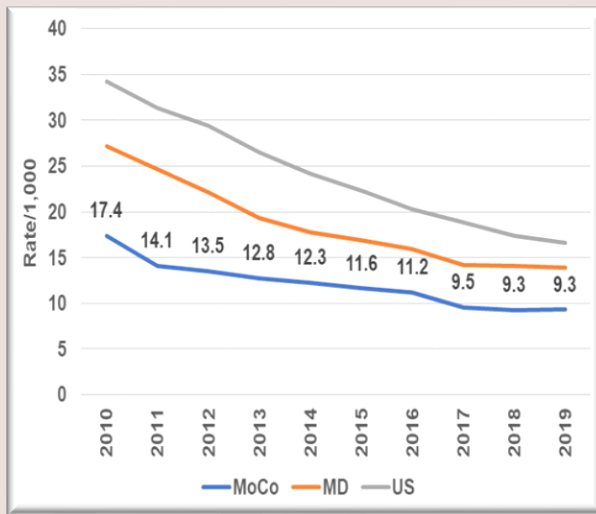
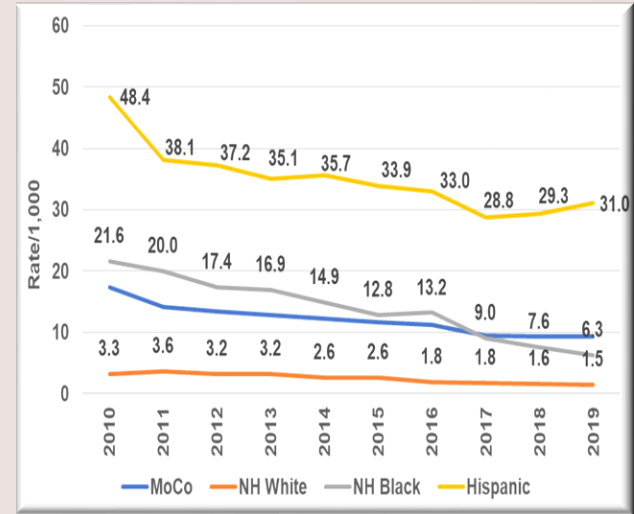


Fig. 16. Adolescent Birth Rate by Race/Ethnicity Montgomery County, 2010-19



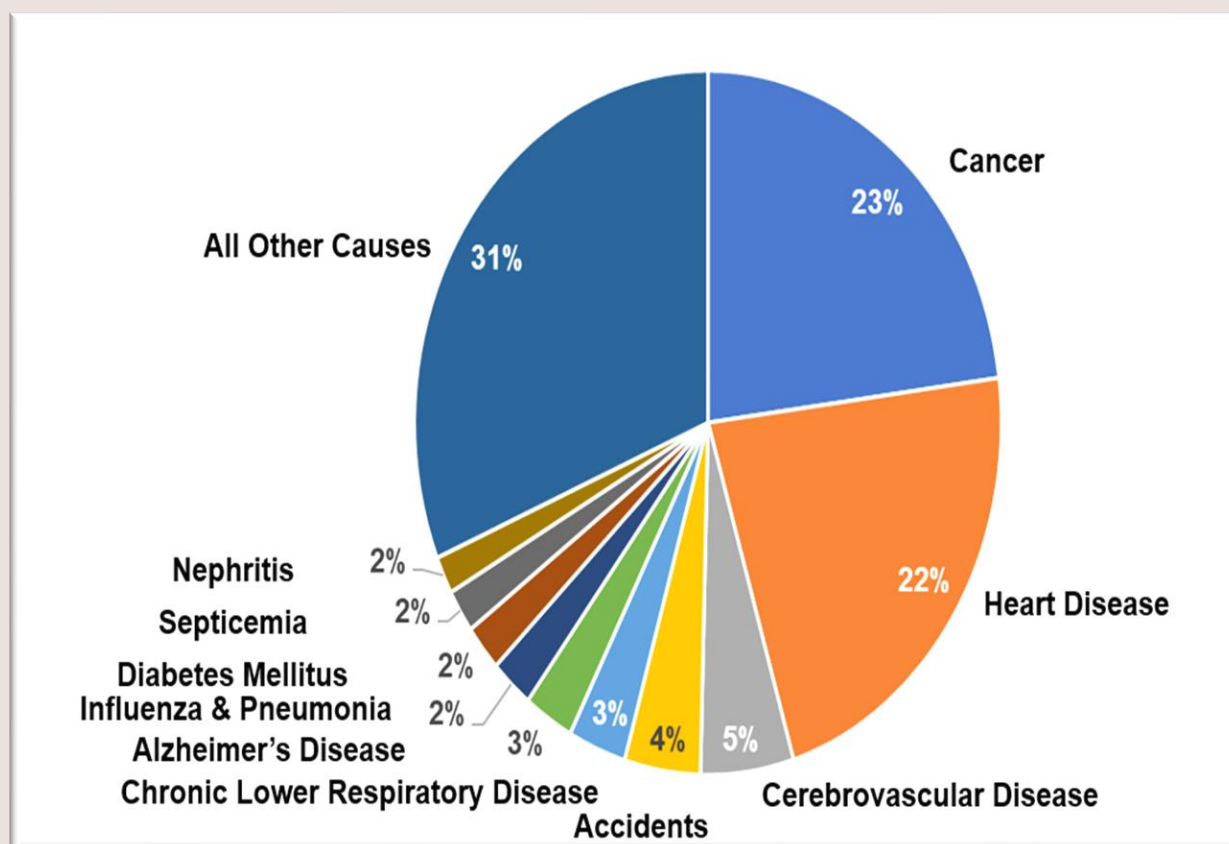
Deaths

**Table 19. Leading Causes of Death by Sex and Race/Ethnicity
Montgomery County
2017-19**

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
All Cause	18,449	8,868	9,576	12,229	3,046	1,813	1,289
Heart Disease	4,120	2,160	1,960	2,803	673	399	229
Cancer	4,237	1,996	2,240	2,675	715	484	349
Cerebrovascular Disease	944	381	563	585	179	110	66
Accidents	772	462	310	462	130	68	106
Chronic Lower Respiratory Disease	589	239	350	469	67	41	25
Diabetes Mellitus	397	246	181	223	115	54	34

- The top leading causes of death in Montgomery County 2017-19 include cancer (23.4%), heart disease (22.4%), cerebrovascular disease (5.1%), accident (3.9%), chronic lower respiratory disease (3.3%), Alzheimer's disease (2.8%), influenza and pneumonia (2.5%), diabetes mellitus (2.2%), septicemia (2.0%), and nephritis (1.8%) (Fig. 17).

**Fig. 17. Top Ten Leading Causes of Death
Montgomery County
2017-19**



- Overall mortality decreased in Montgomery County, with some fluctuations between 2016 and 2018, 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).
- NH-Blacks and NH-Whites had higher overall mortality rates than Hispanics and Asians/PI; Females had similar rates with males (Fig. 19).
- Residents aged 65 and older had the highest mortality, followed by those aged 35-64 and those aged <5 (Fig. 20).

Fig. 18. Age-Adjusted Mortality Rate, All Causes, Montgomery County, Maryland, and U.S., 2010-19

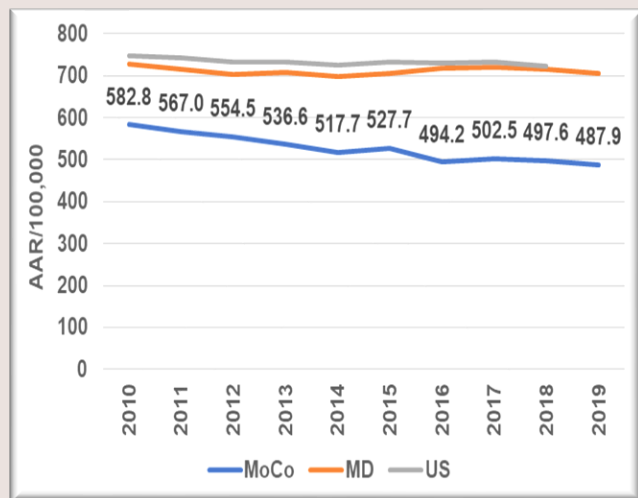


Fig. 19. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, All Causes, Montgomery County 2017-19

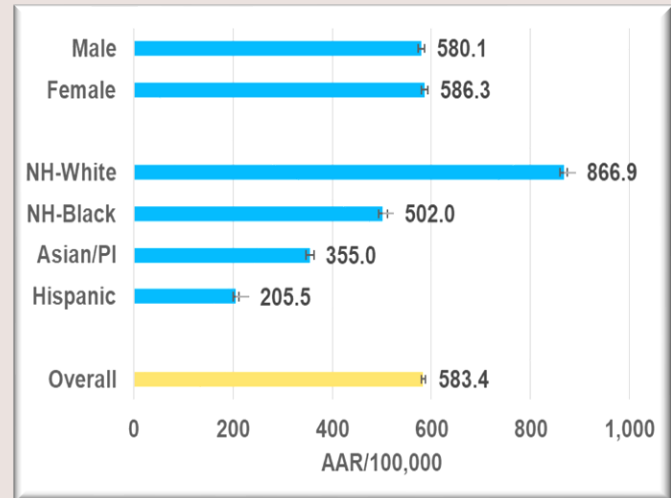
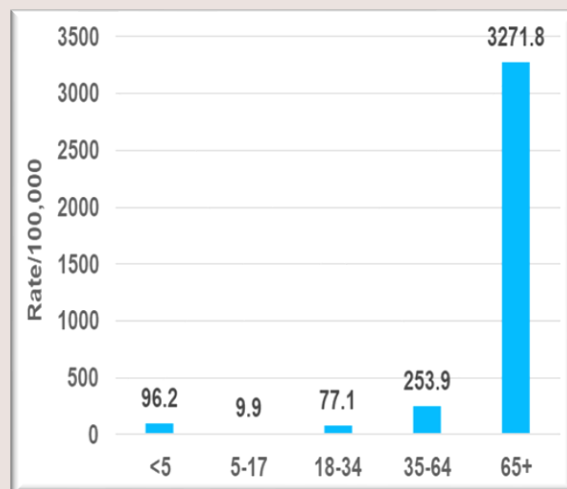


Fig. 20. Mortality Rate by Age All Causes, Montgomery County 2017-19



- Heart disease mortality decreased in Montgomery County, similar to that of Maryland and the U.S. Heart disease mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 21).
- NH-Blacks and NH-Whites had higher heart disease mortality than Hispanics and Asians/PI; males had higher heart disease mortality than females (Fig. 22).
- Residents aged 65 and older had the highest heart disease mortality (Fig. 23).

Fig. 21. Age-Adjusted Mortality Rate, Heart Disease, Montgomery County, Maryland and U.S., 2010-19

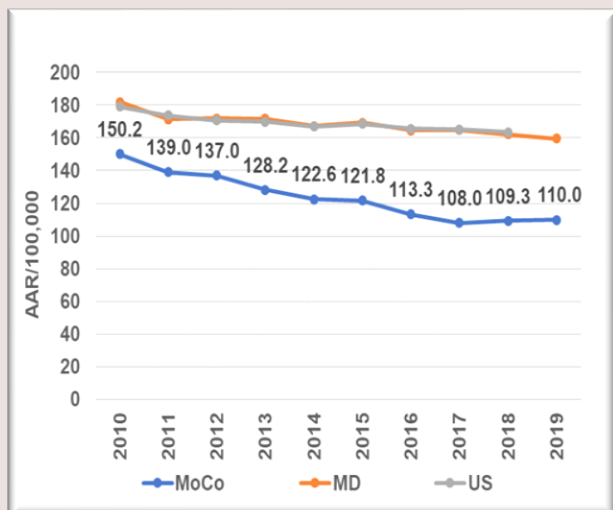


Fig. 22. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Heart Disease, Montgomery County, 2017-19

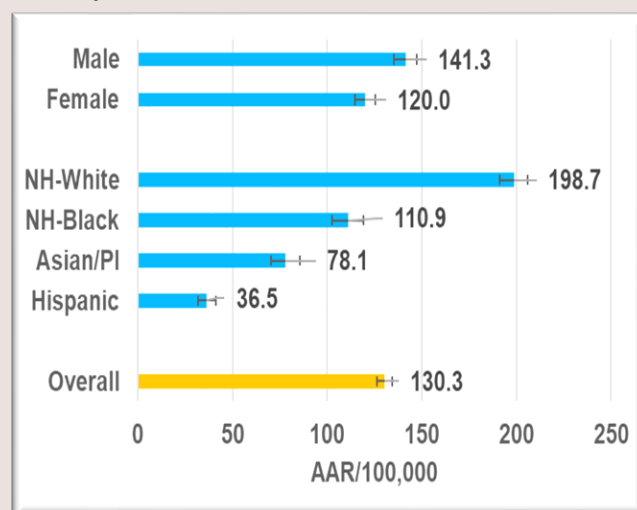
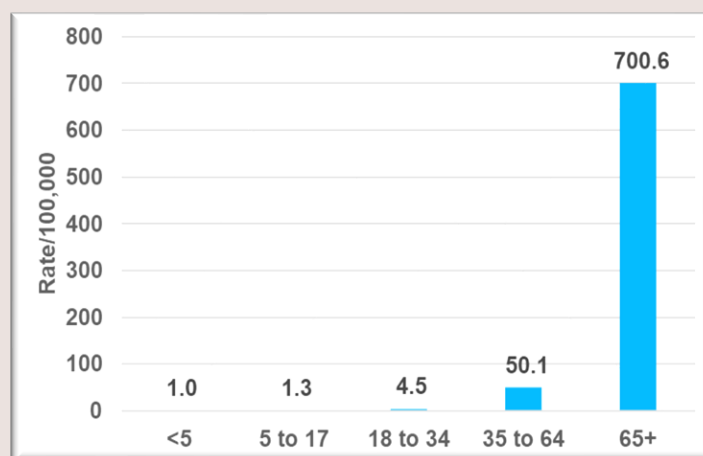
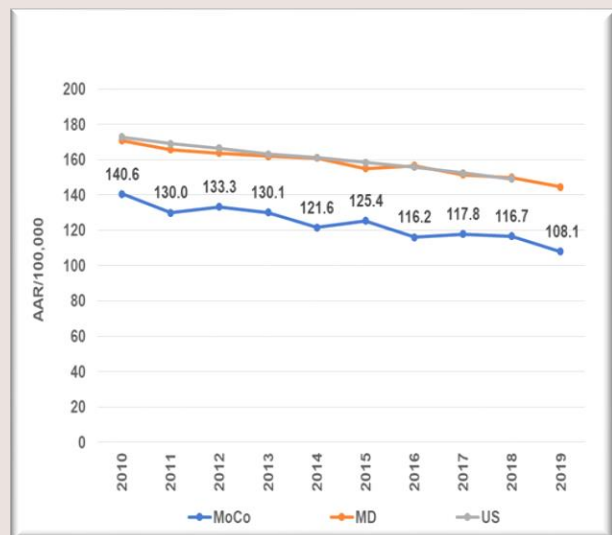


Fig. 23. Mortality Rate by Age, Heart Disease Montgomery County 2017-19

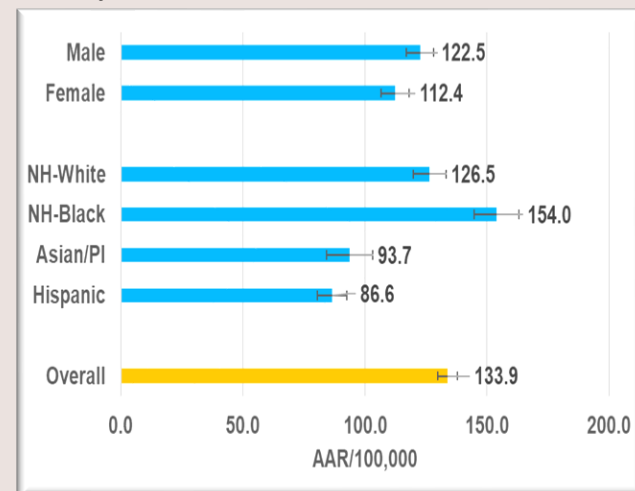


- Montgomery County had a decreasing trend of overall cancer mortality, following the same trends of Maryland and the U.S.; cancer mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 24).
- NH-Blacks and NH-Whites had higher overall cancer mortality than Hispanic and Asian/PI groups; males had similar rates with females (Fig. 25).
- Residents aged 65 and older had the highest cancer mortality, followed by those aged 35-64 (Fig. 26).

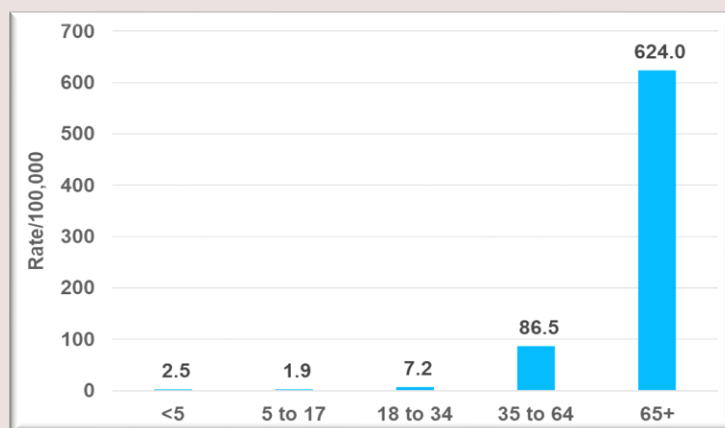
**Fig. 24. Age-Adjusted Mortality Rate
Cancer, Montgomery County, Maryland
and U.S., 2010-19**



**Fig. 25. Age-Adjusted Mortality Rate by Sex
And Race/Ethnicity, Cancer, Montgomery
County, 2017-19**



**Fig. 26. Mortality Rate by Age, Cancer
Montgomery County
2017-19**



- Montgomery County had a decreasing trend of cerebrovascular disease mortality up 2017 and increased since 2018, 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).
- NH-Whites had the highest cerebrovascular mortality; males and females had similar cerebrovascular disease mortality (Fig. 28).
- Residents aged 65 and older had the highest cerebrovascular disease mortality (Fig. 29).

Fig. 27. Age-Adjusted Mortality Rate Cerebrovascular Disease, Montgomery County, Maryland, and U.S., 2010-19

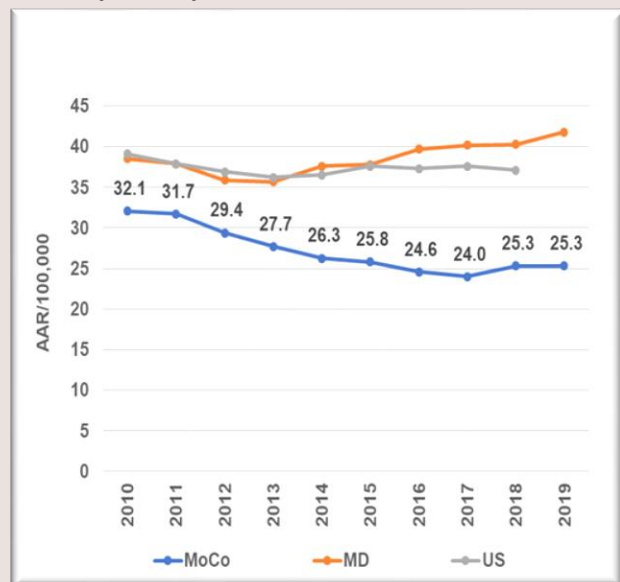


Fig. 28. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Cerebrovascular Disease Montgomery County, 2017-19

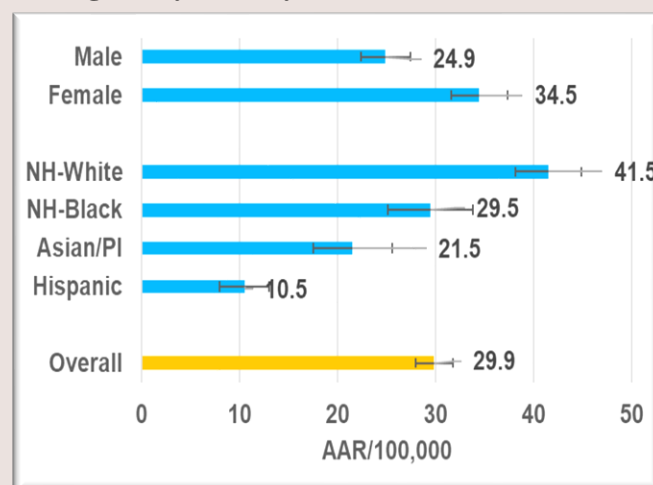
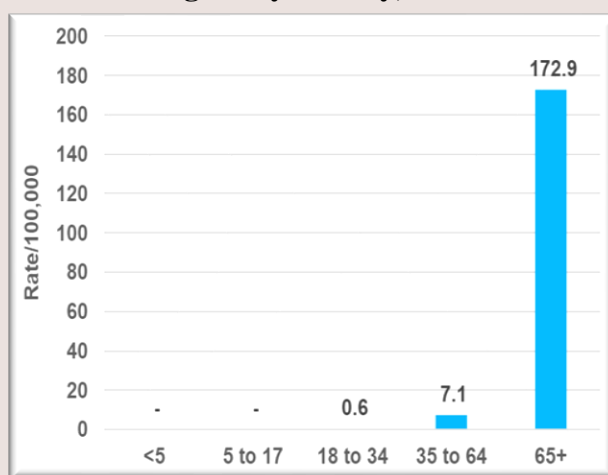
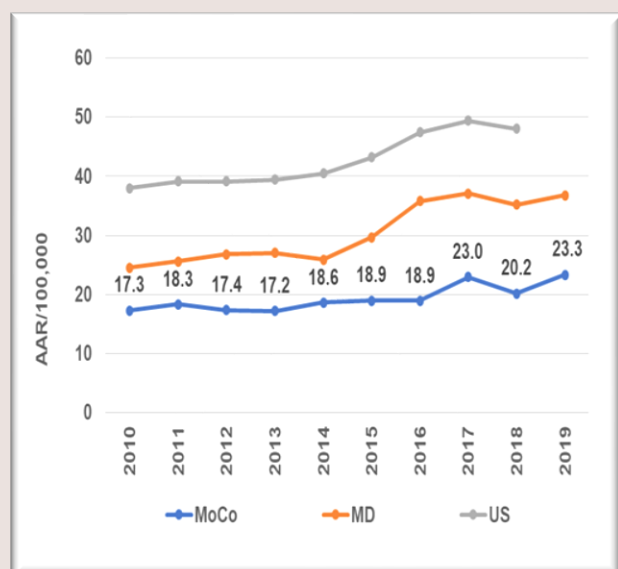


Fig. 29. Mortality Rate by Age Cerebrovascular Disease Montgomery County, 2017-19

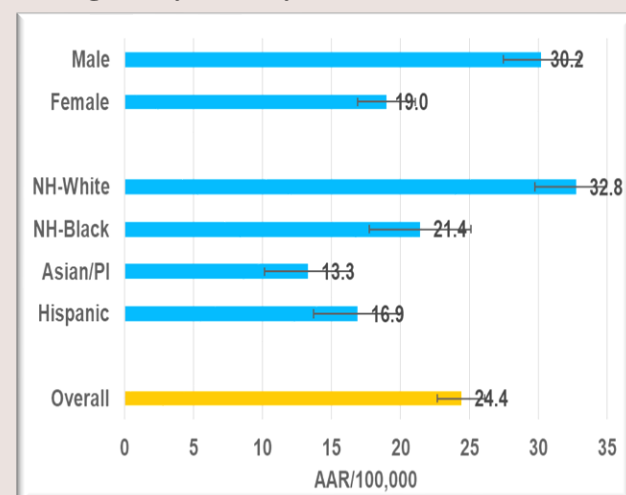


- Accident mortality rates in Montgomery County follow similar trends in Maryland and the U.S.; accident mortality in the County was consistently lower than that of Maryland and the U.S. (Fig. 30).
- NH-Whites and NH-Blacks had higher accident mortality when compared with other population subgroups, even though the differences were not statistically significant; males had higher accident mortality than females (Fig. 31).
- Residents aged 65 and older had the highest accident mortality, followed by aged 18-34 (Fig. 32).

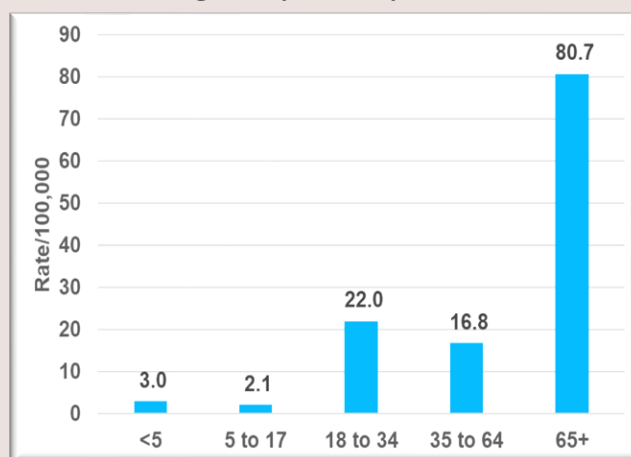
**Fig. 30. Age-Adjusted Mortality Rate
Accidents, Montgomery County, Maryland
and U.S., 2010-19**



**Fig. 31. Age-Adjusted Mortality Rate by Sex
and Race/Ethnicity, Accidents
Montgomery County, 2017-19**



**Fig. 32. Mortality Rate by Age, Accidents
Montgomery County, 2017-19**



- Montgomery County had a decreasing trend of chronic lower respiratory disease mortality, with rates increasing in 2018, 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).
- NH-Whites and NH-Blacks had higher chronic lower respiratory disease mortality than Asians/PI and Hispanics; females have higher chronic lower respiratory disease mortality rates than males, though the difference is not significant (Fig. 34).
- Residents aged 65 and older had the highest chronic lower respiratory disease mortality (Fig. 35).

Fig. 33. Age-Adjusted Mortality Rate Chronic Lower Respiratory Disease Montgomery County, Maryland, and U.S. 2010-19

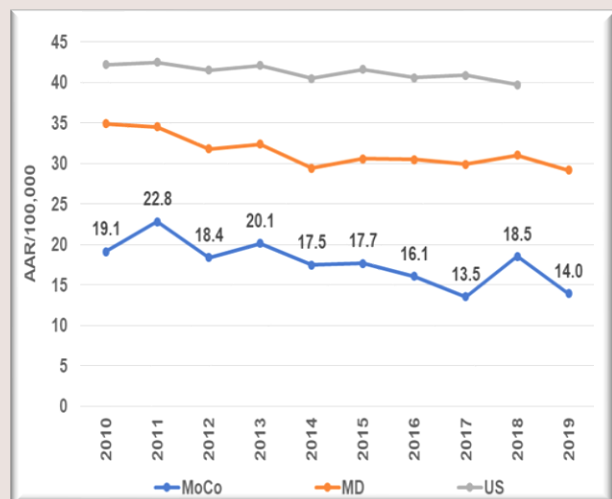


Fig. 34. Age-Adjusted Mortality Rate by Sex and Race/Ethnicity, Chronic Lower Respiratory Disease, Montgomery County 2017-19

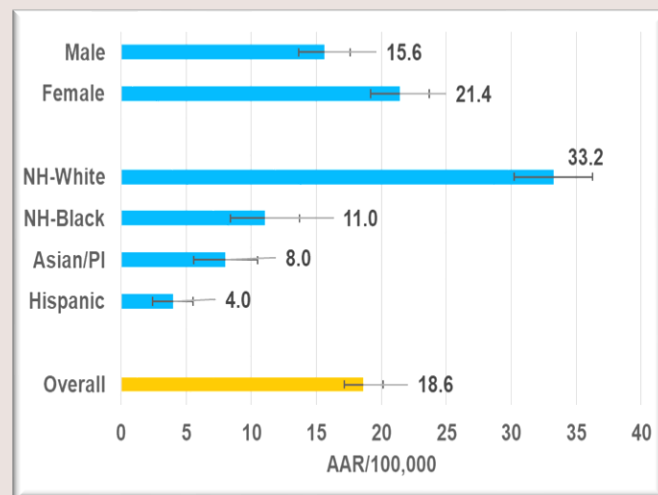
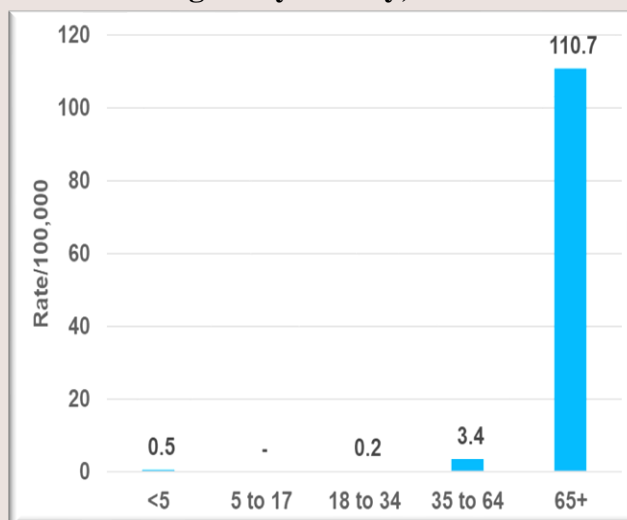
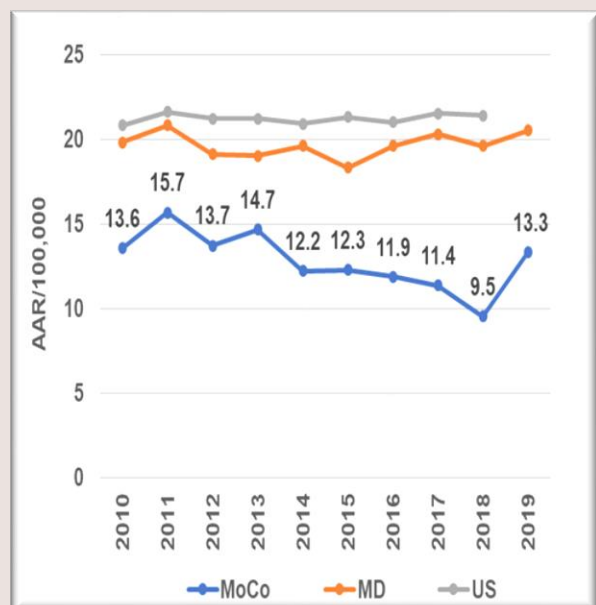


Fig. 35. Mortality Rate by Age, Chronic Lower Respiratory Disease Montgomery County, 2017-19

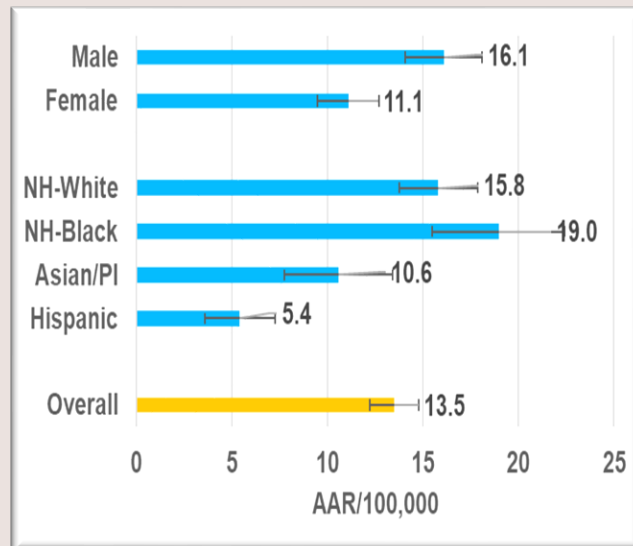


- Montgomery County had an overall decreasing trend of diabetes mortality up to 2018 and increased in 2019, following the same trends as Maryland and the U.S.; diabetes mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 36).
- NH-Blacks had the highest diabetes mortality when compared with other population subgroup; males had higher mortality than females (Fig. 37).
- Residents aged 65 and older had the highest diabetes mortality, followed by those aged 35-64 (Fig. 38).

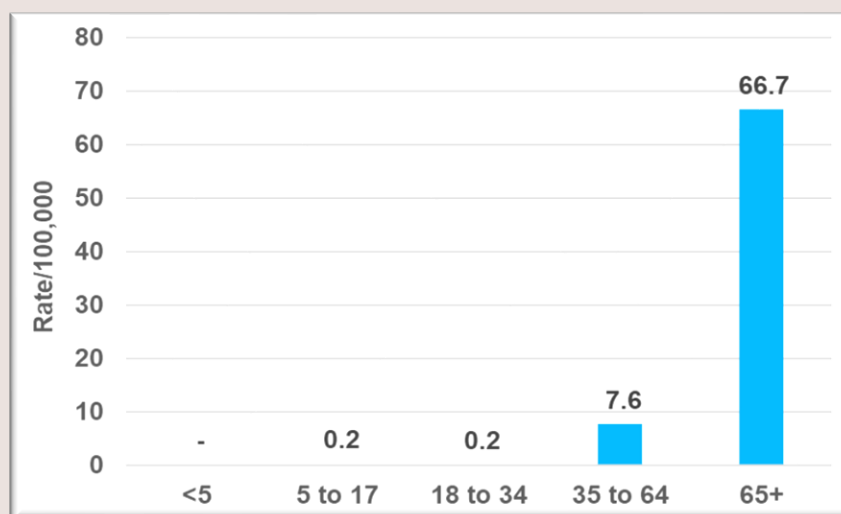
**Fig. 36. Age-Adjusted Mortality Rate
Diabetes Mellitus, Montgomery County
Maryland, and U.S., 2010-19**



**Fig. 37. Age-Adjusted Mortality Rate by Sex
and Race/Ethnicity, Diabetes Mellitus
Montgomery County, 2017-19**



**Fig. 38. Mortality Rate by Age
Diabetes Mellitus, Montgomery County
2017-19**



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 ages 35-44 giving birth in the County is consistently higher than that of Maryland (Fig. 39).
- Among population subgroups, NH-Whites had a higher percentage of births among women ages 35-44, followed by NH-Black and Hispanic (Fig. 40).

Fig. 39. Percent Births among Women Ages 35-44, Montgomery County and Maryland 2012-19

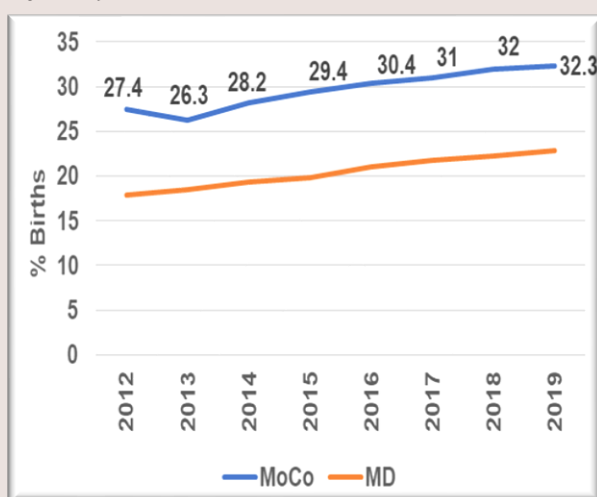
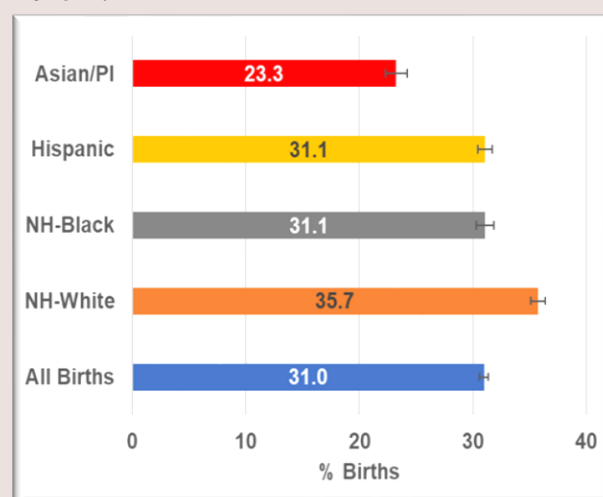


Fig. 40. Percent Births among Women Ages 35-44 by Race/Ethnicity, Montgomery County 2015-19



- The percentage of births to unmarried women stays stable over time in Montgomery County, consistent with that in Maryland and the U.S.; 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 (Fig. 42).

Fig. 41. Percent Births to Unmarried Women, Montgomery County, Maryland, and U.S., 2012-19

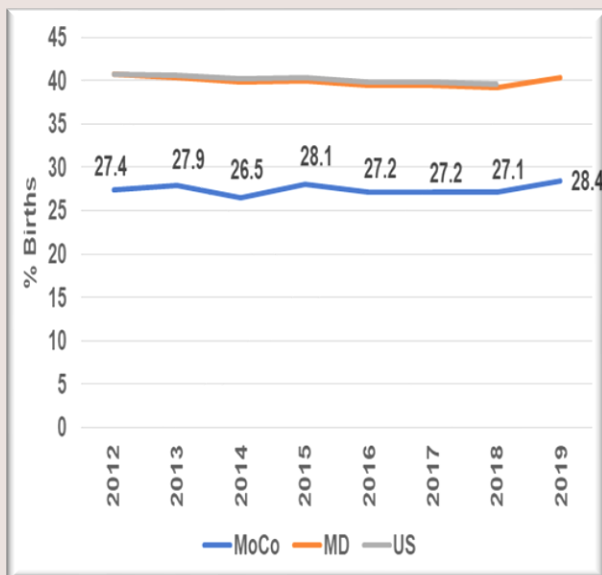
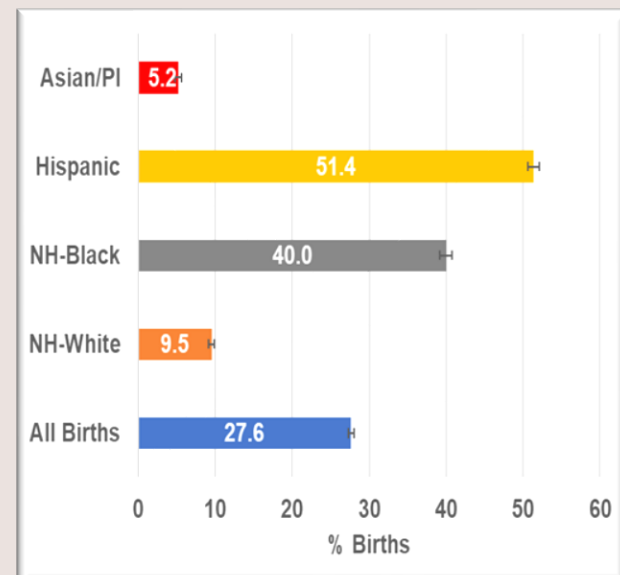


Fig. 42. Percent Births to Unmarried Women by Race/Ethnicity, Montgomery County 2015-19



- The percentage of births to women without a high school education in the County fluctuated 2012-19, with a decreasing trend overall, there is a decreasing trend 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, 2012-19

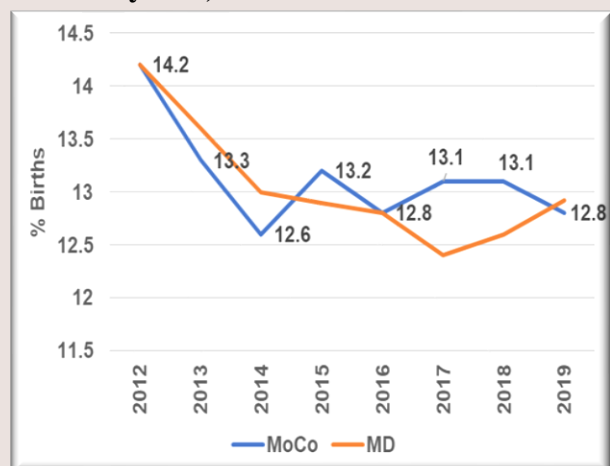
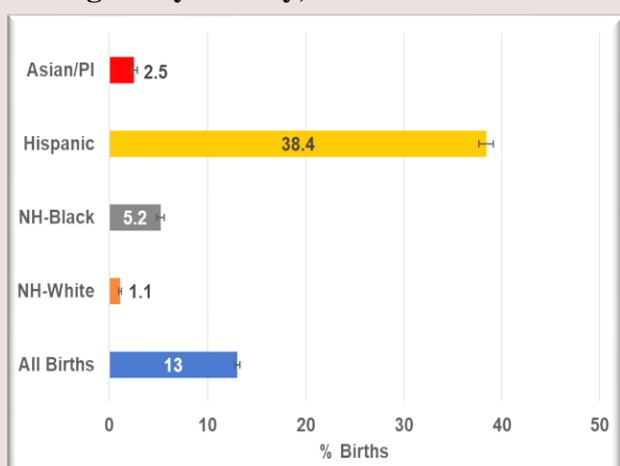
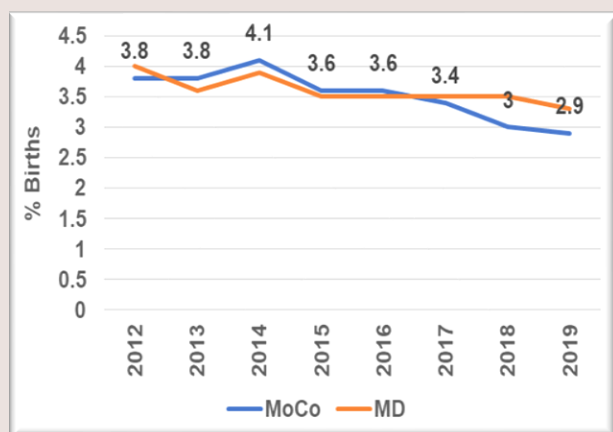


Fig. 44. Percent Births to Women without High School Education by Race/Ethnicity Montgomery County, 2015-19

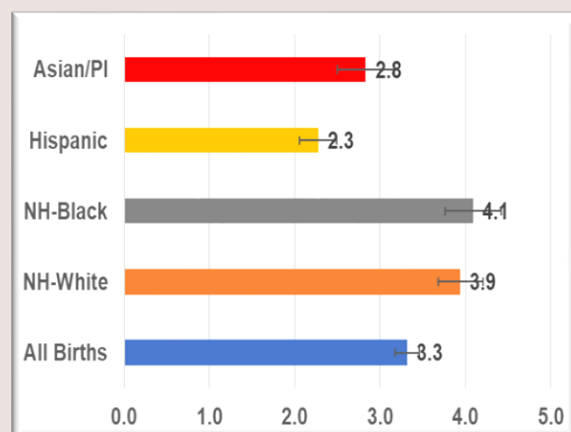


- Montgomery County had an overall decreasing trend of the percentage of plural births, followed the same trend in Maryland; the percentage of plural births in the County has been consistently higher than that of Maryland until 2016 (Fig. 45).
- Among population subgroups, NH-Black and NH-White groups 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
2012-19**

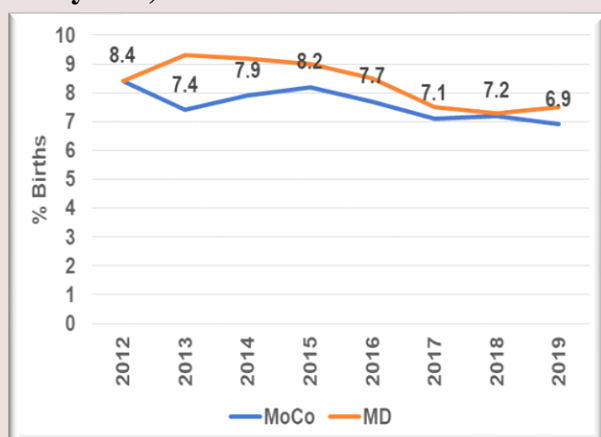


**Fig. 46. Percent Plurality Births by
Race/Ethnicity, Montgomery County
2014-18**



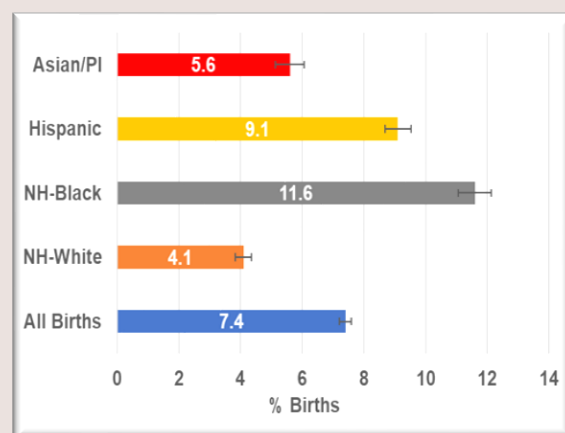
- Montgomery County had an overall decreasing trend of the percentage of births with late or no prenatal care; the percentage of births with late or no prenatal care in the County has been consistently lower than that of Maryland (Fig. 47).
- Among population subgroups, the NH-Black group had the highest 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, 2012-19**



6.7%

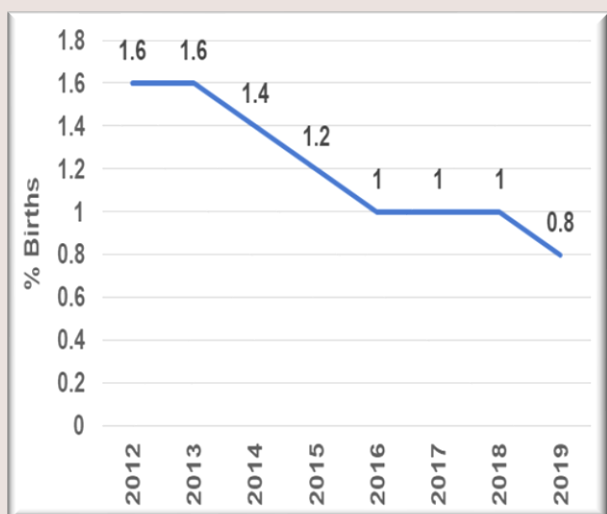
**Fig. 48. Percent Birth with Late or No
Prenatal care by Race/Ethnicity
2015-19**



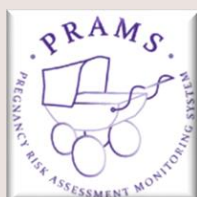
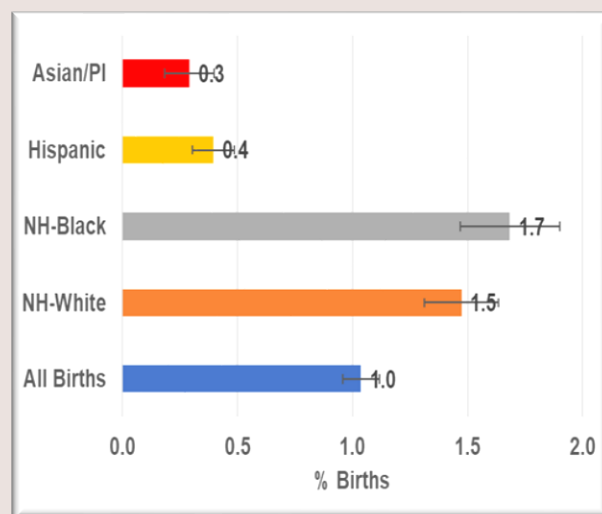
Health inequity (NH-Whites as reference) increased over time for NH-Blacks and Hispanics

- 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
2012-19**



**Fig. 50. Tobacco Use during Pregnancy by
Race/Ethnicity, Montgomery County
2015-19**



11.5% (95% CI: 9.3-14.1) of mothers in Maryland reported smoking during the 3 months prior to pregnancy (2017)

5.1% (95% CI: 3.7-7.0) of mothers in Maryland reported smoking during the last three months of pregnancy (2017)

- The percentage of preterm births fluctuated over time in Montgomery County; preterm births in the County is consistently lower than that of Maryland (Fig. 51).
- Among population subgroups, NH-Blacks had the highest percentage of preterm births than other groups (Fig. 52).

Fig. 51. Percent Preterm Births, Montgomery County and Maryland 2012-19

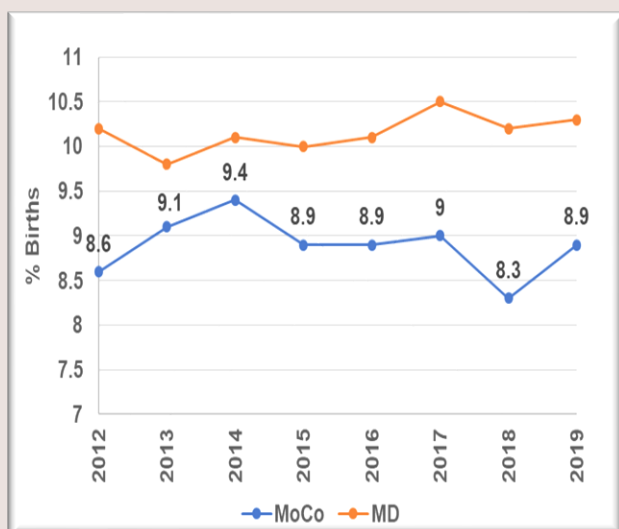
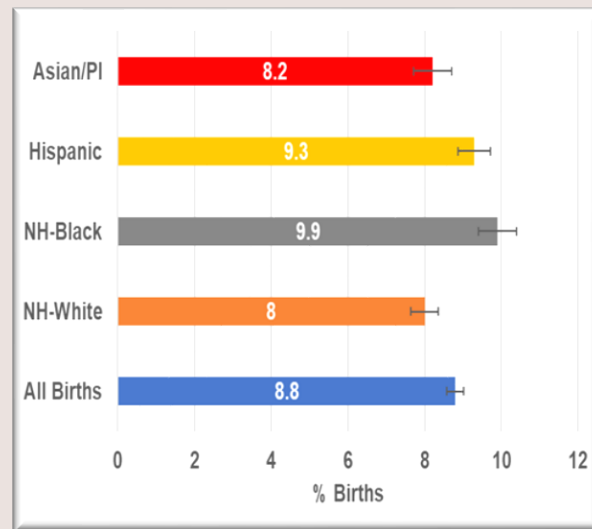


Fig. 52. Percent Preterm Births by Race/Ethnicity, Montgomery County 2015-19



8.6%



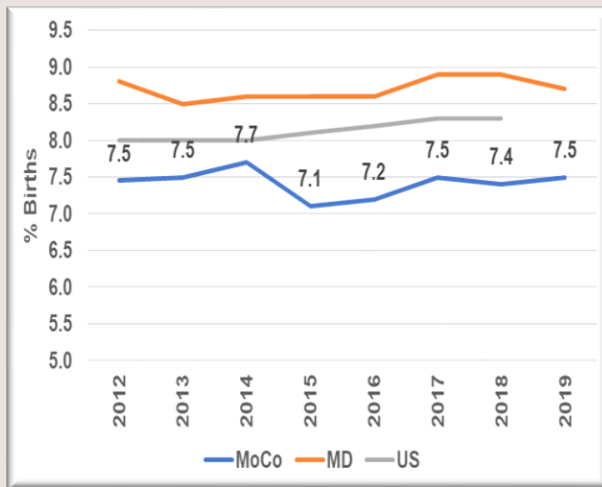
9.4% of live births are preterm



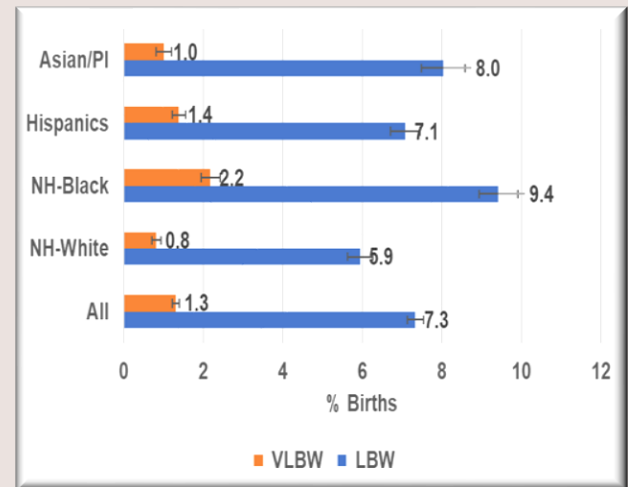
Health inequity (NH-Whites as reference) increased over time for Hispanics

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

**Fig. 53. Percent Low Weight Births
Montgomery County, Maryland, and U.S.
2012-19**

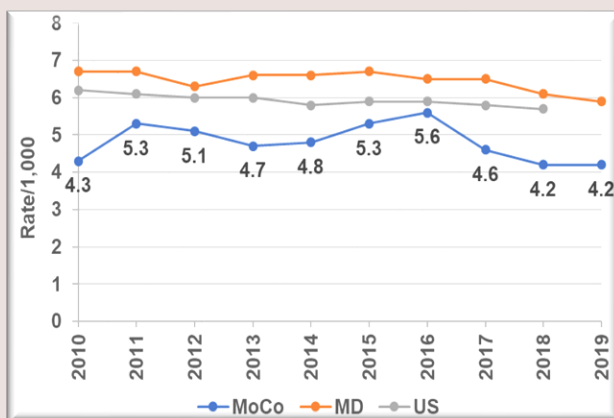


**Fig. 54. Percent Low and Very Low Weight Births by Race/Ethnicity, Montgomery County
2015-19**

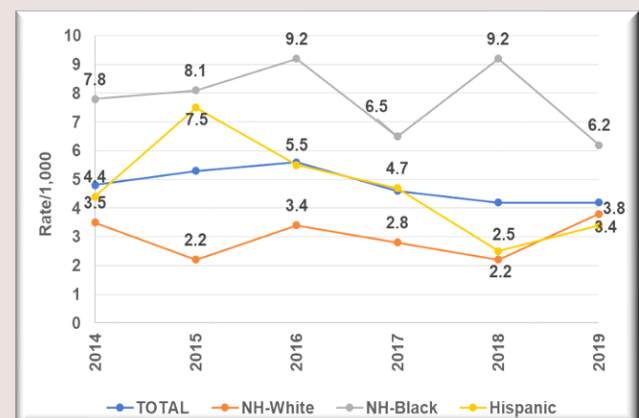


- Infant mortality rates in Montgomery County fluctuated over time, with an overall decreasing trend; the trend of infant mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 55).
- Among population subgroups, NH-Black had the highest infant mortality rate, followed by Hispanic, and NH-White (Fig. 56).

**Fig. 55. Infant Mortality Rate, Montgomery
County, Maryland, and U.S.
2010-19**



**Fig. 56. Infant Mortality Rate by
Race/Ethnicity, Montgomery County
2014-19**

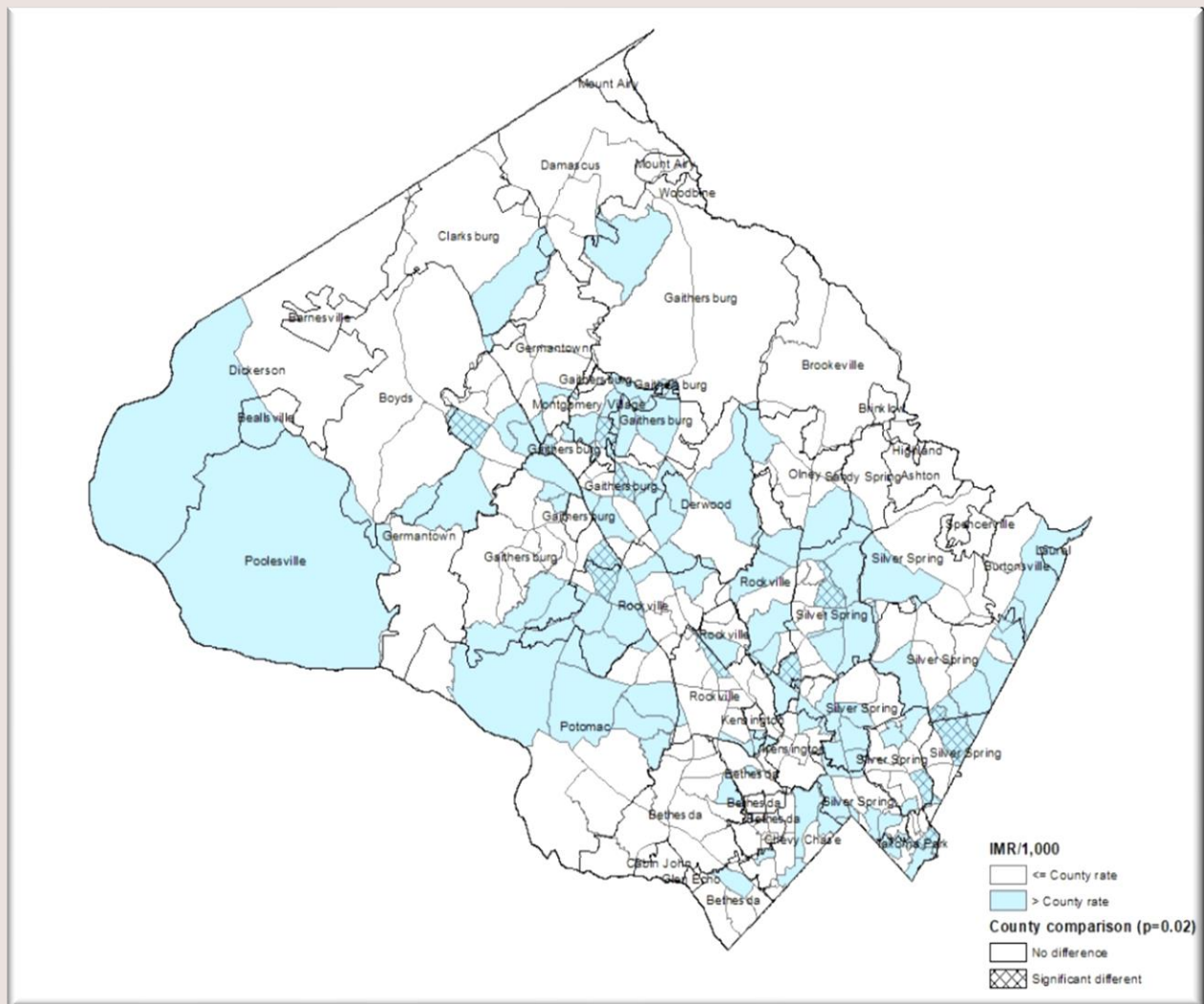


4.5/1,000 births



Health inequity (NH-Whites as reference) increased over time for NH-Blacks and Hispanics

**Map 2. Infant Mortality Rate by Census Tract
Montgomery County
2010-19**



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.



56.4% (95% CI: 52.9-59.9) adults age 18+ are overweight or obese in Montgomery County, as compared to 66.1% (95% CI: 64.9-67.4) in Maryland

7.3% (95% CI: 5.4-9.1) adults age 18+ are current smokers in Montgomery County, as compared to 13.1% (95% CI: 12.2-14.0) in Maryland

68.2% (95% CI: 64.9-71.5) adults age 18+ have daily fruit consumption in Montgomery County, as compared to 62.3% (95% CI: 61.0-63.6) in Maryland

79.5% (95% CI: 76.4-82.6) adults age 18+ have daily vegetable consumption in Montgomery County, as compared to 78.0% (95% CI: 76.8-79.2) in Maryland

19.2% (95% CI: 16.4-22.1) adults age 18+ have no leisure time physical activity in Montgomery County, as compared to 23.1% (95% CI: 22.0-24.2) in Maryland

24.4% (95% CI: 22.1-26.8) adults age 18+ have ever been told they have hypertension in Montgomery County, as compared to 32.2% (95% CI: 31.2-33.2) in Maryland

33.8% (95% CI: 30.4-37.1) adults age 18+ have ever been told they have high cholesterol in Montgomery County, as compared to 31.3% (95% CI: 30.1-32.5) in Maryland



55.8% adults age 18+ are overweight or obese

32.4% adults 18+ have high blood pressure

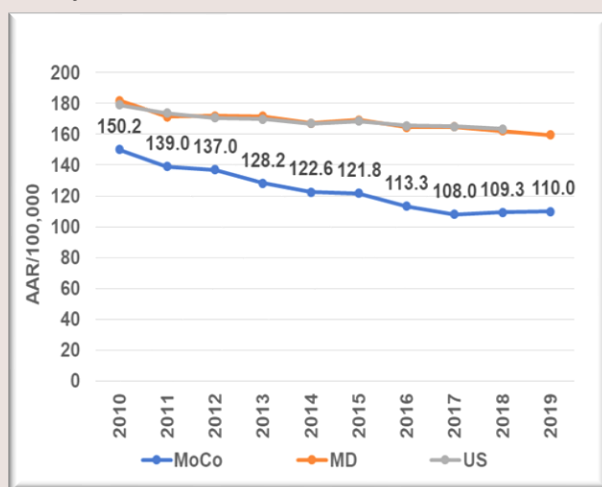
**Table 20. Chronic Disease Mortality by Sex and Race/Ethnicity
Montgomery County
2017-19**

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
Heart Disease	4,120	2,160	1,960	2,803	673	399	229
Cancer	4,237	1,996	2,240	2,675	715	484	349
Cerebrovascular Disease	944	381	563	585	179	110	66
Chronic Lower Respiratory Disease	589	239	350	469	67	41	25
Diabetes Mellitus	397	246	181	223	115	54	34

Heart Disease

- Heart disease mortality decreased in Montgomery County 2010-19, similar to that of Maryland and the U.S.; heart disease mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 57).
- NH-Blacks and NH-Whites had higher heart disease mortality than Hispanics and Asians/PI; males had higher heart disease mortality than females (Fig. 58).
- Residents aged 65 and older had the highest heart disease mortality (Fig. 59).

Fig. 57. Heart Disease Age-Adjusted Mortality Rates, Montgomery County Maryland, and U.S., 2010-19



100.0/100,000

Fig. 58. Heart Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

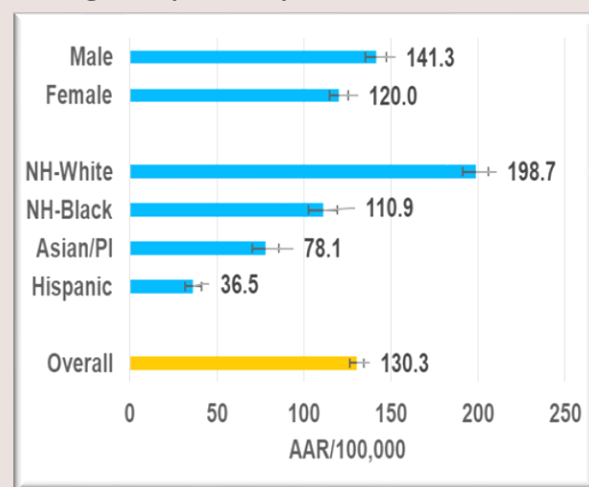
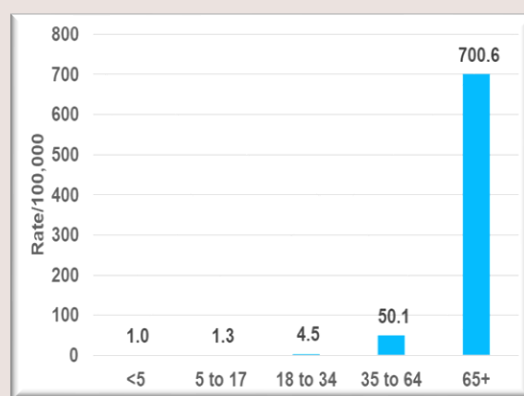


Fig. 59. Heart Disease Mortality Rates by Age, Montgomery County 2017-19



Map of Loudoun County, Virginia, showing the distribution of *Aedes albopictus* (AAR) in 2004. The map displays various towns and their surrounding areas, color-coded to indicate AAR density and statistical significance compared to the county rate.

County rate = 116.1/100,000

AAR/100,000

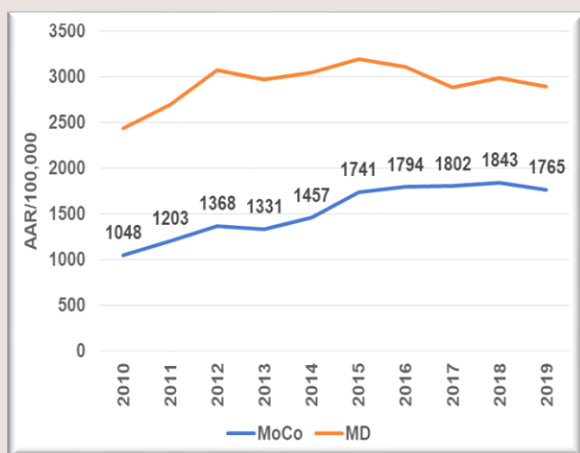
- ≤ County rate (White)
- > County rate (Light Blue)

County comparison (p=0.05)

- No difference (White)
- Significant different (Cross-hatched)

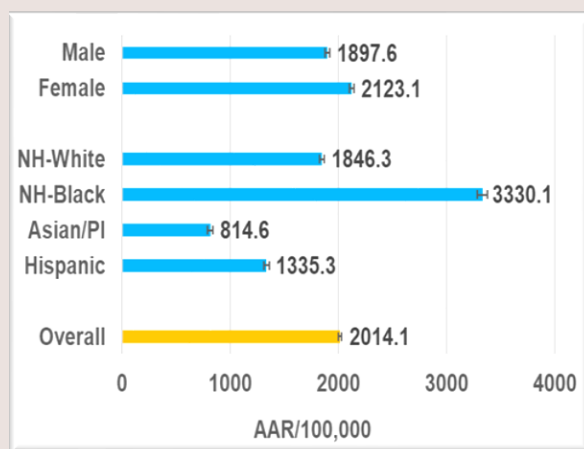
- Heart disease ER visit rates are increasing, similar to those in Maryland. Rates in the County are consistently lower than those in Maryland (Fig. 60).
- Among population subgroups, the NH-Black had the highest rates, followed by NH-White, Hispanic, and Asian/PI; females have higher rates compared to males (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, 2010-19



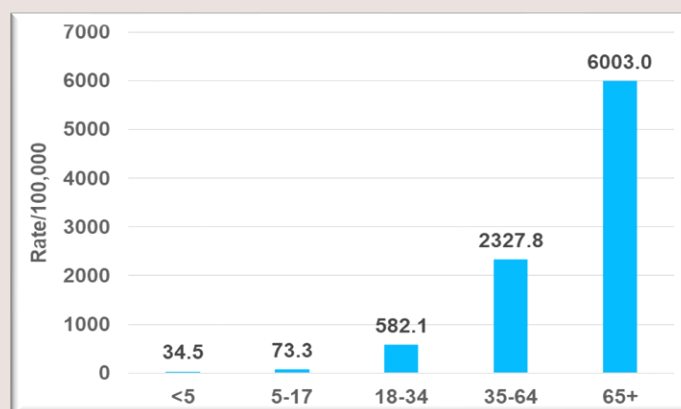
1756.7/100,000

Fig. 61. Heart Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County 2017-19

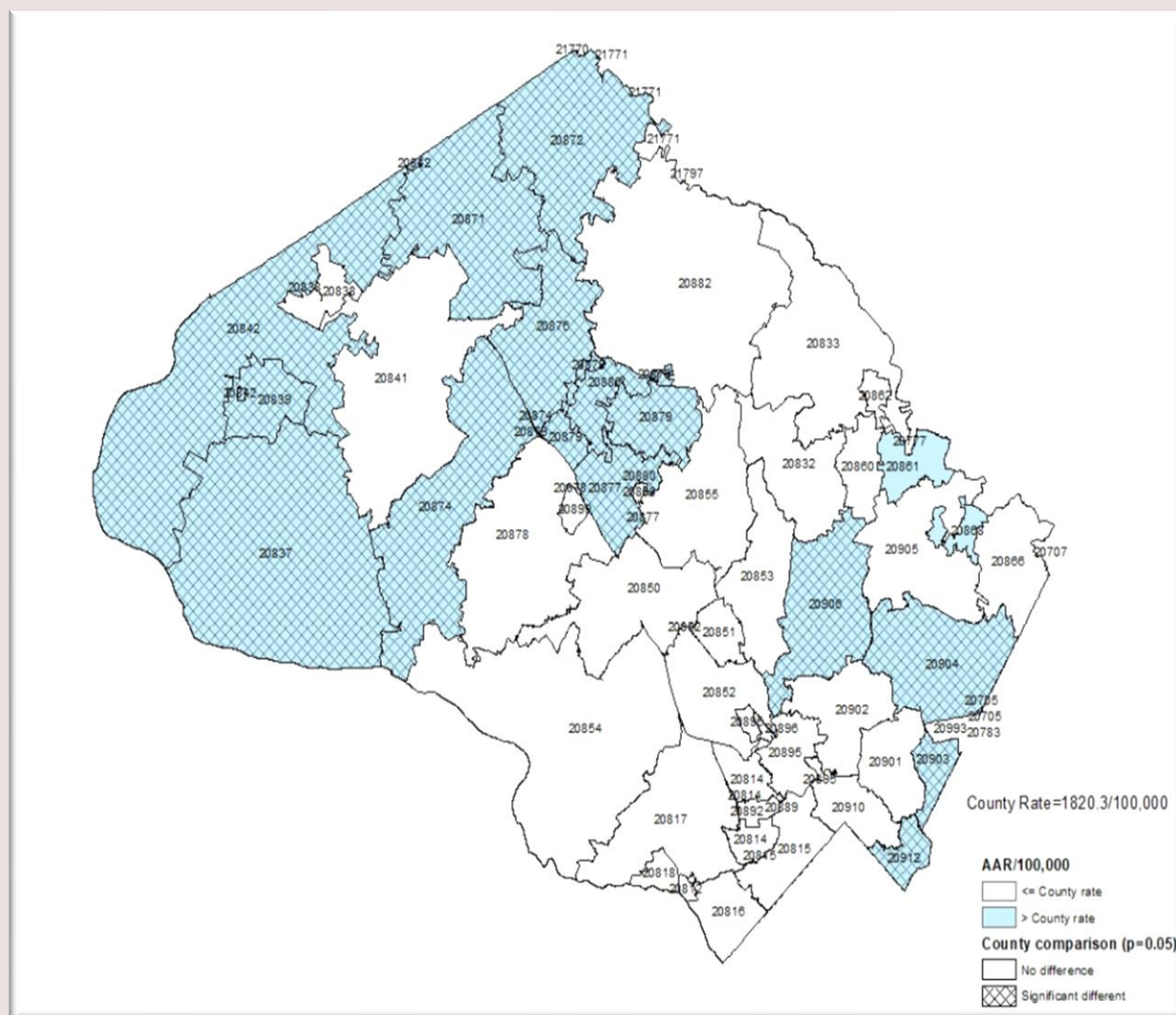


Health inequity (NH-Whites as reference) increased over time for NH-Blacks and Hispanics

Fig. 62. Heart Disease Related ER Visit Rates by Age Montgomery County 2017-19



**Map 4. Heart Disease Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



2.7% (95% CI: 1.8-3.6) adults age 18+ ever told have heart attack in Montgomery County, as compared 3.1% (95% CI: 2.8-3.5) in Maryland

1.9% (95% CI: 1.4-2.5) adults age 18+ ever told have Angina or Coronary Heart Disease in Montgomery County, as compared to 2.6% (95% CI: 2.4-2.9) in Maryland

Cerebrovascular Disease (including Stroke)

- Montgomery County had a decreasing trend of cerebrovascular disease mortality 2010-19, 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. 63).
- NH-Whites had the highest cerebrovascular mortality; males and females had similar cerebrovascular disease mortality (Fig. 64).
- Residents aged 65 and older had the highest cerebrovascular disease mortality (Fig. 65).

Fig. 63. Cerebrovascular Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19

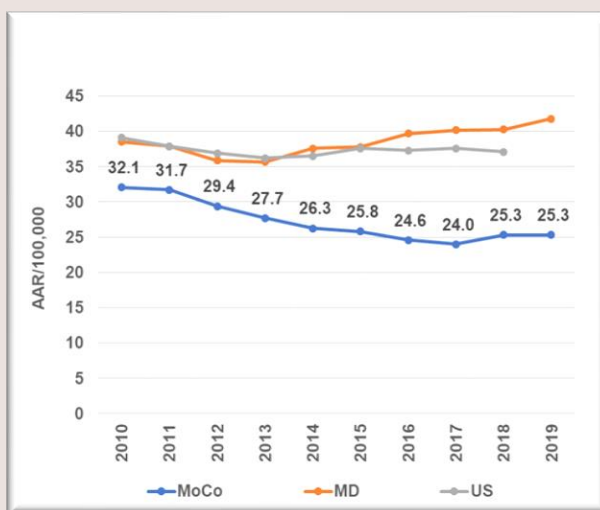


Fig. 64. Cerebrovascular Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

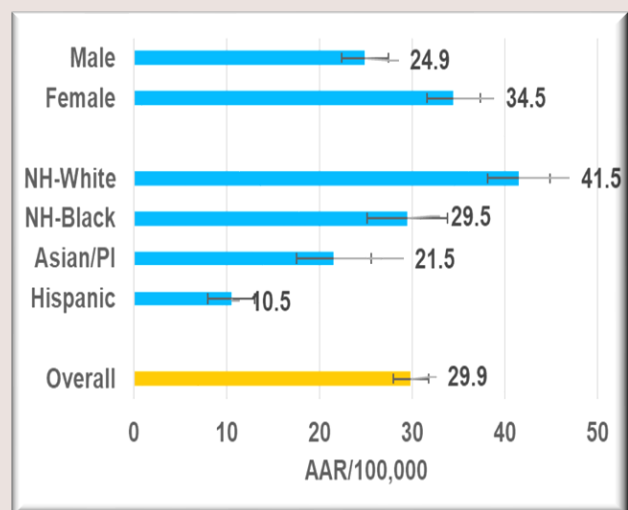
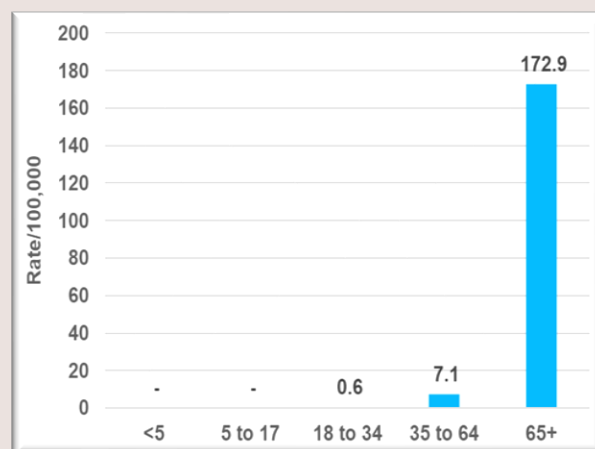
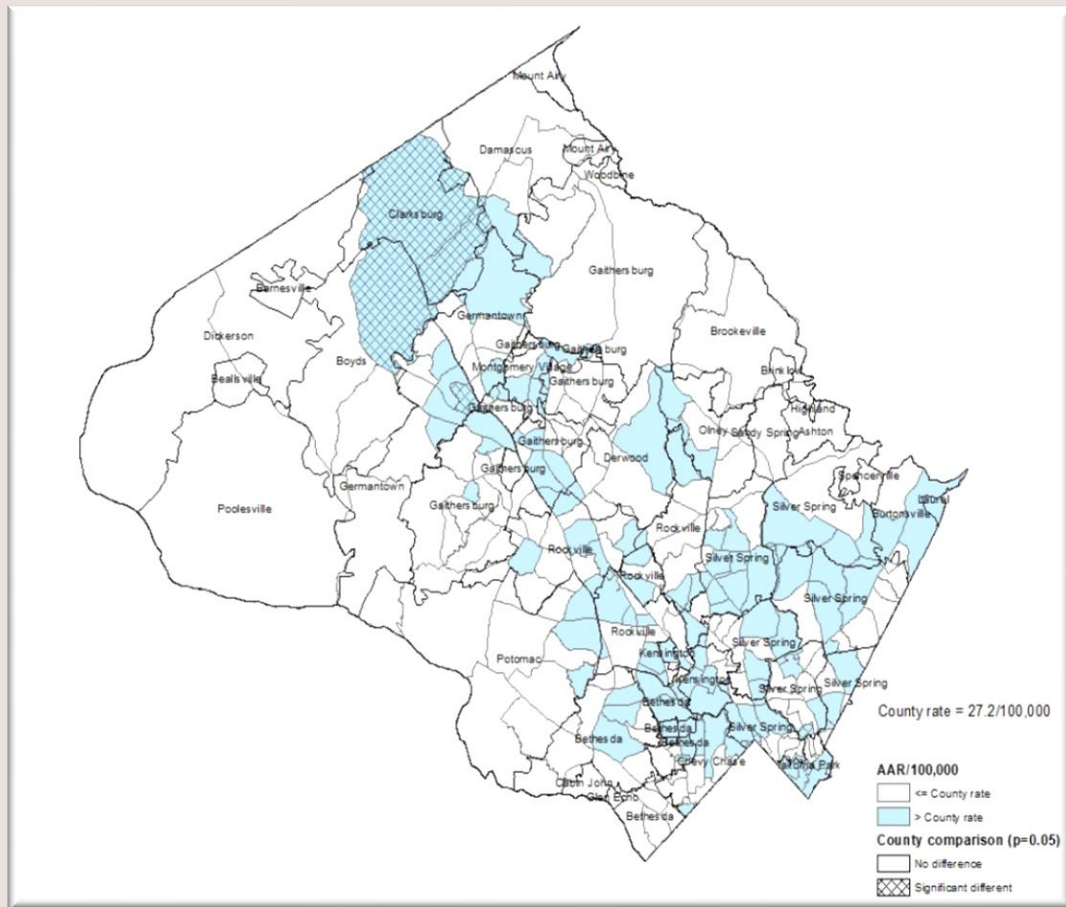


Fig. 65. Cerebrovascular Disease Mortality Rates by Age, Montgomery County 2017-19



**Map 5. Cerebrovascular Disease Age-Adjusted Mortality Rates by Census Tract
Montgomery County
2017-19**



- 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 have higher rates compared to females (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, 2010-19

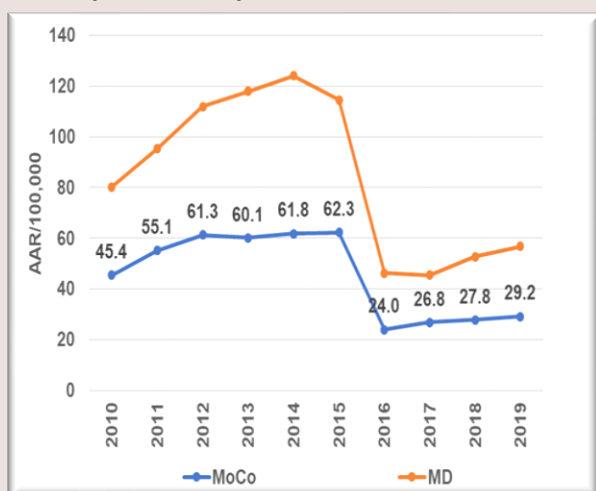


Fig. 67. Cerebrovascular Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19

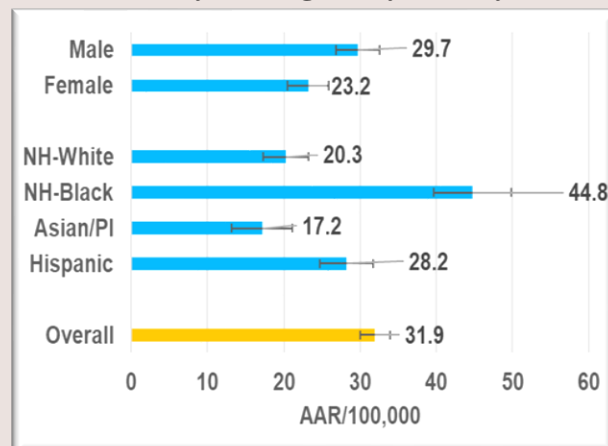
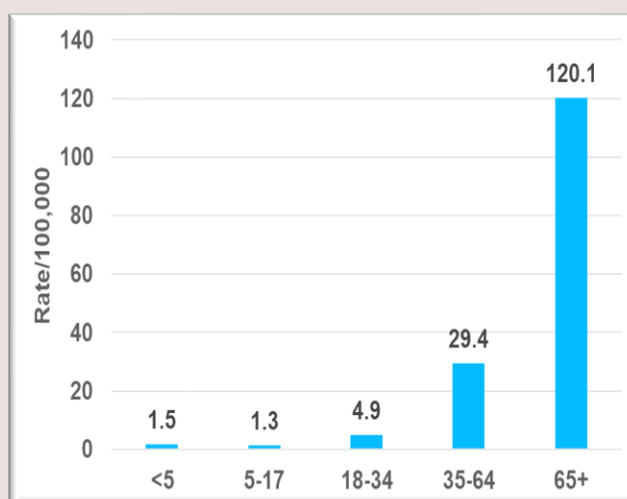
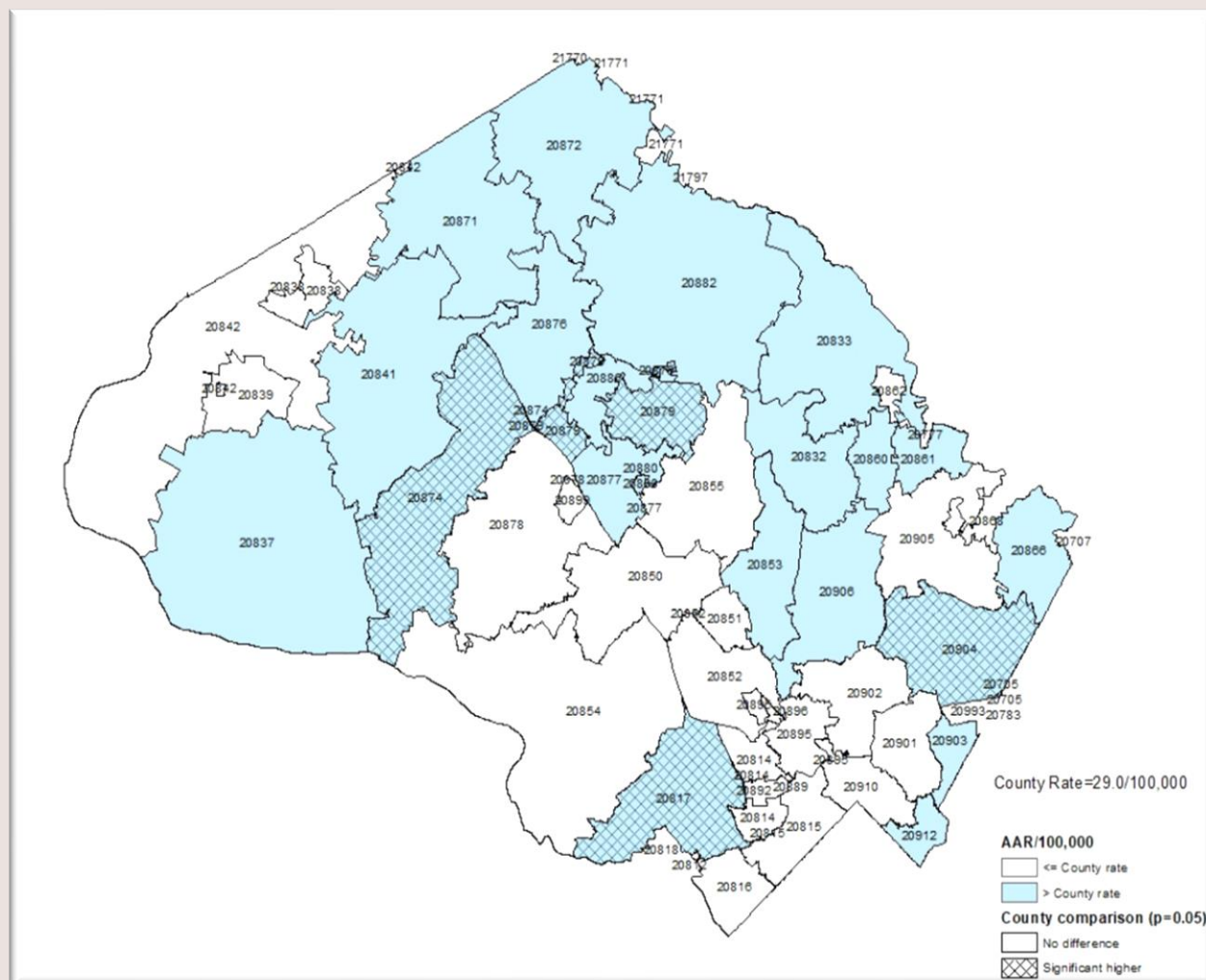


Fig. 68. Cerebrovascular Disease Related ER Visit Rates by Age, Montgomery County 2017-19



**Map 6. Cerebrovascular Disease Related ER Visit Age-Adjusted Rate by Zip Code
Montgomery County
2017-19**



1.6% (95% CI: 1.0-2.3) adults age 18+ ever told have stroke in Montgomery County, as compared 2.8% (95% CI: 2.4-3.1) in Maryland.

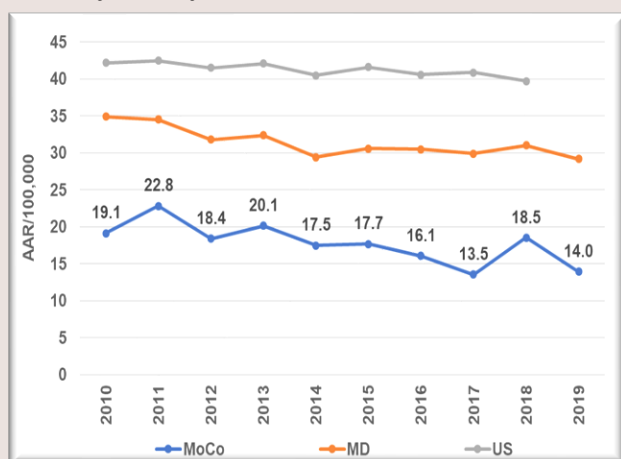


33.4 stroke deaths per 100,000 population

Chronic Lower Respiratory Disease (including COPD)

- Montgomery County had a decreasing trend of chronic lower respiratory disease mortality since 2011 but increased in 2018, 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. 69).
- NH-Whites and NH-Blacks had higher chronic lower respiratory disease mortality than Asians/PI and Hispanics; females have similar rates as males (Fig. 70).
- Residents aged 65 and older had the highest chronic lower respiratory disease mortality (Fig. 71).

Fig. 69. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, Montgomery County, Maryland, and U.S., 2010-19



13.2/100,000

Fig. 70. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19

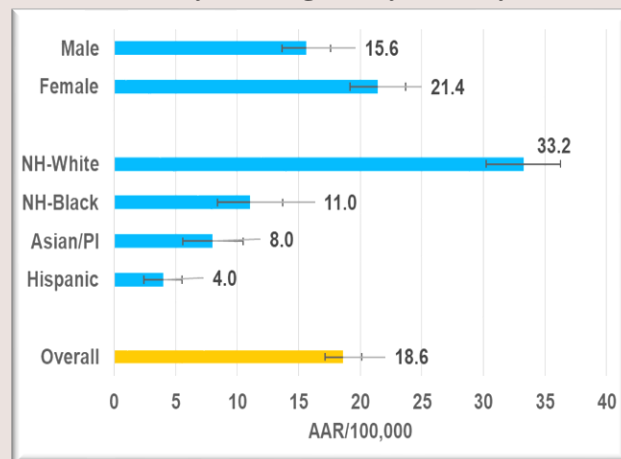
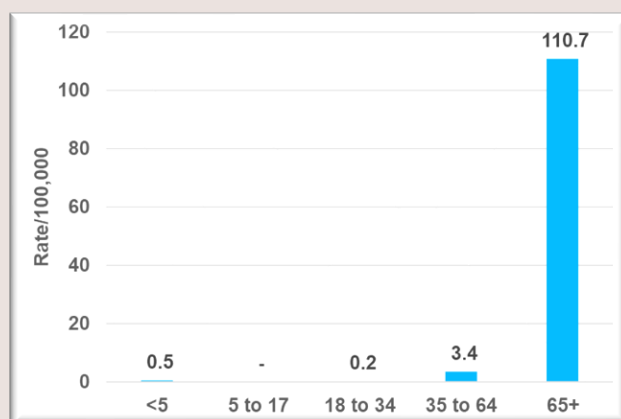
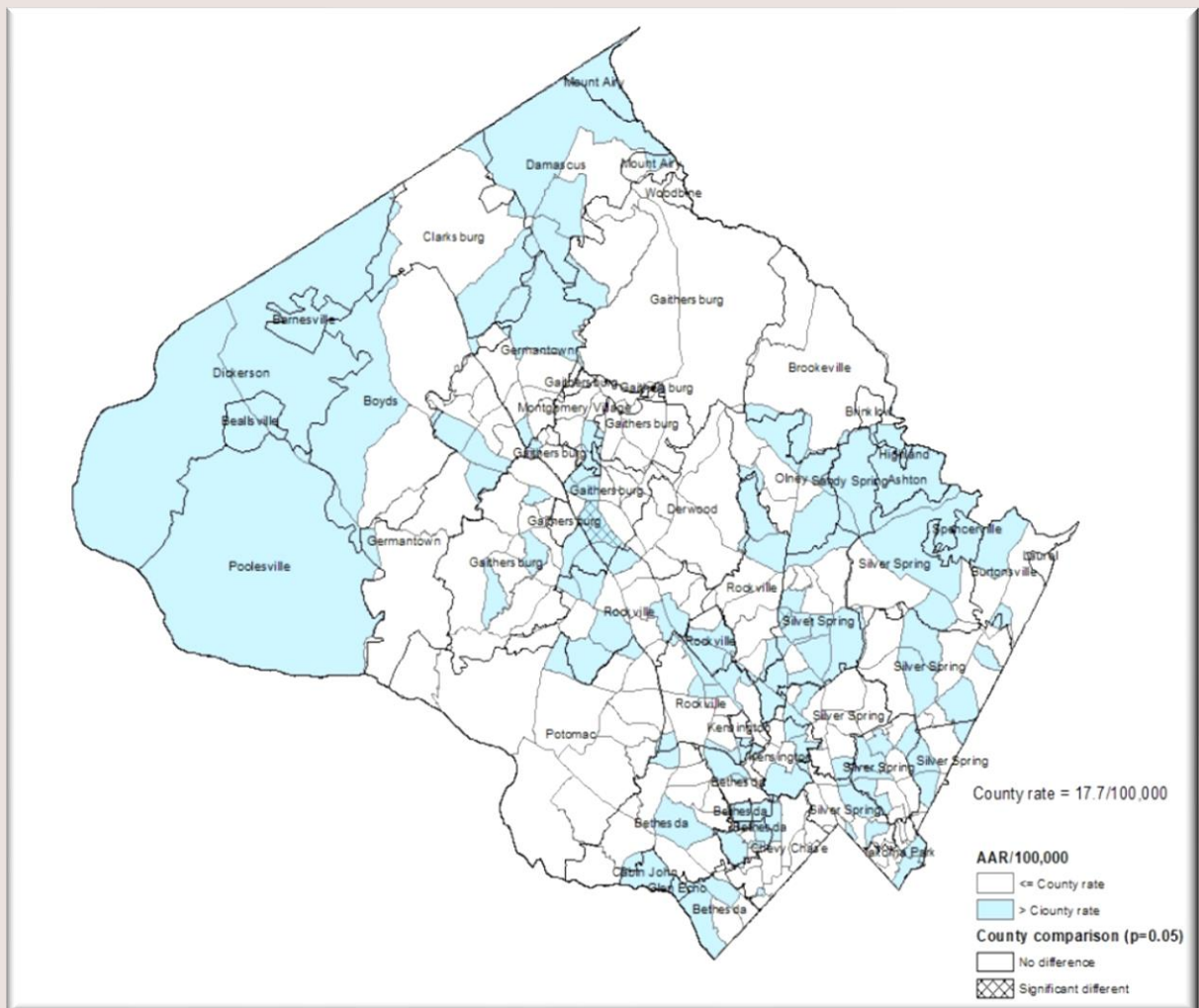


Fig. 71. Chronic Lower Respiratory Disease Mortality Rates by Age, Montgomery County 2017-19

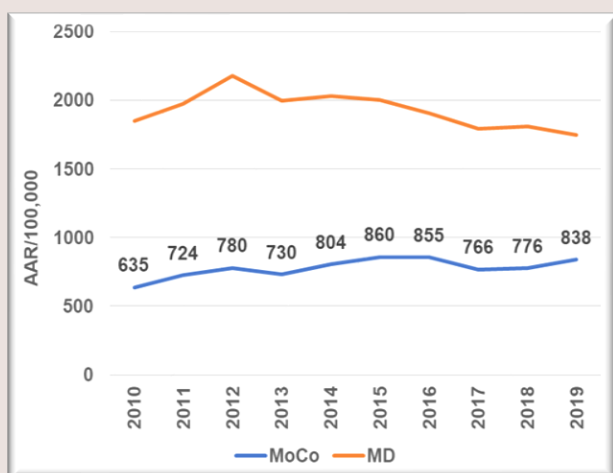


**Map 7. Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates by Census Tract
Montgomery County
2017-19**



- Chronic lower respiratory disease ER visit rates in the County 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 aged 5-17 have the highest rate, followed by those aged under 5 (Fig. 74).

Fig. 72. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates Montgomery County and Maryland 2010-19



745.9/100,000

Fig. 73. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County 2017-19

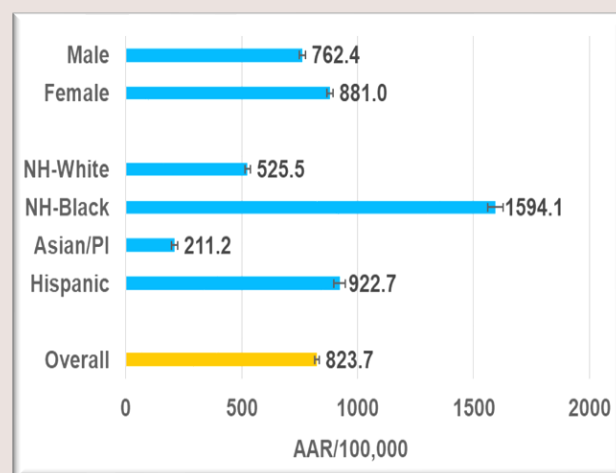
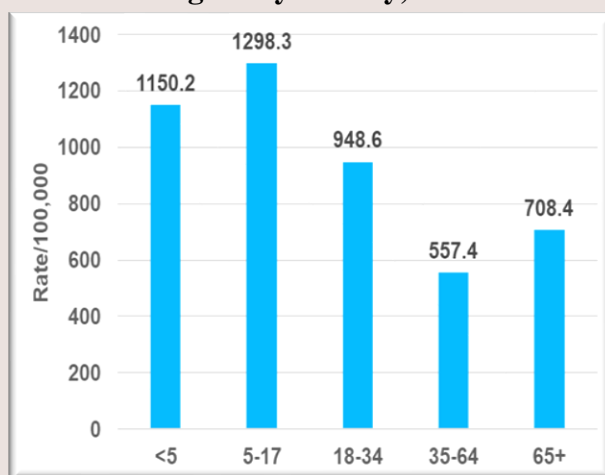
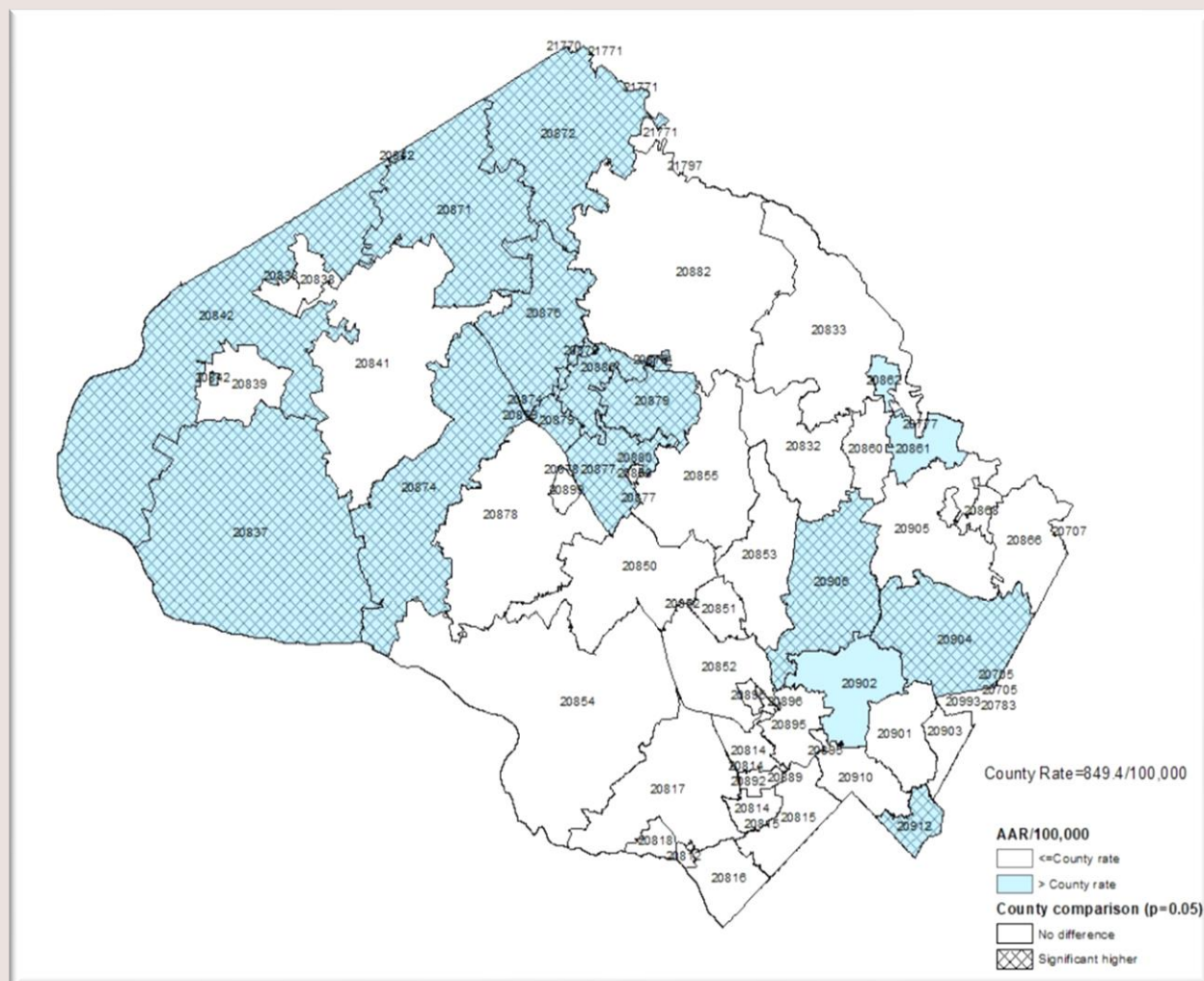


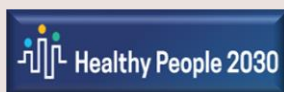
Fig. 74. Chronic Lower Respiratory Disease Related ER Visit Rates by Age Montgomery County, 2017-19



**Map 8. Chronic Lower Respiratory Disease Related ER Visit Age-Adjusted Rates
by Zip Code, Montgomery County
2017-19**



3.2% (95% CI: 2.1-4.3) adults age 18+ ever told have COPD in Montgomery County, as compared 4.9% (95% CI: 4.4-5.3) in Maryland.



107.2 deaths per 100,000 adults aged 45+ population for COPD
64.0 ED visits per 10,000 adults aged 45+ population for COPD

Cancer

Cancer is the second most common cause of death in the U.S. 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. 2010-16; 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, 2010-16

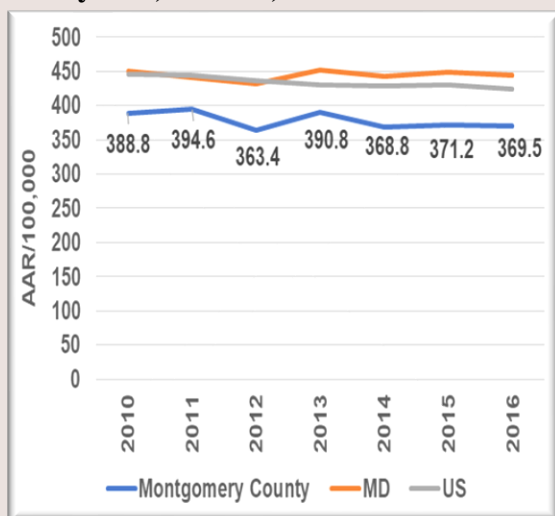


Fig. 76. Cancer Age-Adjusted Mortality Rates All Sites, Montgomery County, Maryland and US, 2010-16

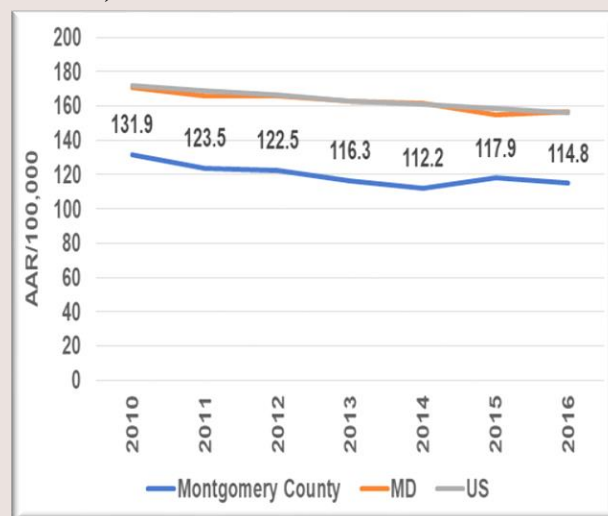


Fig. 77. Cancer Age-Adjusted Incidence Rates by Sex and Race, All Sites, Montgomery County, 2012-16

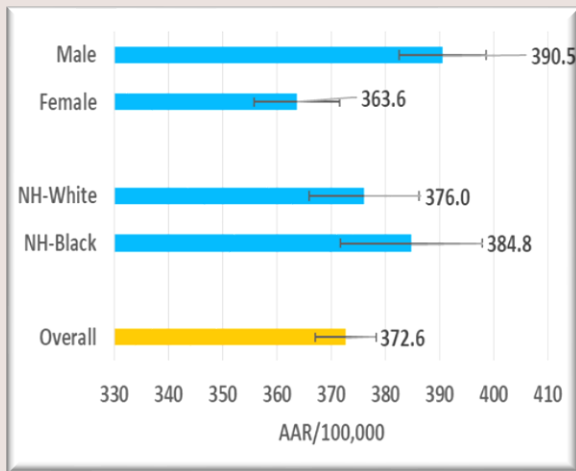
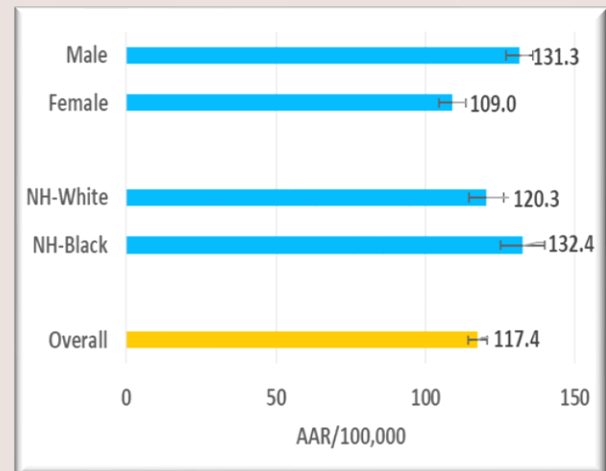


Fig. 78. Cancer Age-Adjusted Mortality Rates by Sex and Race, All Sites, Montgomery County 2012-16



- The overall incidence rate of lung and bronchus cancer in the County followed similarly decreasing trends in Maryland and the U.S. 2010-16; 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 incidence and mortality than females (Fig. 81 & 82).
- No statistically significant differences of incidence and mortality were found between NH-Blacks and NH-Whites (Fig. 81 & 82).

Fig. 79. Cancer Age-Adjusted Incidence Rates, Lung and Bronchus, Montgomery County, Maryland, and US, 2010-16

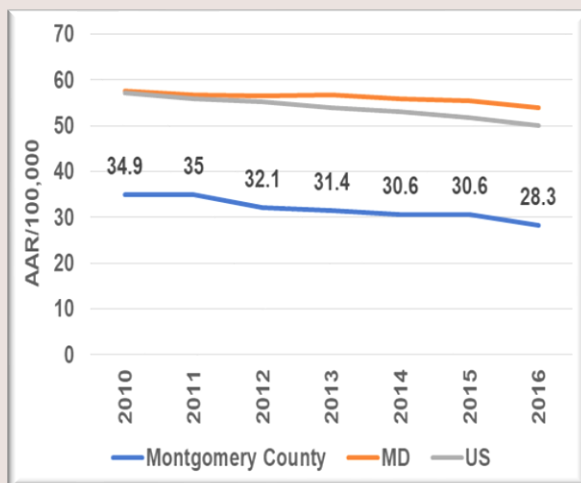


Fig. 80. Cancer Age-Adjusted Mortality Rates Lung and Bronchus, Montgomery County Maryland, and US, 2010-16

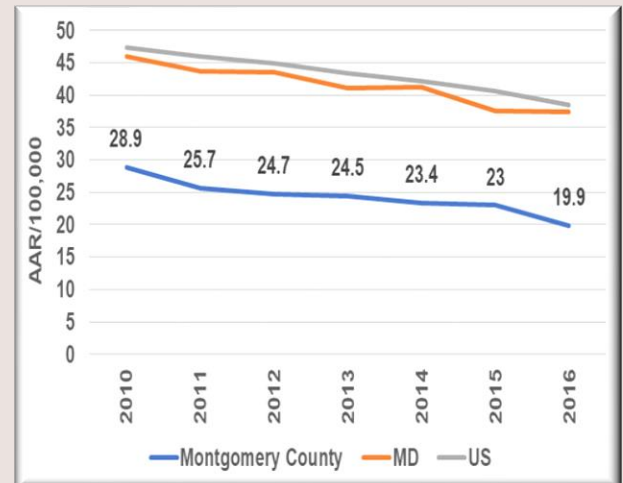


Fig. 81. Cancer Age-Adjusted Incidence Rates by Sex and Race, Lung and Bronchus Montgomery County, 2012-16

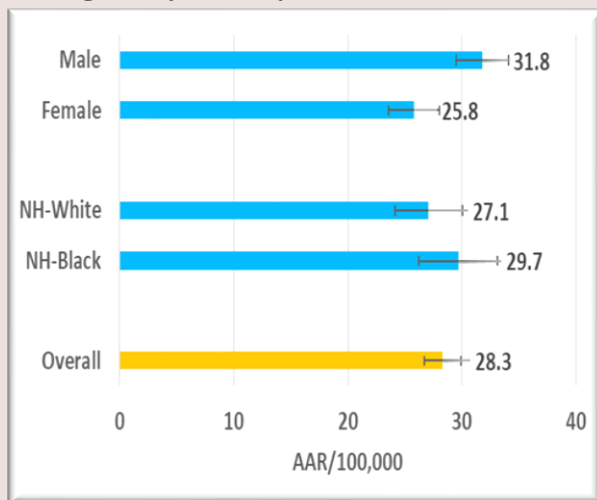
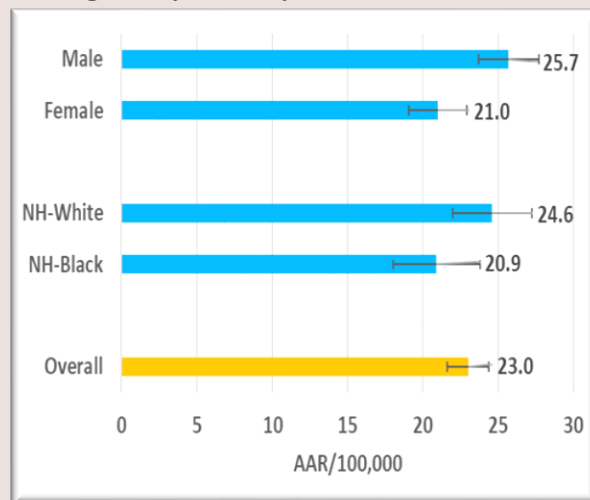
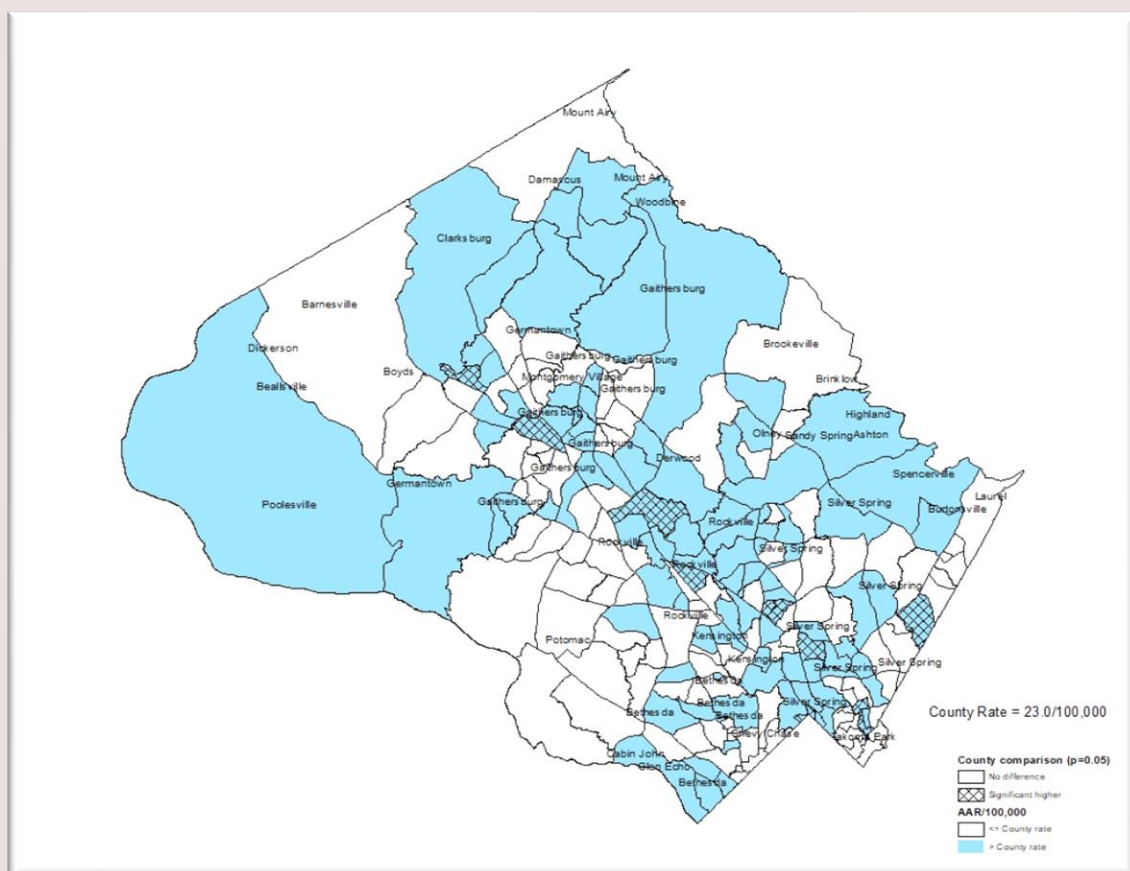


Fig. 82. Cancer Age-Adjusted Mortality Rates by Sex and Race, Lung and Bronchus Montgomery County, 2012-16



7.3% (95% CI: 5.4-9.1) adults age 18+ are current smokers in Montgomery County, as compared 13.1% (95% CI: 12.2-14.0) in Maryland.

Map 9. Cancer Age-Adjusted Mortality Rates by Census Tract, Lung and Bronchus Montgomery County, 2010-18



- The overall incidence rate of colon and rectum cancer in the County followed similarly decreasing trends in Maryland and the U.S. 2010-16; 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 higher incidence than females (Fig. 85 & 86).
- NH-Blacks had higher incidence and mortality than NH-Whites at the marginally significant level (Fig. 85 & 86).

Fig. 83. Cancer Age-Adjusted Incidence Rates, Colon and Rectum, Montgomery County, Maryland, and US, 2010-2016

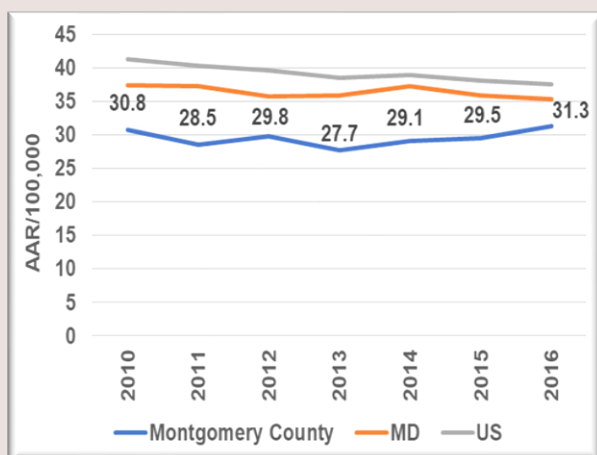


Fig. 84. Cancer Age-Adjusted Mortality Rates Colon and Rectum, Montgomery County, Maryland, and US, 2010-2016

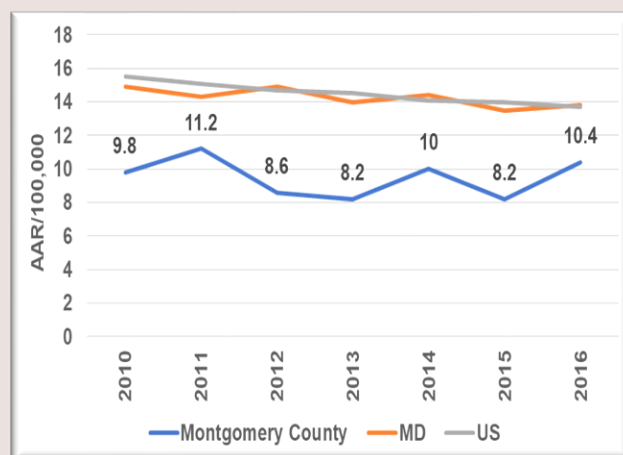


Fig. 85. Cancer Age-Adjusted Incidence Rates by Sex and Race, Colon and Rectum, Montgomery County, 2012-16

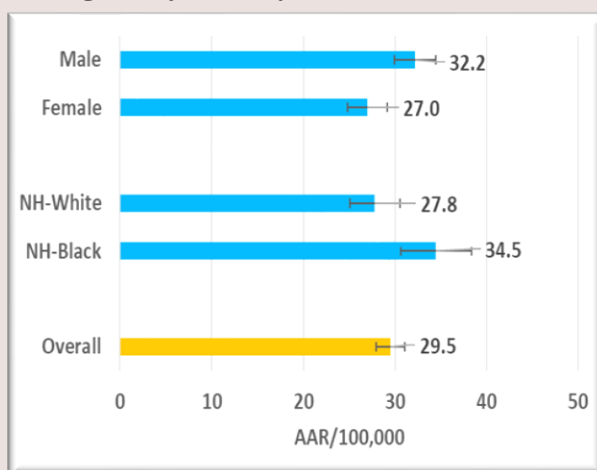
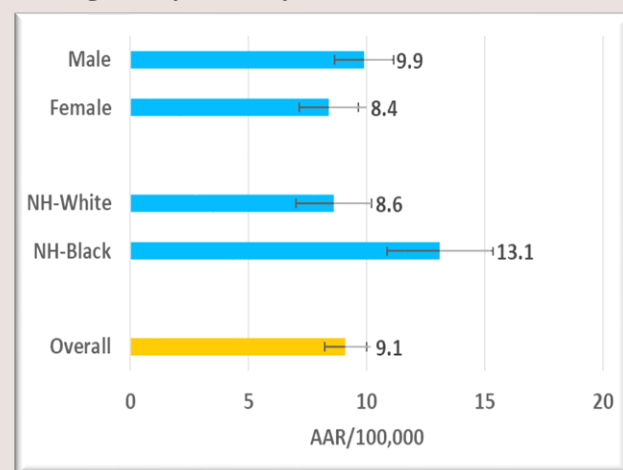
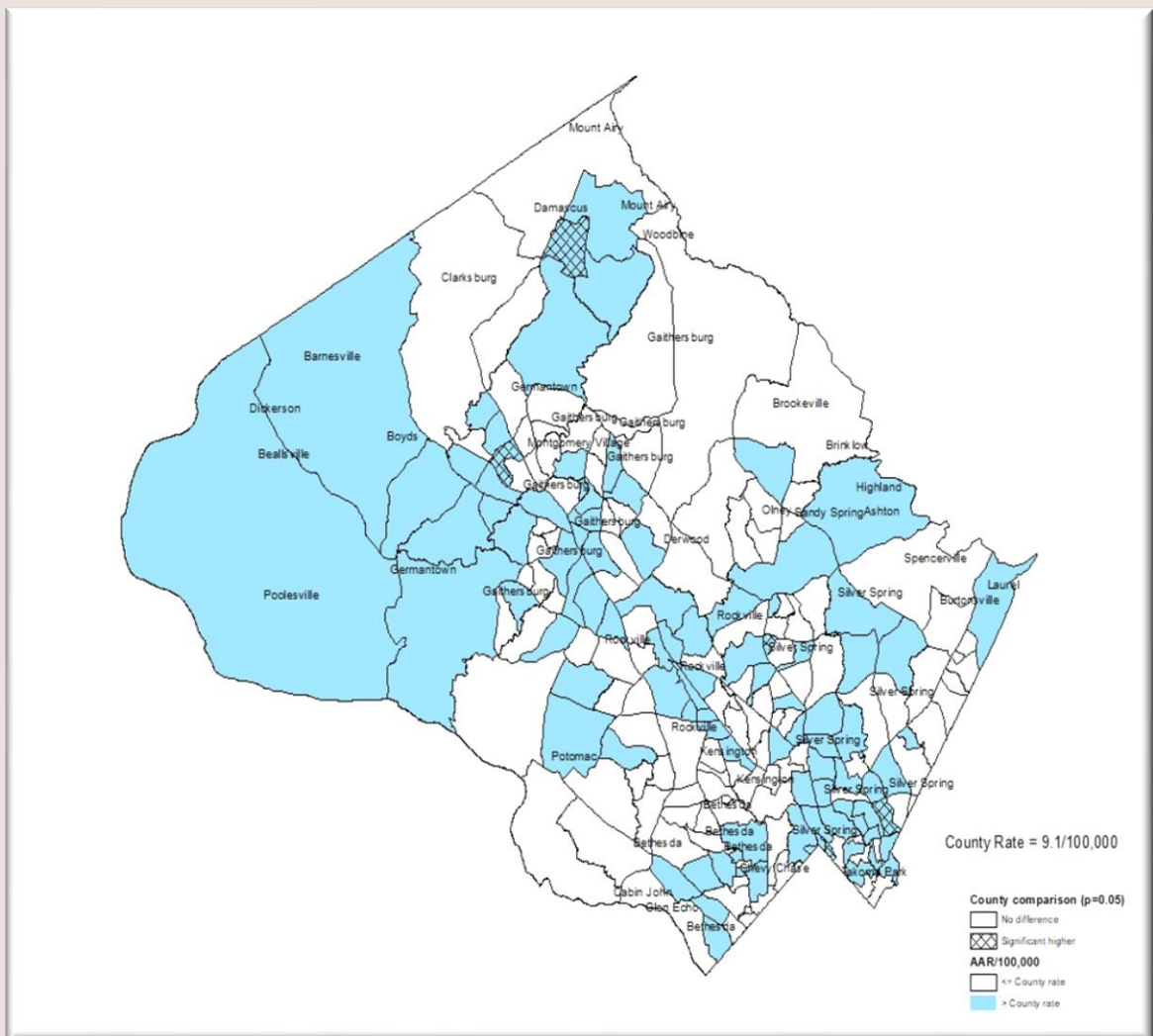


Fig. 86. Cancer Age-Adjusted Mortality Rates by Sex and Race, Colon and Rectum Montgomery County, 2012-16



**Map 10. Cancer Age-Adjusted Mortality Rates by Census Tract, Colon and Rectum
Montgomery County
2010-18**



- The incidence rate of female breast cancer in the County fluctuated over time, following similar trends in Maryland 2010-16; the rates for the County and Maryland were consistently higher than the U.S. up until 2015 (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).
- NH-Blacks had higher mortality than NH-Whites (Fig. 89 & 90).

Fig. 87. Cancer Age-Adjusted Incidence Rates, Female Breast, Montgomery County, Maryland, and US, 2010-16

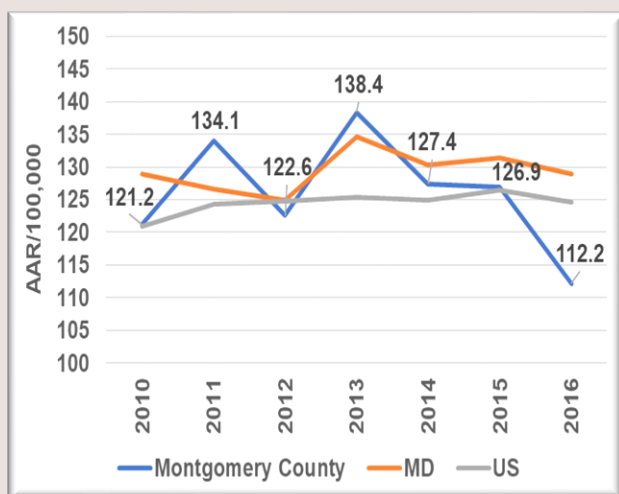


Fig. 88. Cancer Age-Adjusted Mortality Rates, Female Breast, Montgomery County, Maryland and US, 2010-16

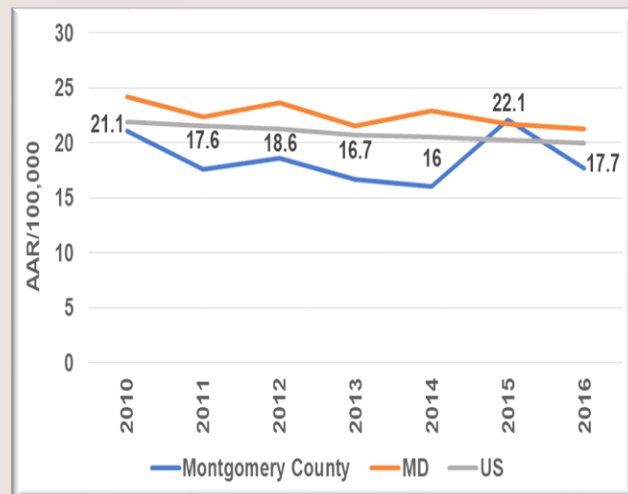


Fig. 89. Cancer Age-Adjusted Incidence Rates by Race, Female Breast, Montgomery County, 2012-16

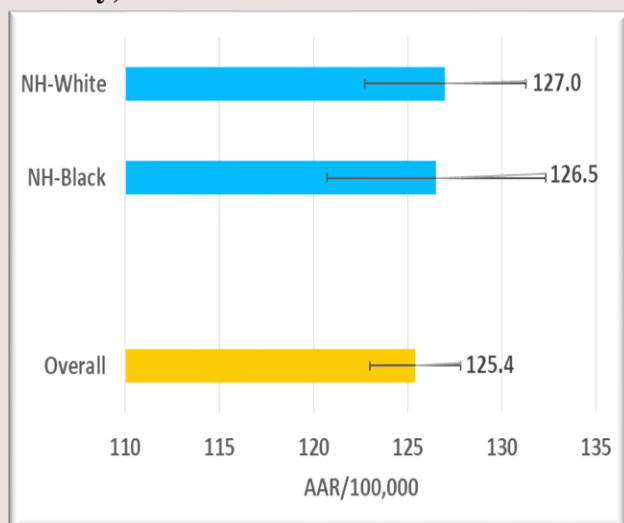
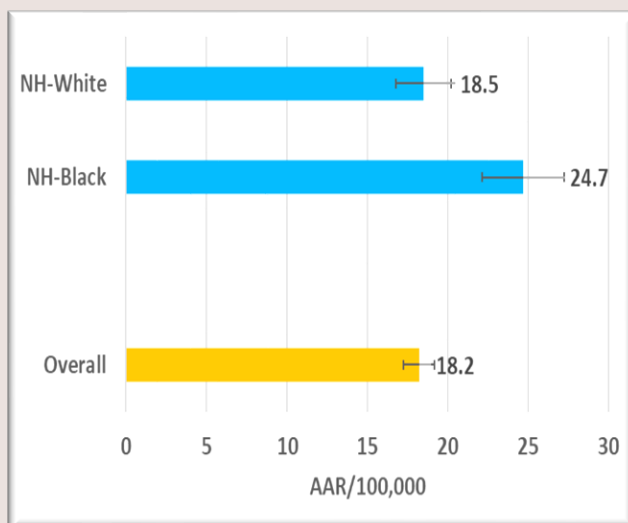
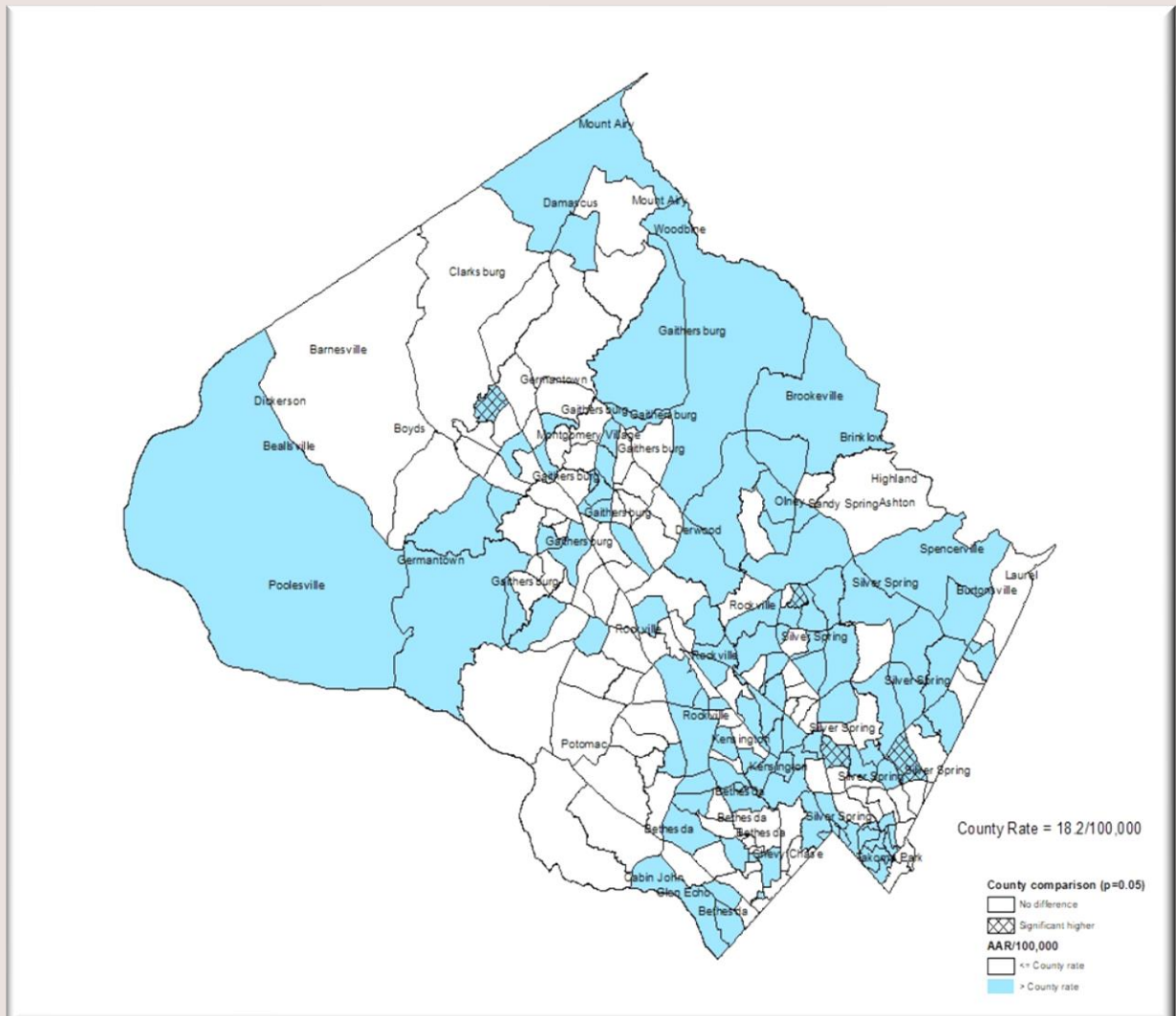


Fig. 90. Cancer Age-Adjusted Mortality Rates by Race, Female Breast, Montgomery County 2012-16



**Map 11. Cancer Age-Adjusted Mortality Rates by Census Tract, Female Breast
Montgomery County
2010-18**



- The incidence rate of prostate cancer in the County fluctuated similarly to that in Maryland and the U.S.; County rates were consistently lower than Maryland (Fig. 91).
- The mortality rate in the County fluctuated; the County rate was consistently lower than that of Maryland and the U.S. (Fig. 92).
- NH-Blacks had both statistically significant higher incidence and mortality rates than NH-Whites (Fig. 93 and 94).

Fig. 91. Cancer Age-Adjusted Incidence Rates, Prostate, Montgomery County, Maryland, and US, 2010-16

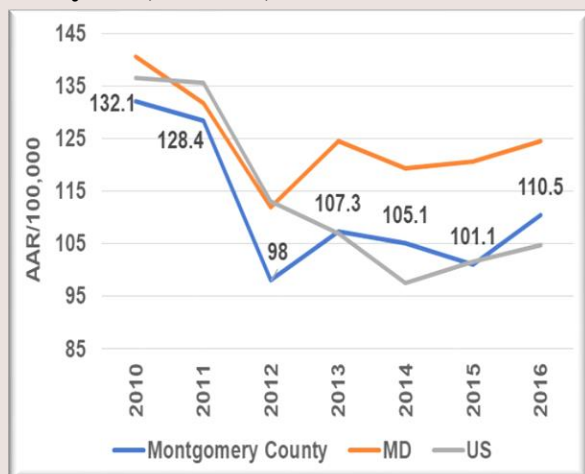


Fig. 92. Cancer Age-Adjusted Mortality Rates, Prostate, Montgomery County, Maryland, and US, 2010-16

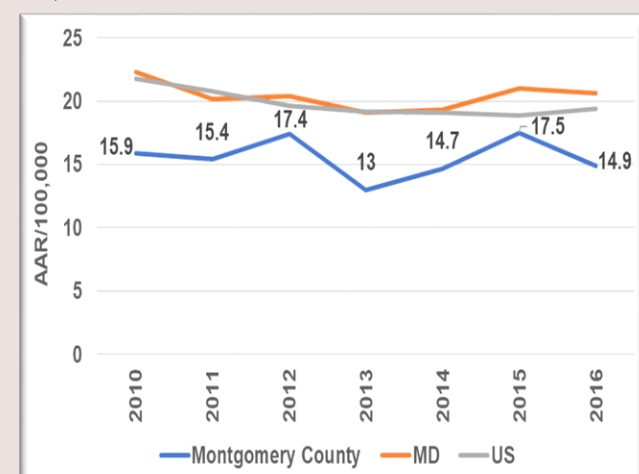


Fig. 93. Cancer Age-Adjusted Incidence Rates by Race, Prostate, Montgomery County, 2012-16

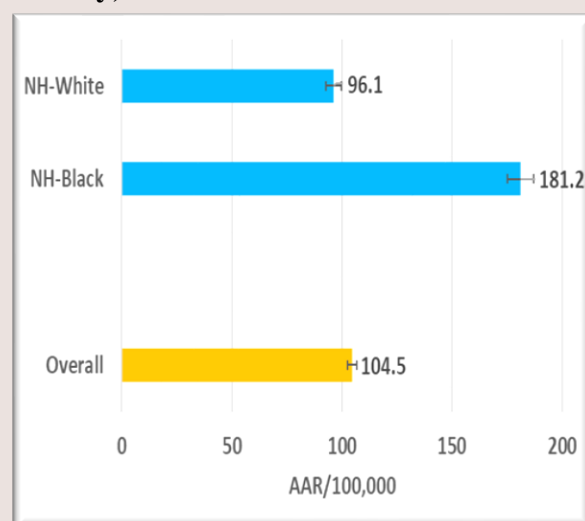
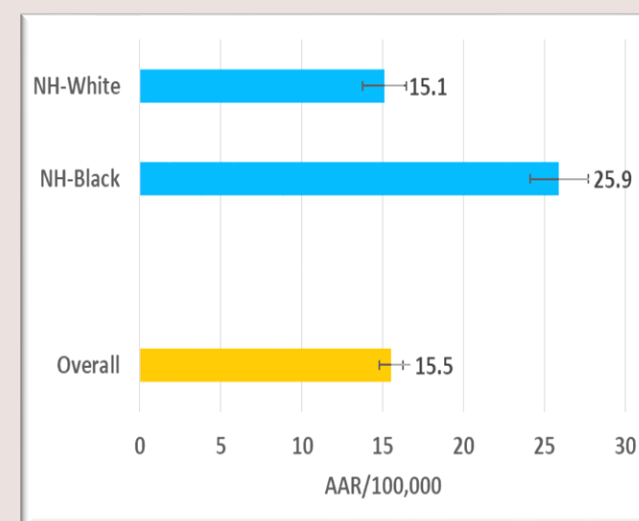
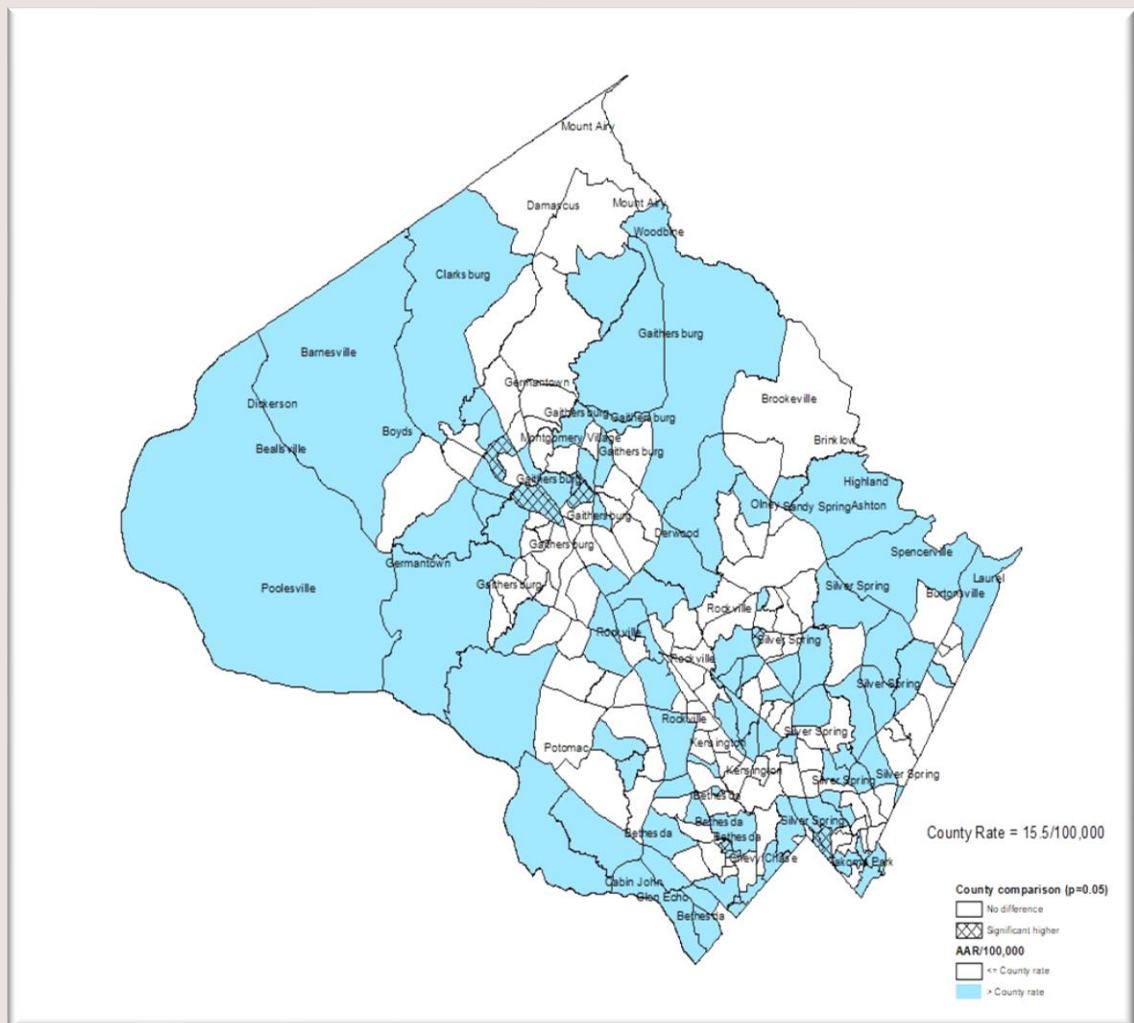


Fig. 94. Cancer Age-Adjusted Mortality Rates by Race, Prostate, Montgomery County 2012-16



**Map 12. Cancer Age-Adjusted Mortality Rates by Census Tract, Prostate
Montgomery County
2010-18**



- The overall incidence rate of melanoma of skin in the County followed similarly increasing trends in Maryland and the U.S. 2010-16; 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. County data is unavailable between 2014 and 2016 (Fig. 96).
- Males had both higher incidence and mortality than females (Fig. 97 and 98).

Fig. 95. Cancer Age-Adjusted Incidence Rates, Melanoma of Skin, Montgomery County, Maryland, and US, 2010-16

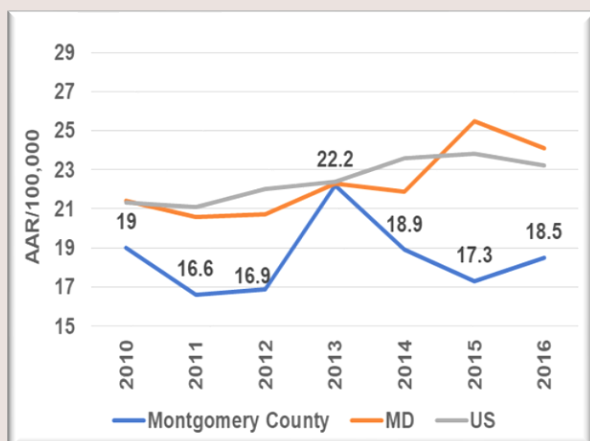


Fig. 96. Cancer Age-Adjusted Mortality Rates Melanoma of Skin, Montgomery County, Maryland, and US, 2010-16

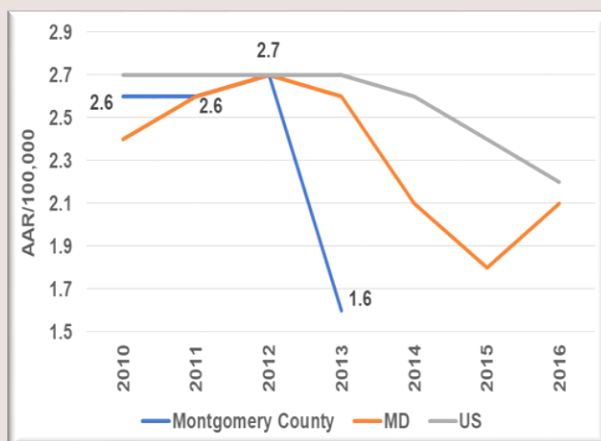


Fig. 97. Cancer Age-Adjusted Incidence Rates by Sex, Melanoma of Skin Montgomery County, 2012-16

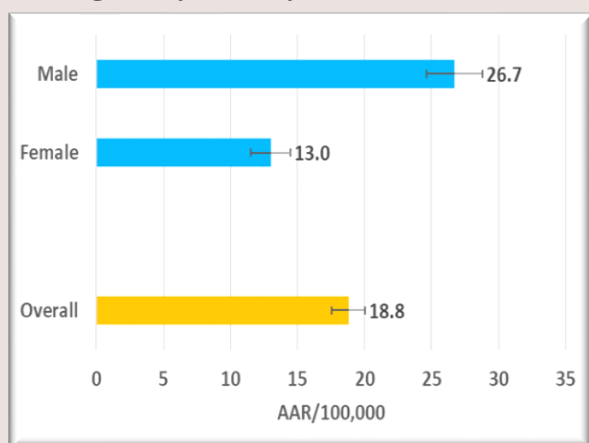
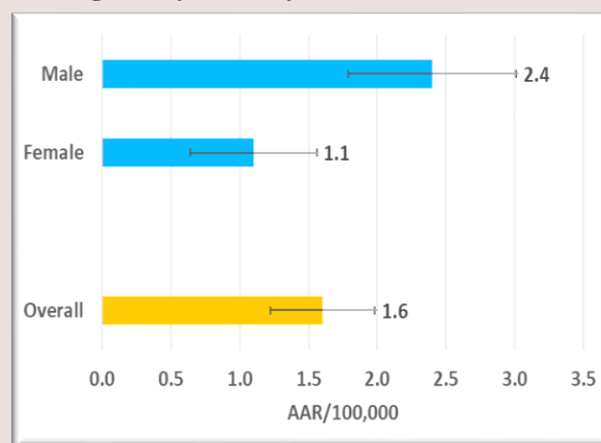


Fig. 98. Cancer Age-Adjusted Mortality Rates by Sex, Melanoma of Skin Montgomery County, 2012-16



4.0% (95% CI: 3.3-4.6) adults age 18+ ever told have skin cancer in Montgomery County, as compared to 4.4% (95% CI: 4.1-4.7) 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.

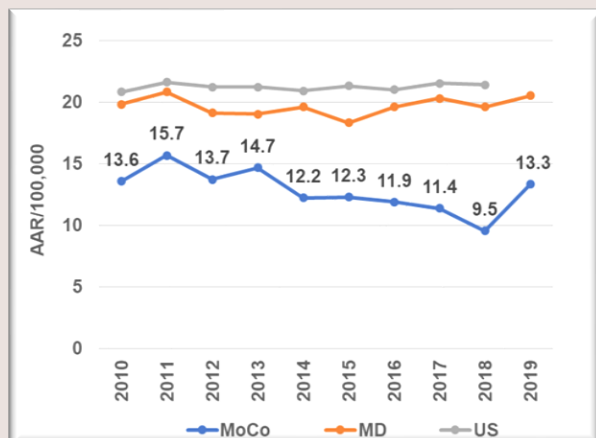
Seven million persons aged 65 years or older (20.1% of all people in this age group) in the U.S. have diabetes, most of them type 2 diabetes. Diabetes is the sixth leading cause of death in Maryland (8th in Montgomery County), and fifth leading cause of death for Black Marylanders (5th in Montgomery County) in 2017.

In November 2019, Maryland Department of Health released the [Maryland Diabetes Action Plan](#) with action steps for organizations and partners to implement to prevent and manage diabetes in Maryland. The action steps are categorized using a system change model approach, working upstream to people at a healthy weight, then progressing as risk increases with those who are overweight and obese, followed by those who are prediabetic or with history of gestational diabetes, and also include actions to improve outcomes in those identified with diabetes and diabetes complications.

In Fiscal Year 2020, Montgomery County DHHS received a two-year grant award from the Maryland Community Health Resources Commission to implement the Predict – Link – Control T2D project that aims to decrease Type II diabetes-related emergency department use with a target reduction of 10% and establish a Chronic Disease Coalition. The Local Health Improvement Coalition (LHIC) staff used the funds to complete the Diabetes Self-Management Program (DSMP) Facilitator training. In addition, LHIC staff received technical assistance from the University of Maryland School of Public Health.

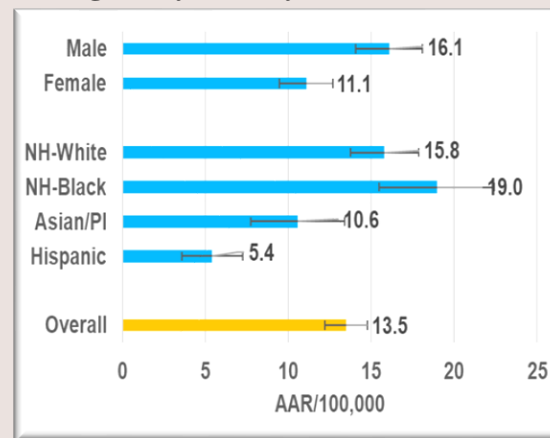
- Montgomery County had an overall decreasing trend of diabetes mortality, following the same trends as Maryland and the U.S.; diabetes mortality in the County is consistently lower than that of Maryland and the U.S. (Fig. 99).
- NH-Blacks had the highest diabetes mortality when compared with other population subgroups; males had higher mortality than females (Fig. 100).
- Residents aged 65 and older had the highest diabetes mortality, followed by those aged 35-64 (Fig. 101).

Fig. 99. Diabetes Age-Adjusted Mortality Rates, Montgomery County, Maryland and U.S., 2010-19



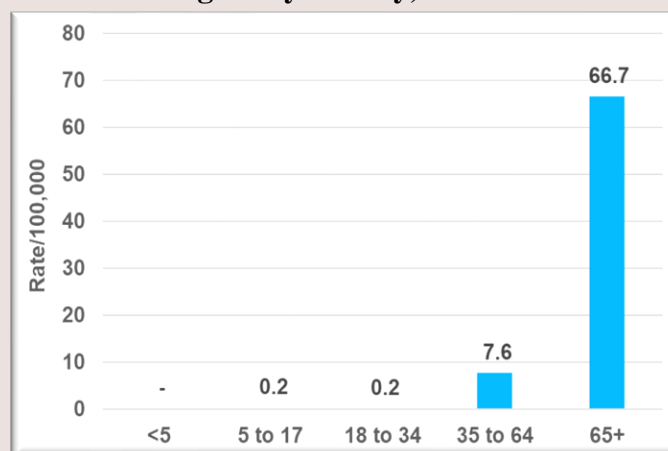
10.8/100,000

Fig. 100. Diabetes Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19



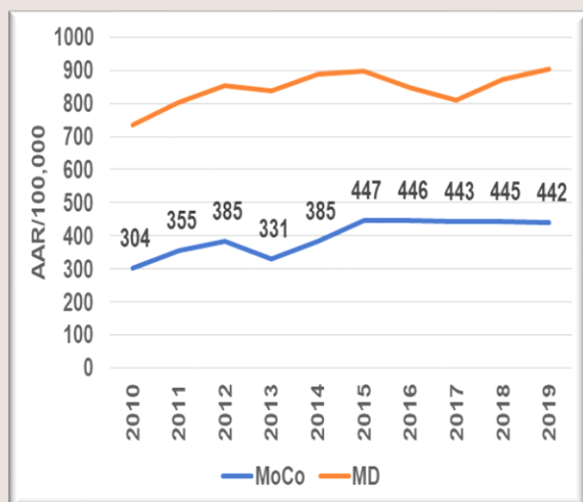
Health inequity (NH-Whites as reference) increased over time for Hispanics

Fig. 101. Diabetes Mortality Rates by Age Montgomery County, 2017-19



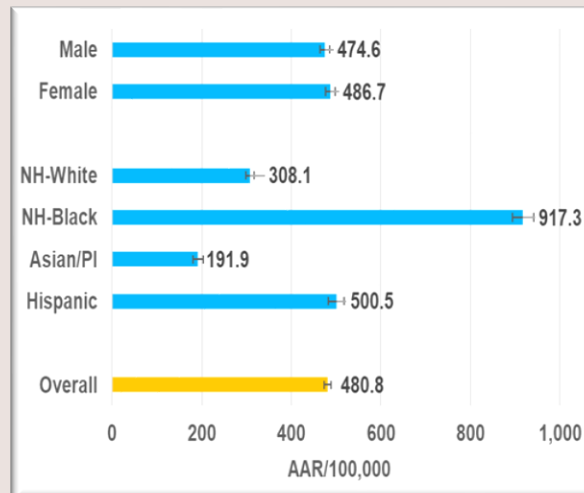
- Diabetes ER visit rates increased over time, similar to those in Maryland.; the rates in the County were consistently lower than Maryland (Fig. 102).
- Among population subgroups, NH-Black had the highest rates, followed by Hispanic, NH-White, and Asian/PI; males have higher similar rates compared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

Fig. 102. Diabetes Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19



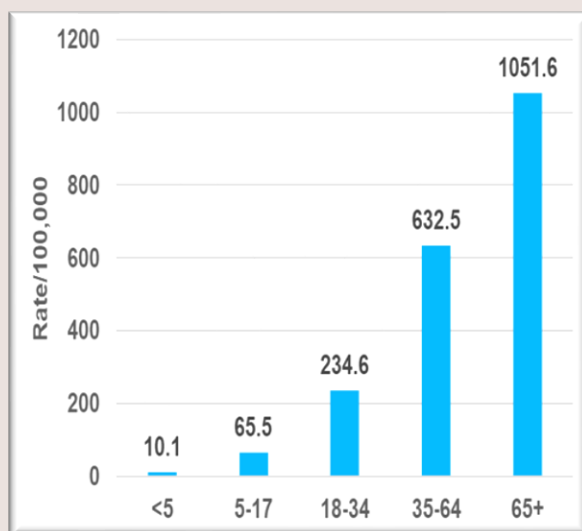
432.4/100,000

Fig. 103. Diabetes Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

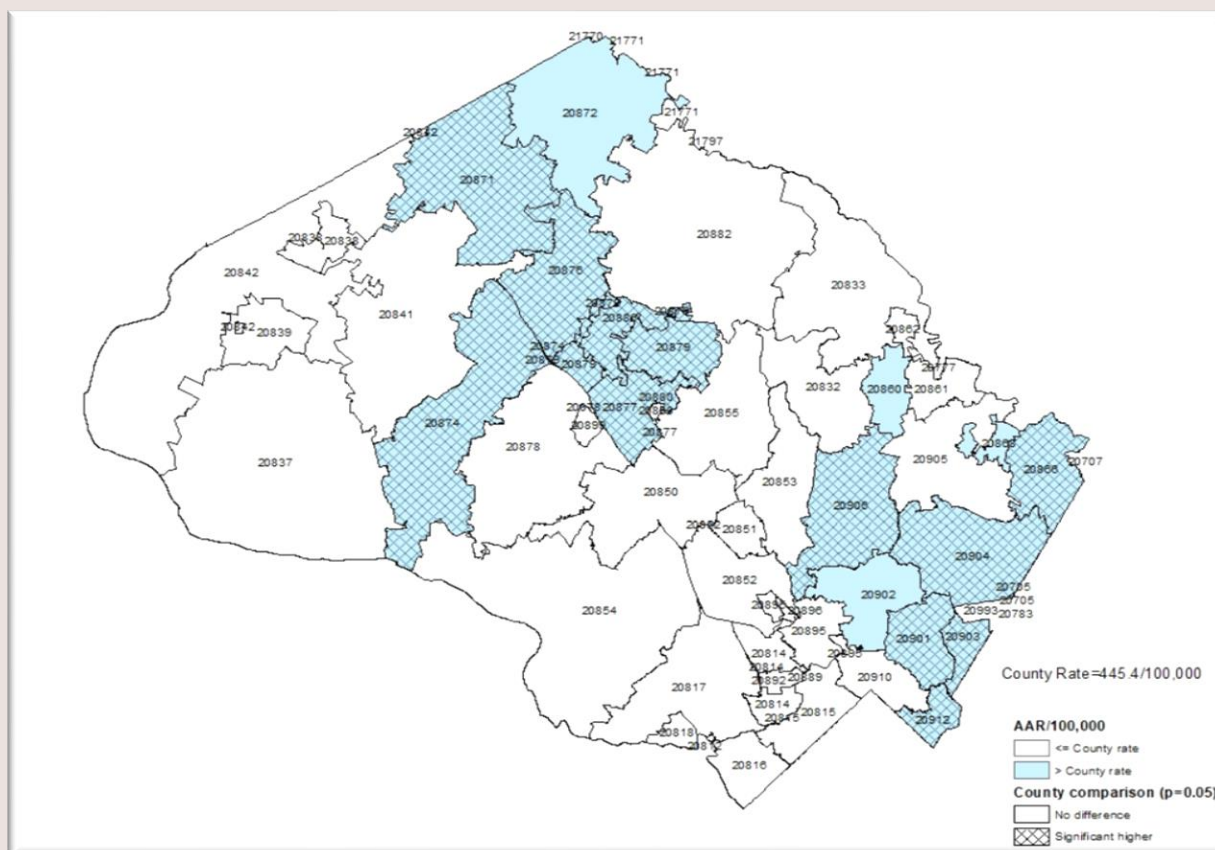


Health inequity (NH-Whites as reference) increased over time for Hispanics

Fig. 104. Diabetes Related ER Visit Rates by Age, Montgomery County 2017-19



**Map 13. Diabetes Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



7.0% (95% CI: 5.6-8.4) adults age 18+ ever told have diabetes in Montgomery County, as compared 10.0% (95% CI: 9.4-10.6) in Maryland.

Infectious Disease



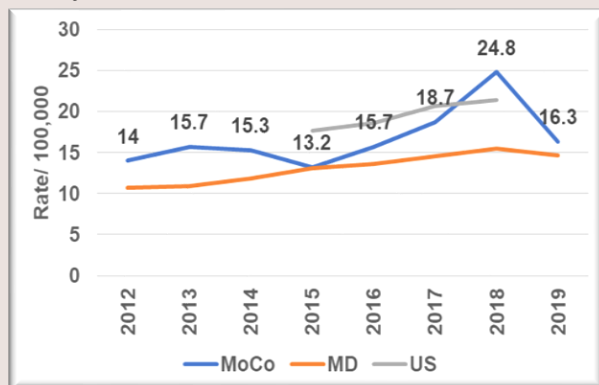
Infectious diseases are disorders caused by organisms such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They are normally harmless or even helpful, but under certain conditions, some organisms may cause disease. Some infectious diseases can be passed from person 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 handwashing also helps protect against many infectious diseases [26].

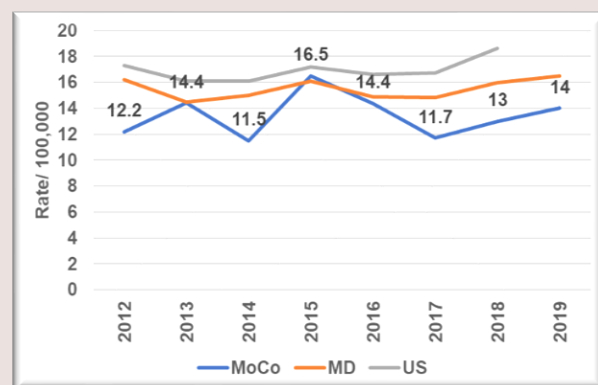
Reportable Diseases

- 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 the rate fluctuated over time. The County rate was consistently lower than that of Maryland and the U.S. (Fig. 106).
- Vibriosis rates in Montgomery County fluctuated over time, lower than the trend for Maryland but higher than the U.S. rate (Fig. 107).
- Legionellosis had an increasing trend in Montgomery County. County rates were consistently lower than those in Maryland (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 county rates were consistently lower than in Maryland but higher than the U.S. rates (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 (Fig. 112).

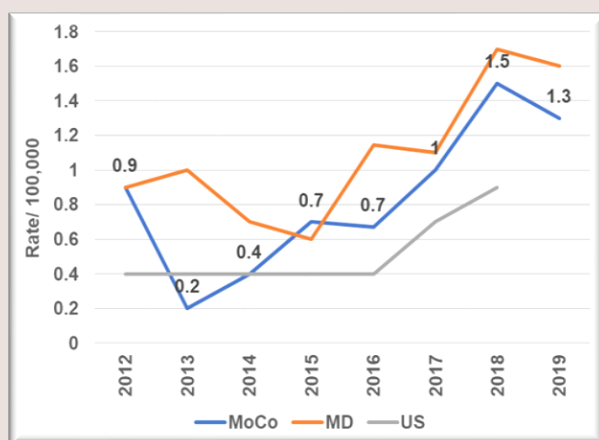
**Fig. 105. Incidence Rates
Campylobacteriosis, Montgomery County,
Maryland, and U.S., 2012-19**



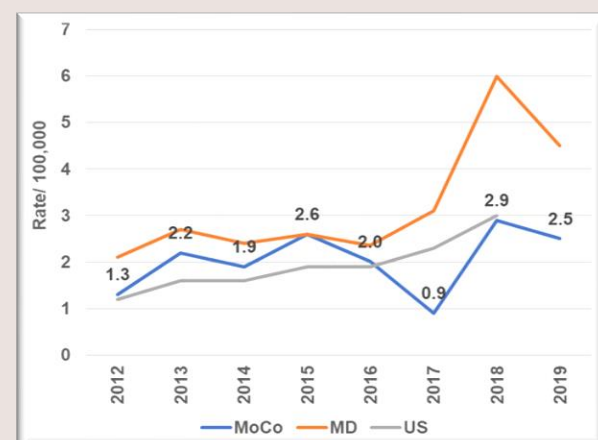
**Fig. 106. Incidence Rates, Salmonellosis
Montgomery County, Maryland, and U.S.
2012-19**



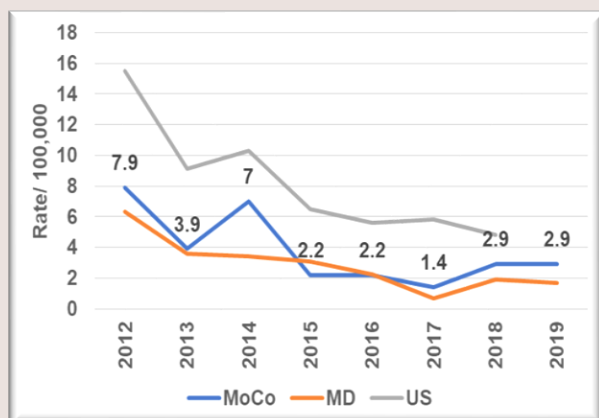
**Fig. 107. Incidence Rates, Vibriosis
Montgomery County, Maryland, and U.S.
2012-19**



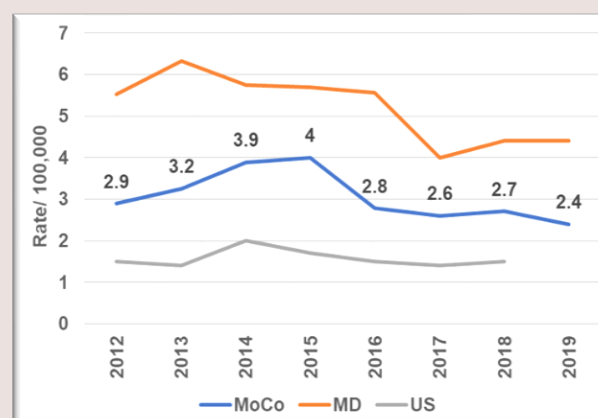
**Fig. 108. Incidence Rates, Legionellosis
Montgomery County, Maryland, and U.S.
2012-19**



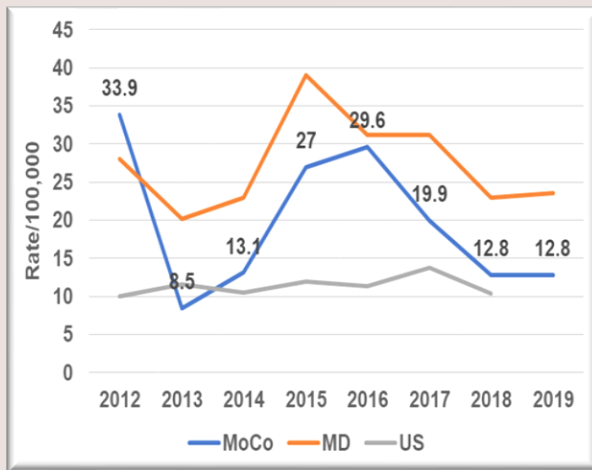
**Fig. 109. Incidence Rates, Pertussis
Montgomery County, Maryland, and U.S.
2012-19**



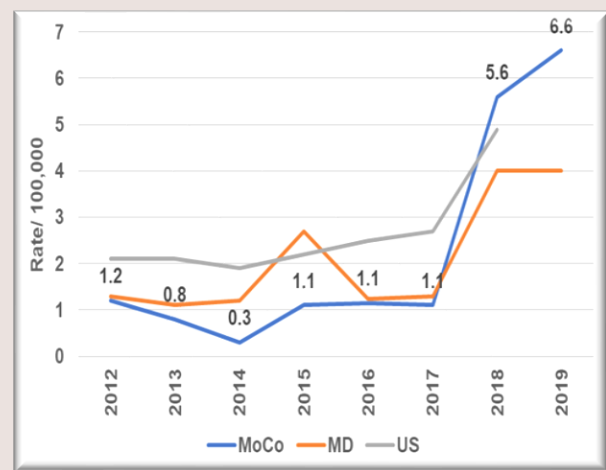
**Fig. 110. Incidence Rates, Rabies-Animal
Montgomery County, Maryland, and U.S.
2012-19**



**Fig. 111. Incidence Rates, Lyme Disease
Montgomery County, Maryland, and U.S.
2012-19**



**Fig. 112. Incidence Rates, Shiga Toxin
Producing E. Coli, Montgomery County,
Maryland, and U.S., 2012-19**

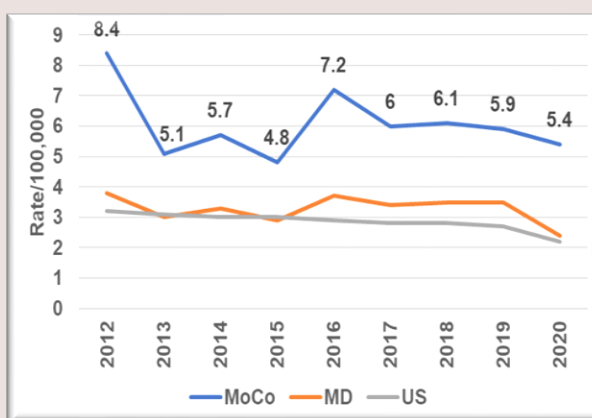


*CSTE case definition changed in 2018

Tuberculosis

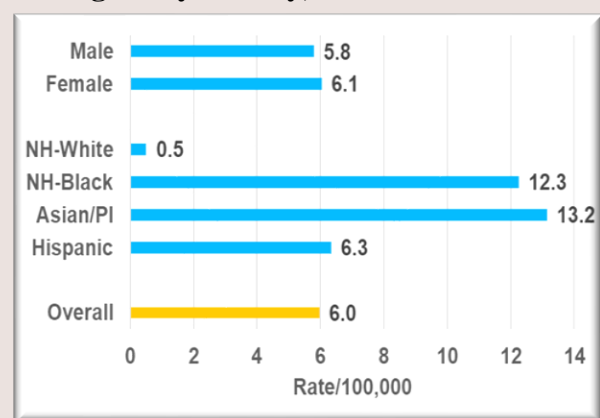
- Tuberculosis rates fluctuated over time in Montgomery County; the rates were consistently higher than Maryland and the U.S. In 2020, the county met the Healthy Montgomery 2023 goal for Tuberculosis incidence (Fig. 113).
- Among population subgroups, Asian/PI had the highest tuberculosis rates, followed by NH-Black, Hispanic, and NH-White; males have similar rates to females (Fig. 114).
- Residents aged 65 years and older had the highest Tuberculosis rates, followed by age 18-34, and those aged 35-64 (Fig. 115).

**Fig. 113. Incidence Rates, Tuberculosis
Montgomery County, Maryland, and U.S.
2012-20**



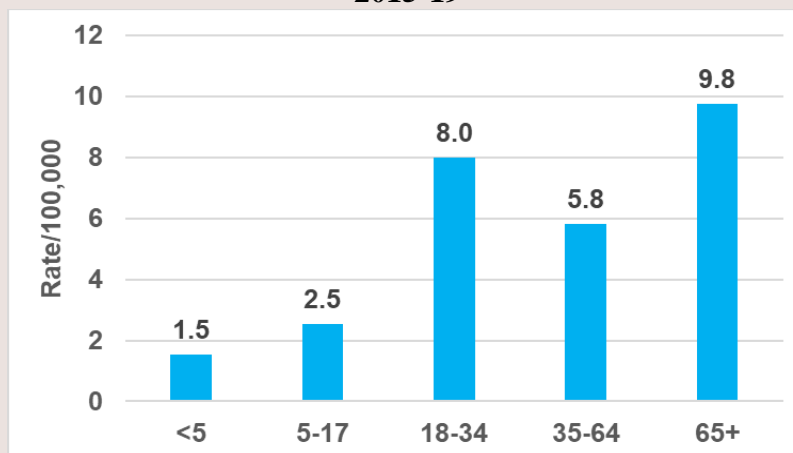
5.4/100,000

**Fig. 114. Incidence Rates by Sex and
Race/Ethnicity, Tuberculosis
Montgomery County, 2015-19**



Health inequity (NH-Whites as reference) increased over time for NH-Blacks, Asian/Pis, and Hispanics

**Fig. 115. Incidence Rates by Age, Tuberculosis
Montgomery County
2015-19**



Sexually Transmitted Infections (STI)

**Table 21. Incidence by Sex and Race/Ethnicity, Selected Sexually Transmitted Infections
Montgomery County, 2017-19**

	Total	Sex		Race/Ethnicity*			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
Chlamydia	13137	4485	8652	1048	2283	301	1684
Gonorrhea	2220	1532	688	271	667	162	120
Syphilis	208	201	7	47	75	26	48
HIV	431	292	139	51	264	N/A	87

*Do not equal grand total due to missing race/ethnicity data

- 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). Since high percentages of race/ethnicity information are missing, cautions should be exercised to interpret comparisons.
- 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. 2012-19

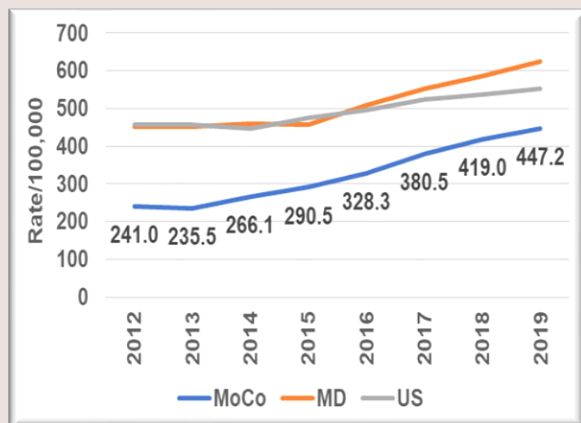
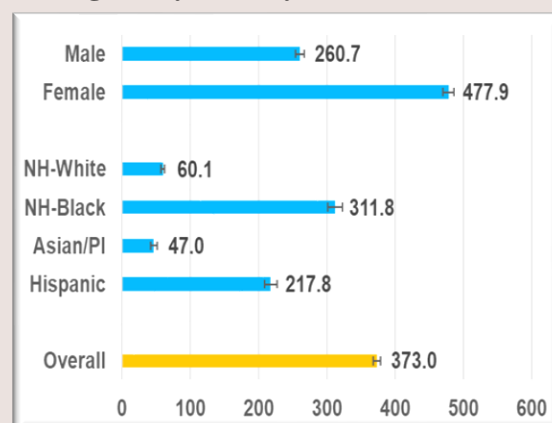
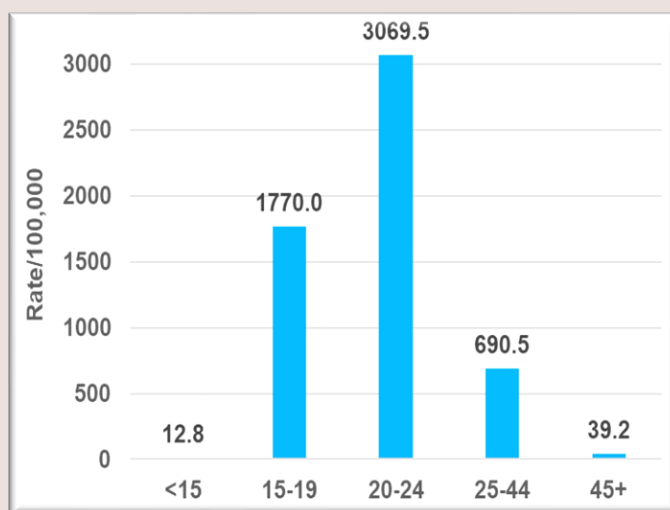


Fig. 117. Incidence Rates by Sex and Race/Ethnicity, Chlamydia Montgomery County, 2015-19

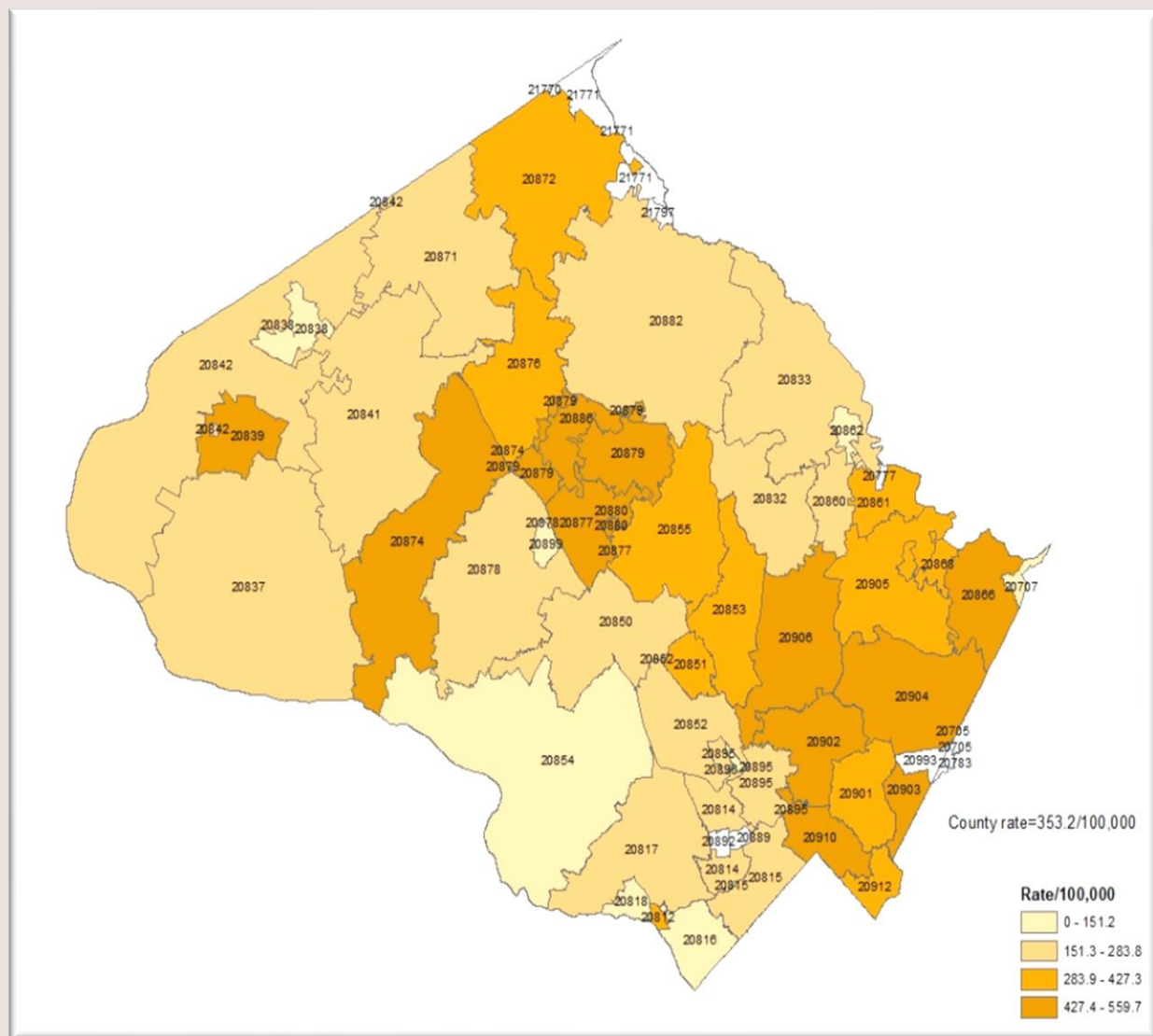


371.0/100,000

Fig. 118. Incidence Rates by Age, Chlamydia Montgomery County 2015-19

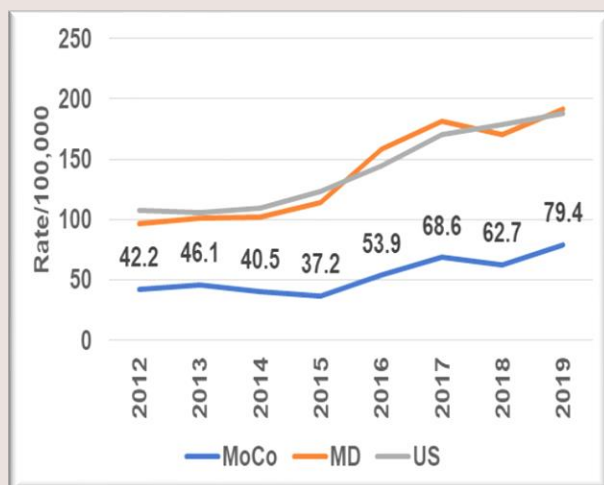


**Map 14. Incidence Rates by Zip Code, Chlamydia
Montgomery County
2015-19**



- 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 infection 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. 2012-19



66.9/100,000

Fig. 120. Incidence Rates by Sex and Race/Ethnicity, Gonorrhea, Montgomery County, 2015-19

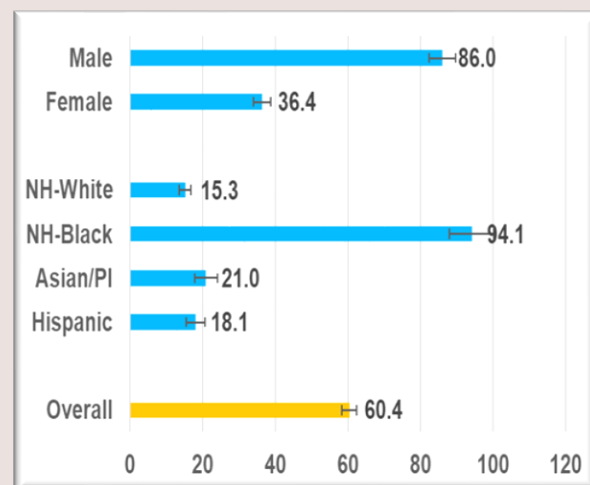
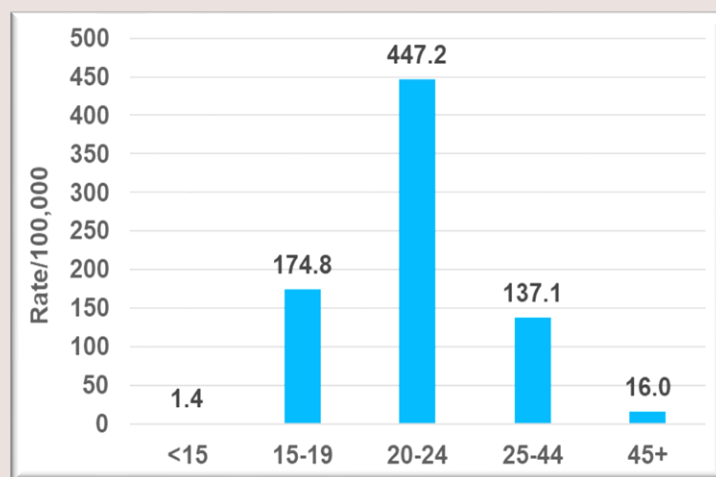
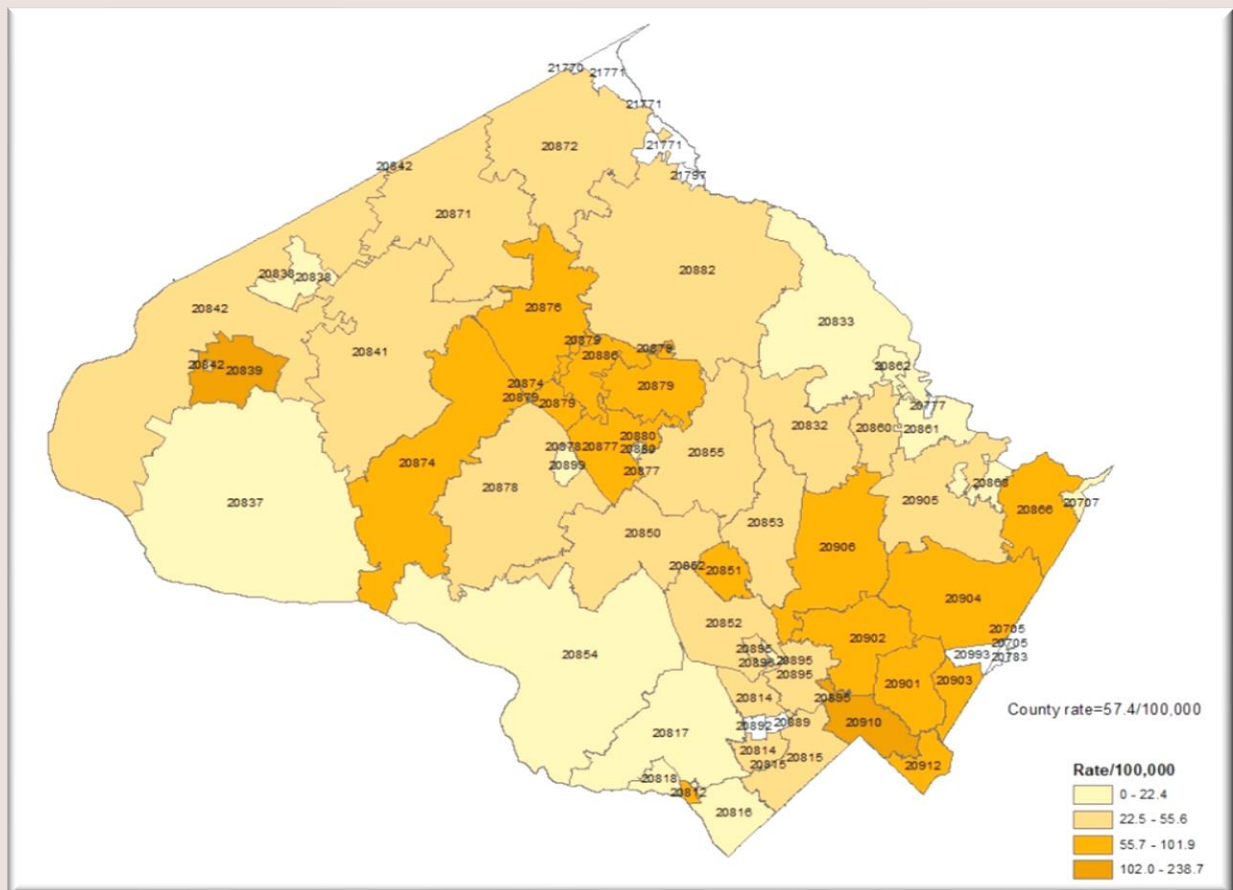


Fig. 121. Incidence Rates by Age, Gonorrhea Montgomery County 2015-19

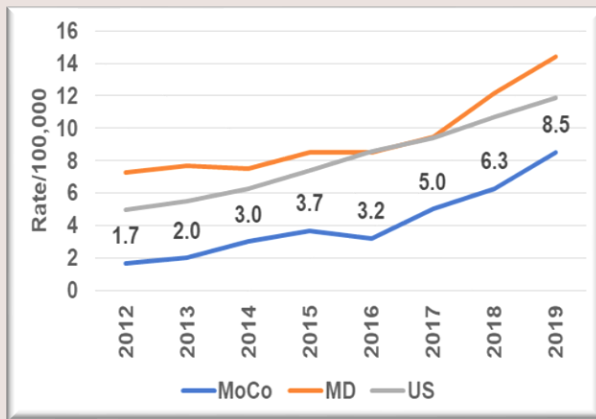


**Map 15. Incidence Rates by Zip Code, Gonorrhea
Montgomery County
2015-19**



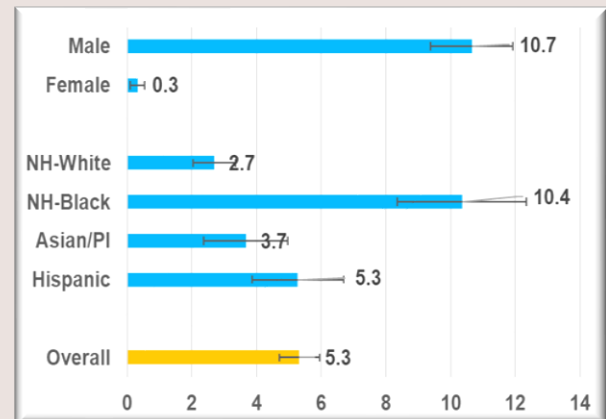
- Syphilis infection rates increased over time in Montgomery County, similar to those in Maryland and the U.S.; however, the rates in the County were consistently lower than Maryland and the U.S. (Fig. 122).
- Among population subgroups, NH-Black had the highest syphilis infection rates, followed by 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 15-19, and age 45+ (Fig. 124).

Fig. 122. Incidence Rates, Syphilis, Montgomery County, Maryland, and U.S. 2012-19



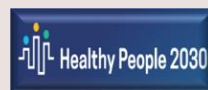
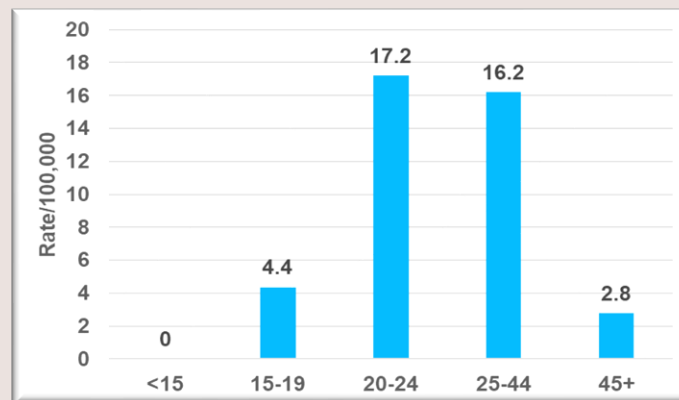
4.9/100,000

Fig. 123. Incidence Rates by Sex and Race/Ethnicity, Syphilis, Montgomery County, 2015-19



Health inequity (NH-Whites as reference) increased over time for NH-Blacks, Asian/Pis, and Hispanics

Fig. 124. Incidence Rates by Age, Syphilis Montgomery County, 2015-19

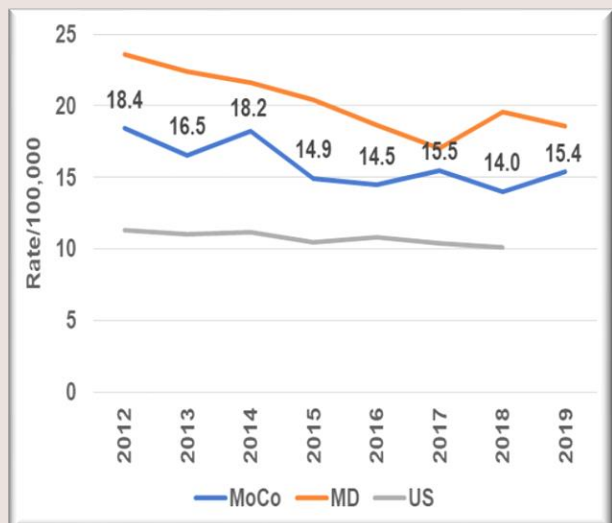


471.2 Gonorrhea cases per 100,000 males
4.6 Syphilis cases per 100,000 females
67.5% of sexually active females aged 16-24 screened for Chlamydia

HIV

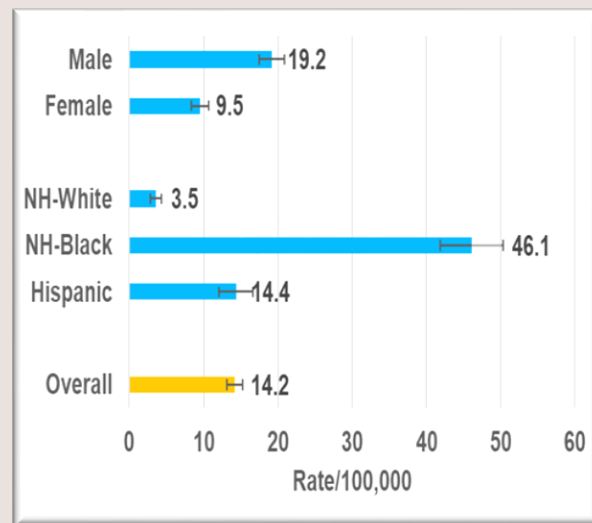
- HIV rates decreased over time in Montgomery County, similar to those in Maryland and the U.S.; the rates in the County were consistently lower than Maryland but higher than the U.S. (Fig. 125).
- Among population subgroups, NH-Blacks had the highest HIV rates, followed by Hispanic, and NH-White; males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

Fig. 125. Incidence Rates, HIV, Montgomery County, Maryland, and U.S. 2012-19



15.1/100,000

Fig. 126. Incidence Rates by Sex and Race/Ethnicity, HIV, Montgomery County 2015-19



Health inequity (NH-Whites as reference) increased over time for NH-Blacks and Hispanics



3,835 persons aged 13+ newly diagnosed with HIV each year
95% of persons aged 13+ with newly diagnosed HIV infection linked to HIV medical care within 1 month of HIV diagnosis

Immunization

- Maryland had higher coverage rates for most required childhood immunizations than the U.S.; data at the County level are not available (Table 22).
- Maryland had higher coverage rates for HPV immunization among adolescents aged 13-17 years old than the U.S. since 2017; 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. 2017

	3+DTaP	3+Polio	1+MMR	3+Hib	3+HepB	1+Var	3+PCV	1+HepA	Rotavirus	Combined 3-vaccine series
MD	93.7±3.4	93.9±3.4	91.6±3.9	92.2±3.8	90.9±3.8	90.9±3.9	93.4±3.4	83.8.2±5.0	75.4±5.8	71.0±6.0
US	93.8±0.7	92.7±0.7	90.4±0.9	91.1±0.9	91.0±0.9	90.0±0.9	92.0±0.9	84.7±1.1	73.6±1.4	68.5±1.4

Table 23. Coverage with ≥HPV Vaccine for Adolescents Aged 13-17 Years, Maryland and U.S., 2015-19

		2015	2016	2017	2018	2019
MD	Overall	56.1 (54.9-57.4)	60.4 (59.2-61.6)	69.2 (62.1-75.6)	74.7 (68.3-80.2)	78.9 (72.9-83.8)
	NH-White				73.2 (63.5-81.2)	86.2 (80.3-92.1)
	NH-Black				76.0 (62.7-85.6)	76.8 (65.7-87.9)
	Asian/PI				N/A	50.2 (24.7-75.7)
	Hispanic				84.1 (70.2-92.2)	72.8 (55.3-90.3)
US	Overall	60.3 (53.7-66.7)	64.5 (58.1-70.5)	65.5 (64.3-66.7)	68.1 (66.8-69.3)	71.5 (70.1-72.8)
	NH-White				63.5 (62.0-65.1)	68.3 (66.8-69.9)
	NH-Black				72.8 (69.3-76.1)	72.0 (67.8-75.9)
	Asian/PI				65.3 (56.5-73.2)	74.8 (68.1-80.5)
	Hispanic				75.5 (72.7-78.2)	76.8 (73.3-79.9)

Source: National Immunization Survey (NIS), Center for Disease Control and Prevention

<https://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/index.html>

<https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6933a1-H.pdf>

<https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/data-reports/hpv/dashboard/2019.html>



53.6% (95% CI: 50.1-57.0) adults age 18+ have flu vaccination in last 12 months in Montgomery County, as compared to 47.9% (95% CI: 46.6-49.2) in Maryland.

Behavioral Health



Behavioral health refers to a person's state of being and how their behaviors and choices affect their overall health and wellness. **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., 2014-18**

	2014-16		2016-18		P Value
	%	95% CI	%	95% CI	
MoCo	15.72	(13.23-18.58)	15.08	(12.67-17.85)	0.640
MD	16.74	(15.19-18.41)	17.01	(15.44-18.70)	0.750
US	18.09	(17.80-18.38)	18.76	(18.46-19.06)	0.000

* Source: National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA).
<https://www.samhsa.gov/data/sites/default/files/reports/rpt29378/NSDUHsubstateChangeTabs2018/NSDUHsubstateChangeTabs2018.pdf>

- Mental health related ER visit rates in the County increased 2010-19, 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).
- Residents aged 18-34 had the highest ER visit rate, followed by those aged 5-17, and those aged 35-64 (Fig. 129).

Fig. 127. Mental Health Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

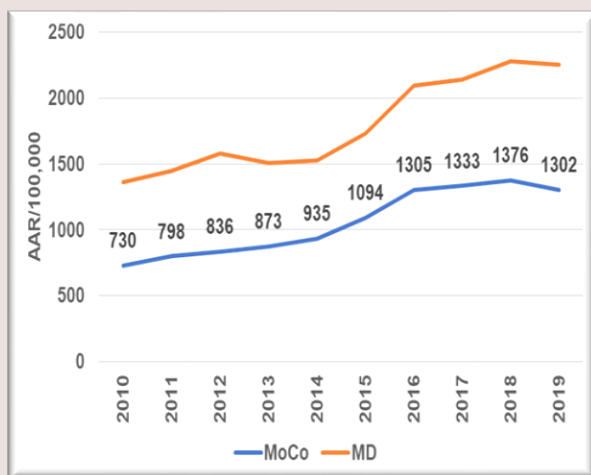
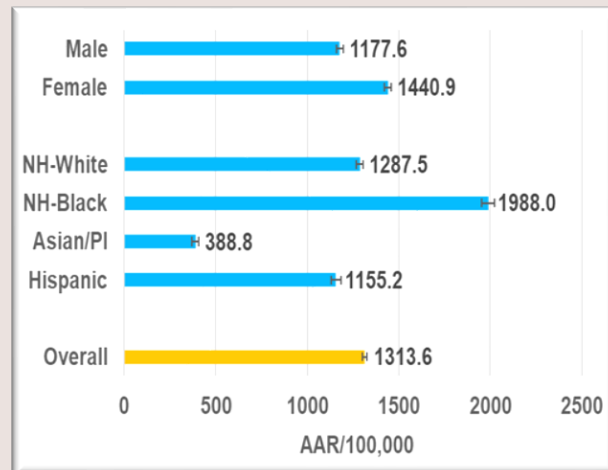
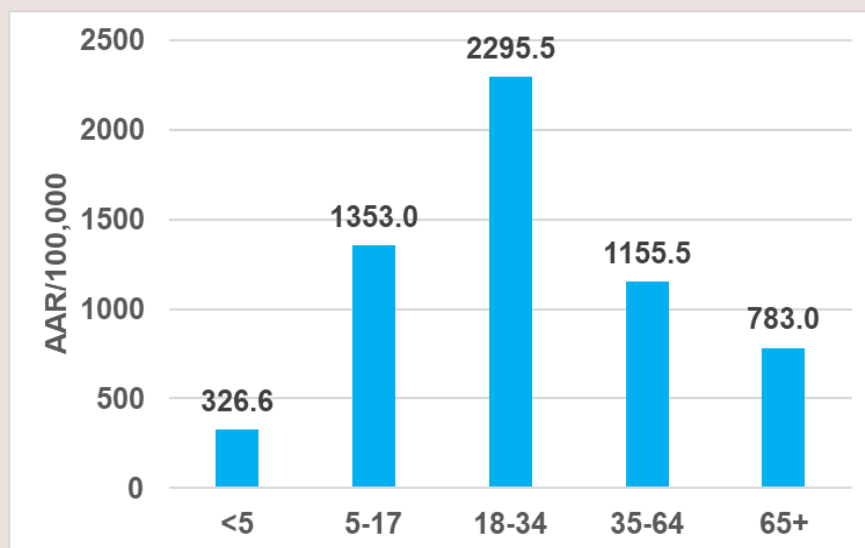


Fig. 128. Mental Health Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

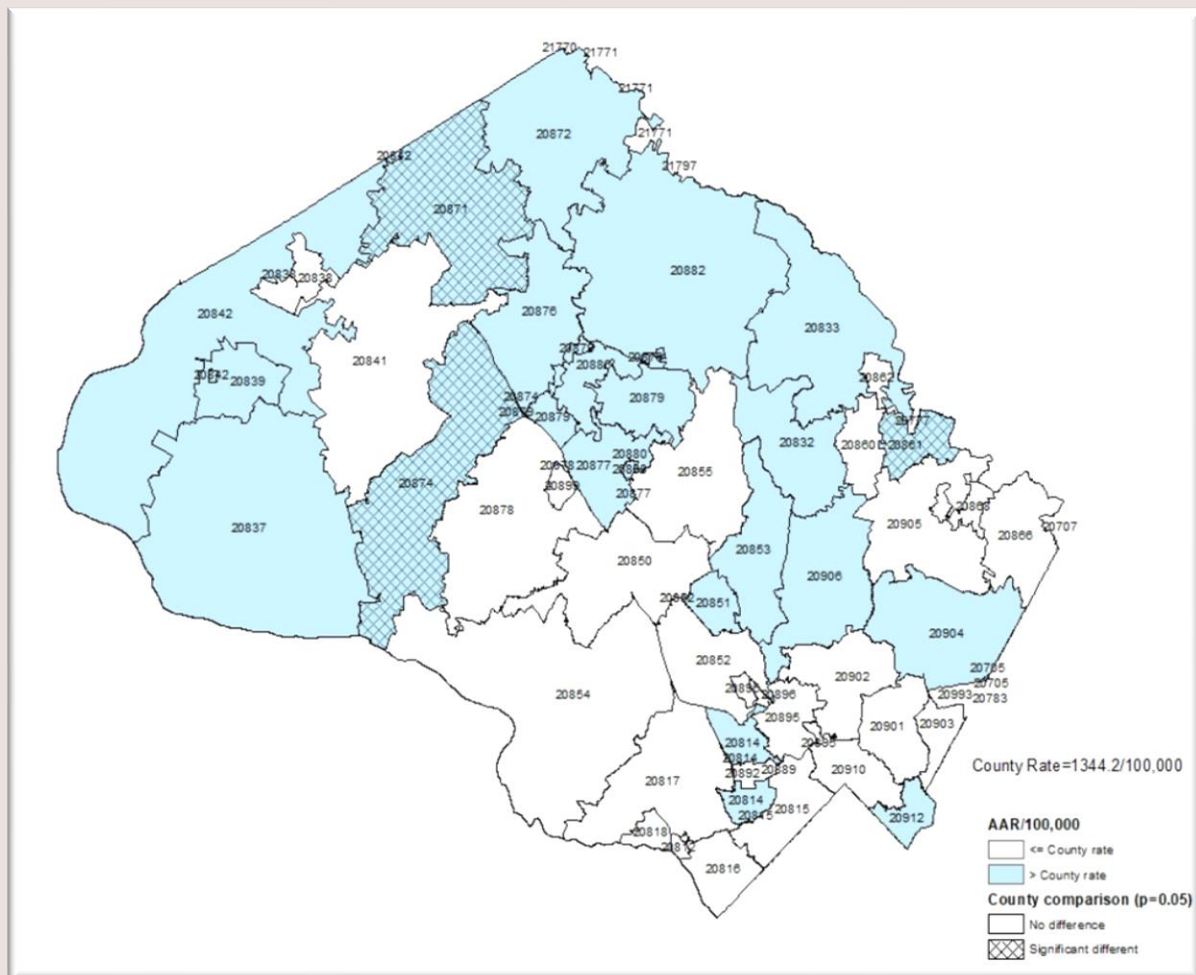


1,299.4/100,000

Fig. 129. Mental Health Related ER Visit Rates by Age, Montgomery County 2017-19

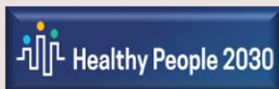


**Map 16. Mental Health Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



14.9% (95% CI: 12.5-17.2) of adults age 18+ had ever been told they have depressive disorder in Montgomery County, as compared to 16.3% (95% CI: 15.4-17.2) in Maryland.

3.5% (95% CI: 2.4-4.7) of adults age 18+ had not had good mental health in at least the previous 30 days in Montgomery County, as compared to 5.1% (95% CI: 4.6-5.7) in Maryland



69.5% adults aged 18+ with major depressive episodes receiving treatment in the past 12 months

Substance Abuse

Table 25. Illicit Drug Use in the Past Month among Individuals Aged 12 or Older, Montgomery County, Maryland, and U.S., 2012-18

	2012-14		2016-18	
	%	95% CI	%	95% CI
MoCo	8.91	(6.86-11.51)	9.61	(7.73-11.89)
MD	9.69	(8.47-11.05)	11.71	(10.41-13.15)
US	9.58	(9.36-9.79)	N/A	N/A

* 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>

<https://www.samhsa.gov/data/report/2016-2018-nsduh-substate-region-estimates-tables>

Table 26. Percent High School Students Ever Taken a Prescription Drug without Prescription, Montgomery County, Maryland, and U.S., 2014-18

	2014		2016		2018	
	%	95% CI	%	95% CI	%	95% CI
MoCo	12.5	(10.7-14.2)	10.3	(9.0-11.7)	11.4	(9.2-14.0)
MD	14.2	(13.7-14.8)	13.7	(13.2-14.3)	14.6	(13.9-15.3)
US	16.8	(15.4-18.2)	14.0	(12.7-15.4)	14.3	(12.8-15.9)

Table 27. Percent High School Students Ever Used Needle to Inject Illegal Drug, Montgomery County, Maryland, and U.S., 2014-18

	2014		2016		2018	
	%	95% CI	%	95% CI	%	95% CI
MoCo	2.9	(2.3-3.4)	2.4	(1.7-3.4)	2.8	(1.7-4.7)
MD	3.6	(3.3-3.8)	3.8	(3.5-4.1)	4.1	(3.6-4.6)
US	1.8	(1.3-2.3)	1.5	(1.2-1.8)	1.6	(1.2-2.3)

* Source: Maryland Youth Risk Behavior Survey (YRBS)

<https://phpa.health.maryland.gov/ccdpc/Reports/Pages/yrbs.aspx>

- Drug-induced mortality rates in the County increased up to 2017, dropped in 2018, and increased in 2019 (Fig. 130).
- NH-Whites had the highest drug-induced mortality rate among population subgroups; males had higher drug-induced mortality rates than females (Fig. 131).
- Residents aged 18-34 had the highest drug-induced mortality rate, followed by residents aged 35-64 (Fig. 132).

Fig. 130. Drug-induced Age-Adjusted Mortality Rates, Montgomery County 2010-19

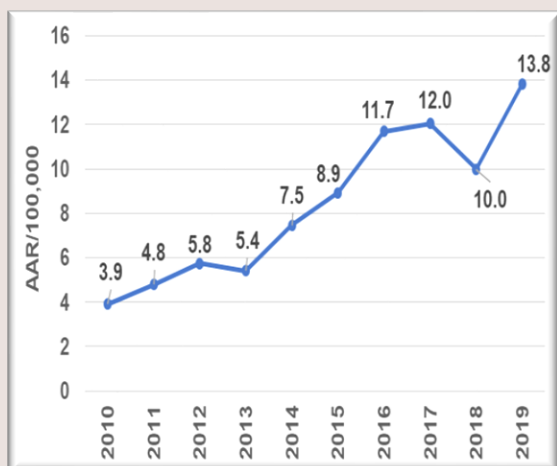
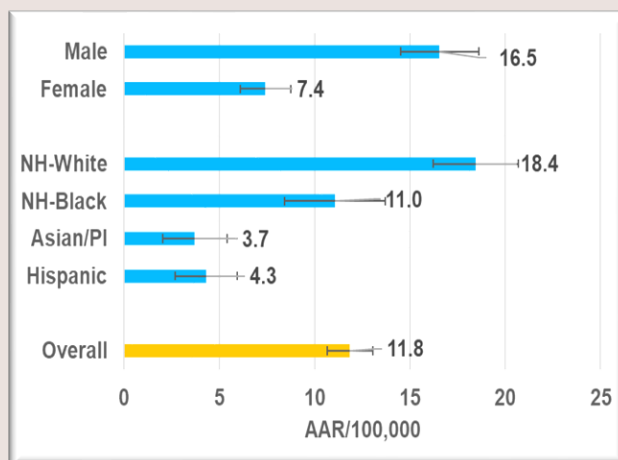
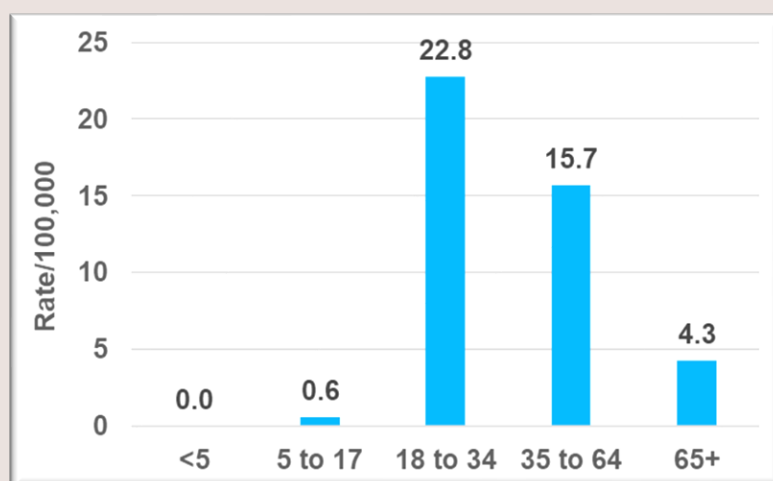


Fig. 131. Drug-induced Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19

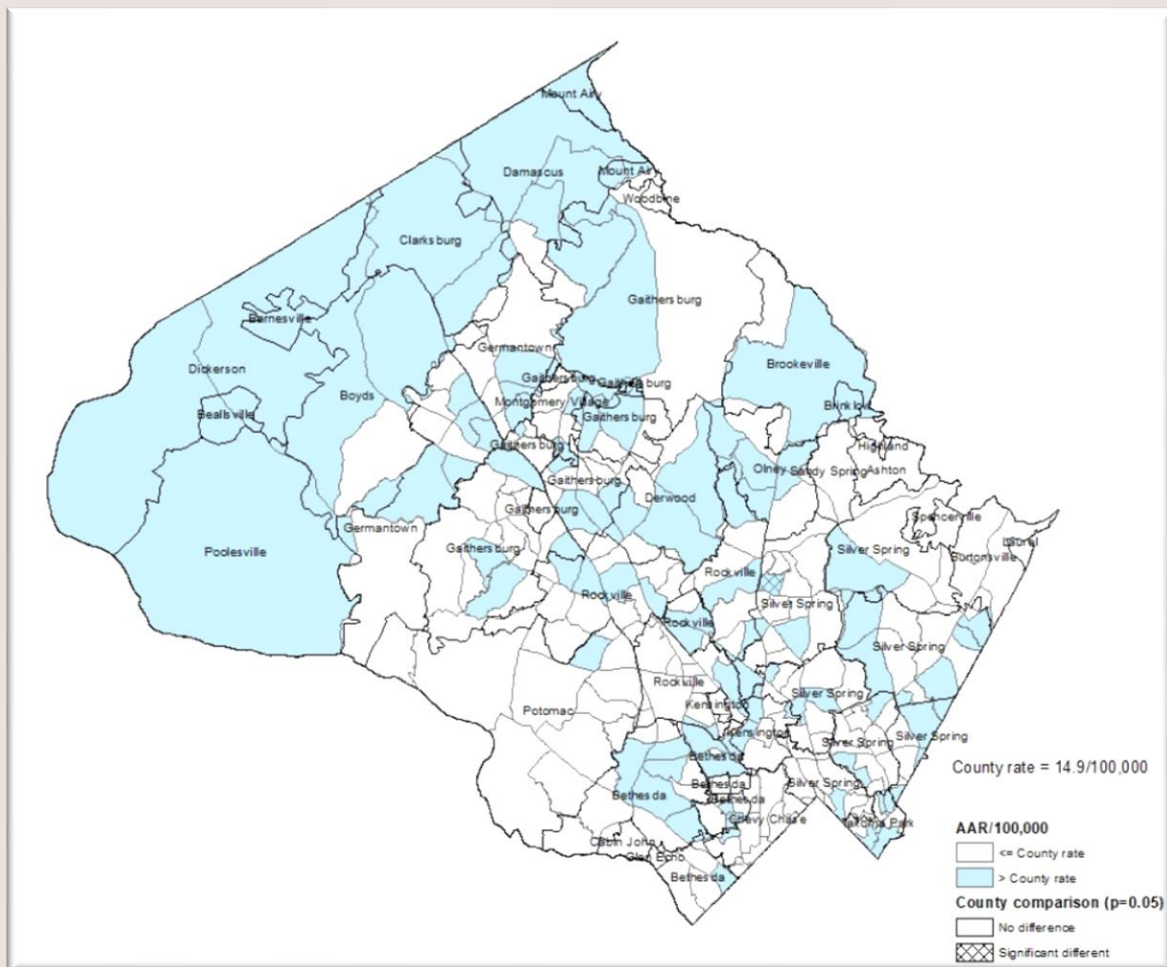


11.7/100,000

Fig. 132. Drug-induced Mortality Rates by Age, Montgomery County 2017-19

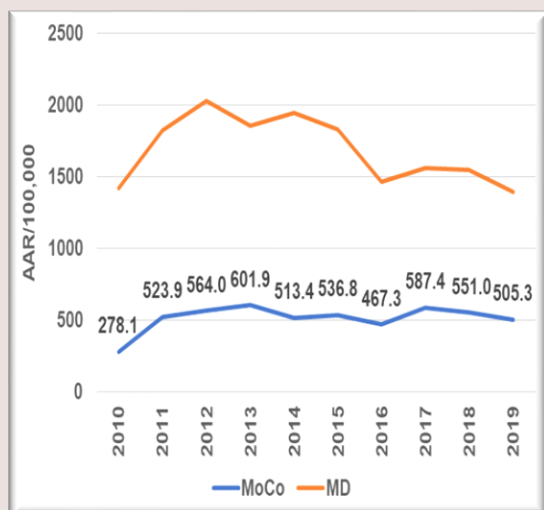


**Map 17. Drug-induced Age-Adjusted Mortality Rates by Census Tract
Montgomery County
2017-19**



- Substance abuse related ER visit rates stayed stable overall in the County 2010-19, though fluctuated; rates in the County were consistently lower than in Maryland (Fig. 133).
- Among population subgroups, NH-Black had the highest rate, followed by Hispanics, NH-Whites and Asian/PI; Males had higher rates than females (Fig. 134).
- Residents aged 18-34 had the highest ER visit rate, followed by those aged 35-64 (Fig. 135).

Fig. 133. Substance Abuse Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19



723.0/100,000

Fig. 134. Substance Abuse Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

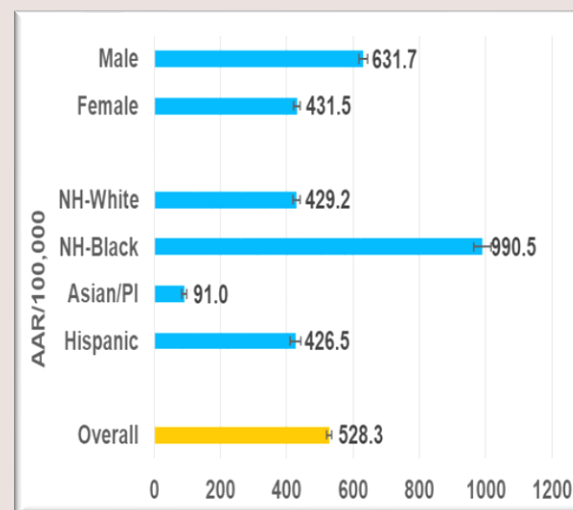
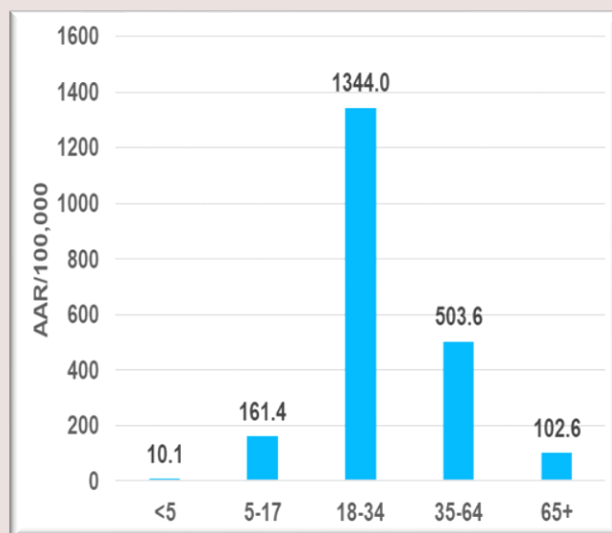
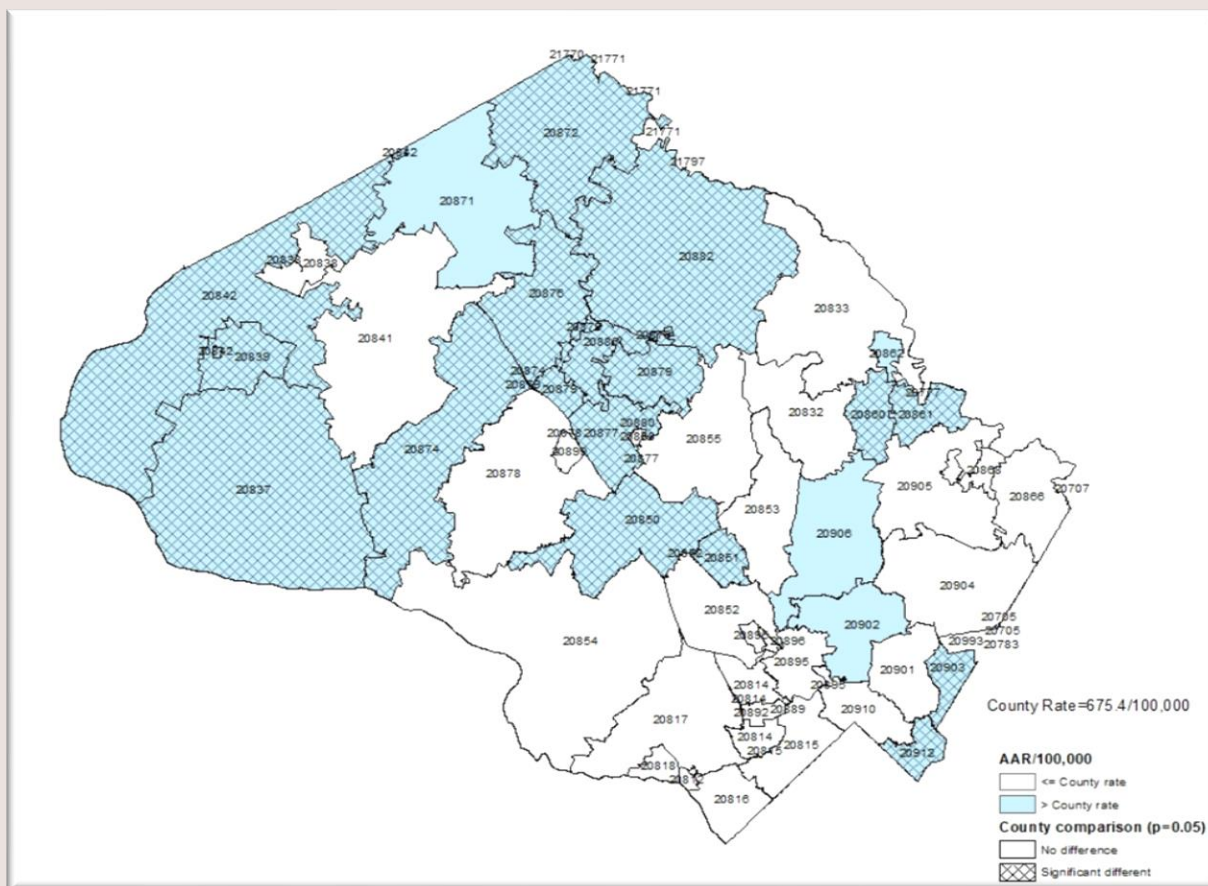


Fig. 135. Substance Abuse Related ER Visit Rates by Age, Montgomery County 2017-19



**Map 18. Substance Abuse Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



4.7% (95% CI: 3.2-6.1) 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 5.4% (95% CI: 4.8-6.0) in Maryland

12.2% (95% CI: 9.8-14.7) 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 14.8% (95% CI: 13.8-15.7) in Maryland

Table 28. Drug and Alcohol Related Intoxication Deaths, Montgomery County, 2014-19

	2014	2015	2016	2017	2018	2019
Total Intoxication	65	70	102	116	89	105
Heroin	33	37	48	52	34	39
Opioid (prescription)	19	23	26	19	16	15
Fentanyl	8	17	43	72	40	76
Cocaine	10	5	11	17	18	29
Benzodiazepine	10	7	7	8	9	10
Alcohol	18	15	22	35	19	19

* 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., 2012-16

	2012-14		2014-16		P
	%	95% CI	%	95% CI	
Montgomery County	3.41	(2.62-4.42)	3.54	(2.69-4.65)	0.779
MD	3.57	(3.03-4.22)	3.88	(3.24-4.64)	0.358
US	3.91	(3.76-4.06)	4.01	(3.88-4.14)	0.221

* Source: National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA)

<https://www.samhsa.gov/data/report/comparison-2012-2014-and-2014-2016-nsduh-substate-region-estimates>

Table 30a. Percent High School Students Report Seriously Considering Suicide Past Year, Montgomery County, Maryland, and U.S., 2014-19

	2014		2016		2018-2019	
	%	95% CI	%	95% CI	%	95% CI
MoCo	15.6	(14.3-16.9)	15.6	(13.8-17.6)	16.7	(14.3-19.3)
MD	15.9	(15.4-16.3)	17.3	(16.8-17.8)	18*	(17.3-18.7)
US	17.1	(16.7-18.8)	17.2	(16.2-18.3)	18.8*	(17.6-20.0)

* Source: Maryland Youth Risk Behavior Survey (YRBS)

<https://phpa.health.maryland.gov/ccdpc/Reports/Pages/yrbs.aspx>

* 2019 Data Source:

<https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBSDataSummaryTrendsReport2019-508.pdf>

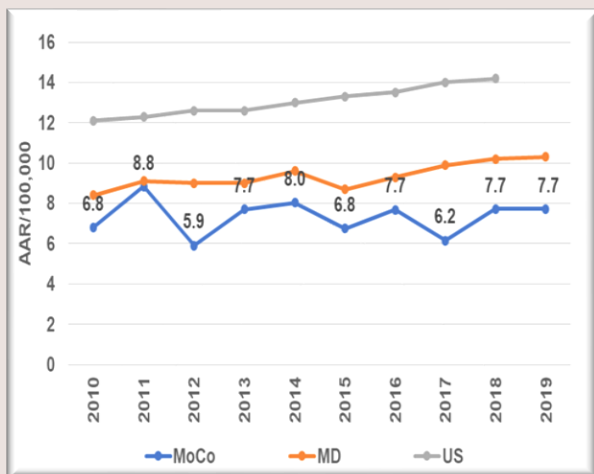
Table 30b. Percent High School Students Report Seriously Considered Attempting Suicide Past Year, Montgomery County and Maryland, 2018

	2018			
	MoCo		Maryland	
	%	95% CI	%	95% CI
Heterosexual	12.8	(10.5-15.6)	13.6	(13.0-14.3)
Gay, Lesbian, or Bisexual	42.0	(33.2-51.4)	44.4	(41.9-46.9)

Source: Maryland YRBS website: <https://phpa.health.maryland.gov/ccdpc/Reports/Pages/YRBS2018.aspx>

- Suicide mortality rates in the County fluctuated; rates in the County were consistently lower than that in Maryland and the U.S. (Fig. 136).
- NH-Whites had the highest suicide mortality rate among population sub-groups, followed by NH-Blacks and Asian/PI; Males had higher rates than females (Fig. 137).
- Residents aged 18-34, 35-64 and 65+ had similar suicide mortality rates (Fig. 138).

Fig. 136. Suicide Related Age-Adjusted Mortality Rates, Montgomery County 2010-19



6.0/100,000

Fig. 137. Suicide Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

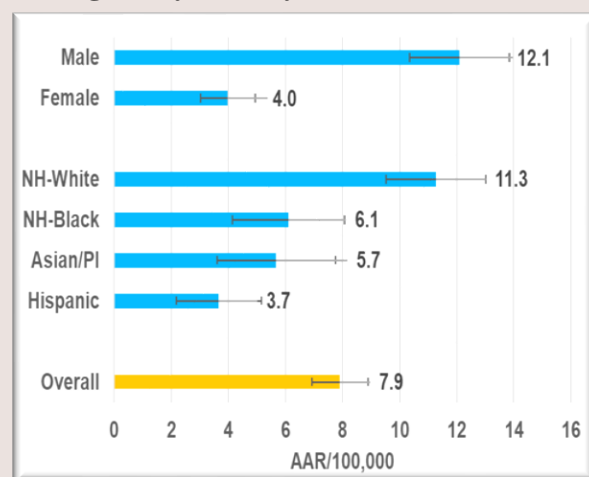
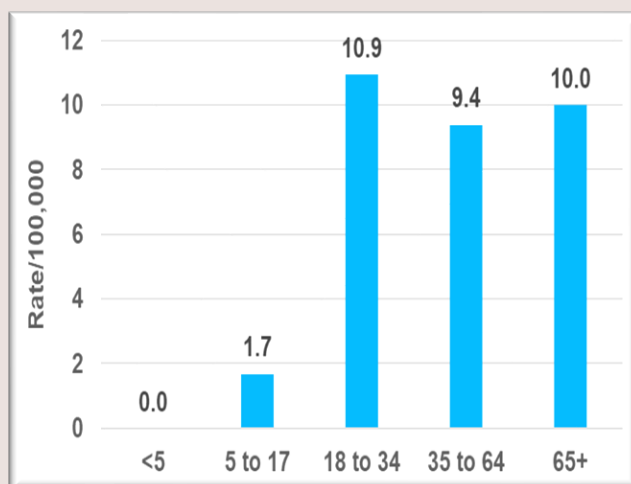
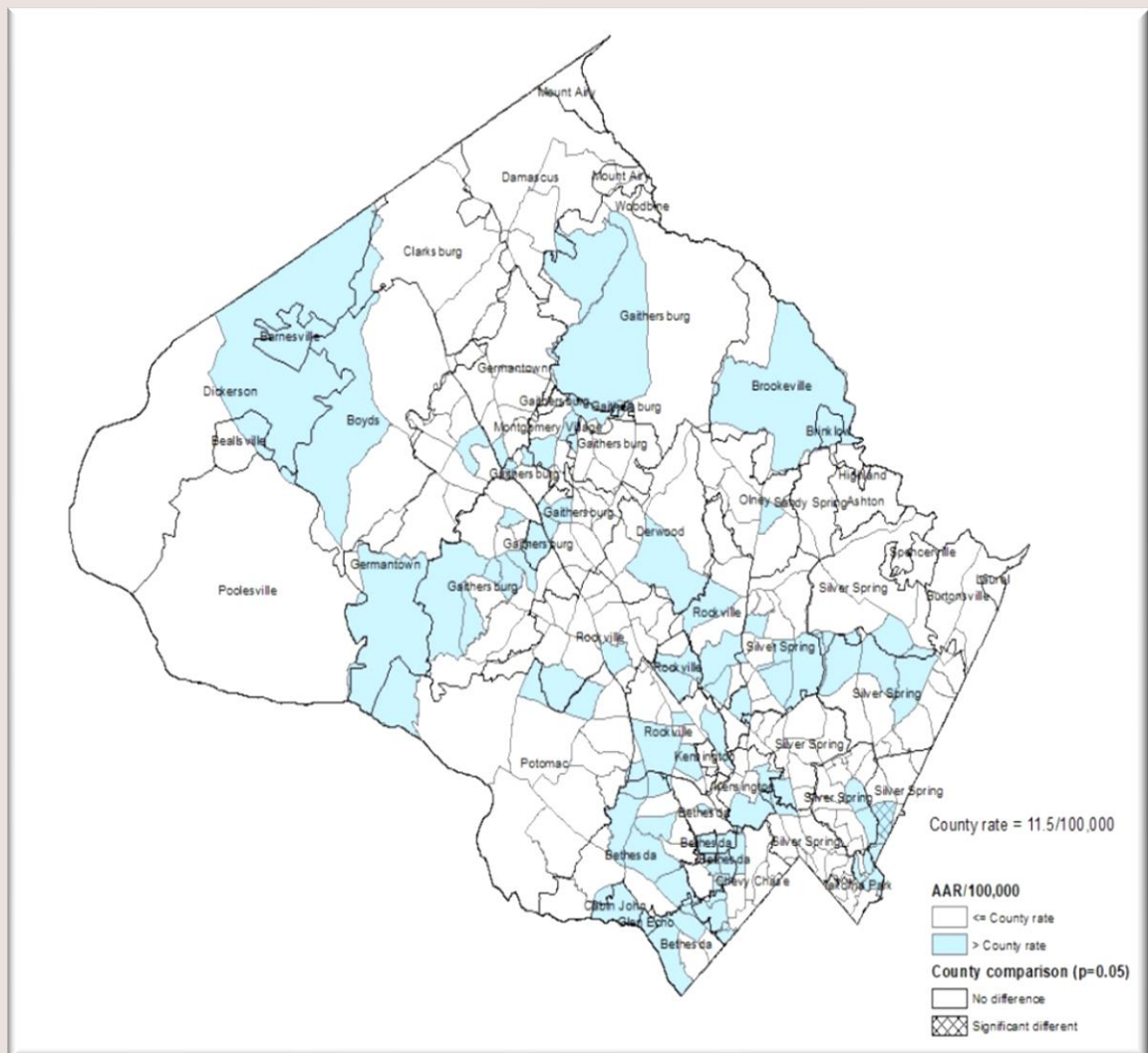


Fig. 138. Suicide Related Mortality Rates by Age, Montgomery County 2017-19



**Map 19. Suicide Related Age-Adjusted Mortality Rates by Census Tract
Montgomery County
2017-19**



- Suicide related hospitalization rates decreased over time, though fluctuated; rates in the County were consistently lower than in Maryland (Fig. 139).
- Among population subgroups, NH-Whites had the highest rate, followed by NH-Blacks and Hispanics; Both sexes had similar rates (Fig. 140).
- Residents aged 18-34 had the highest rate, followed by aged 65+ (Fig. 141).

Fig. 139. Suicide Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

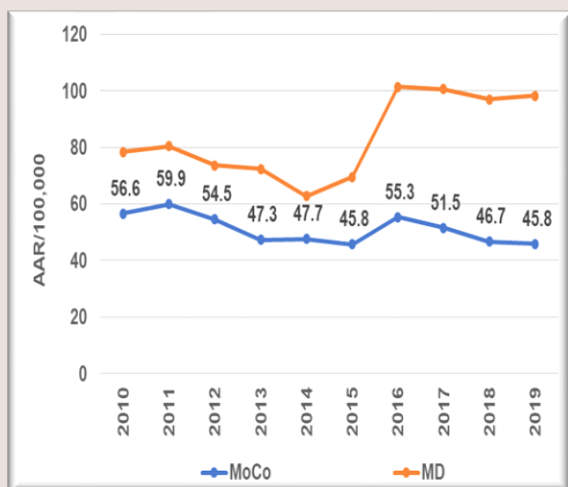


Fig. 140. Suicide Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

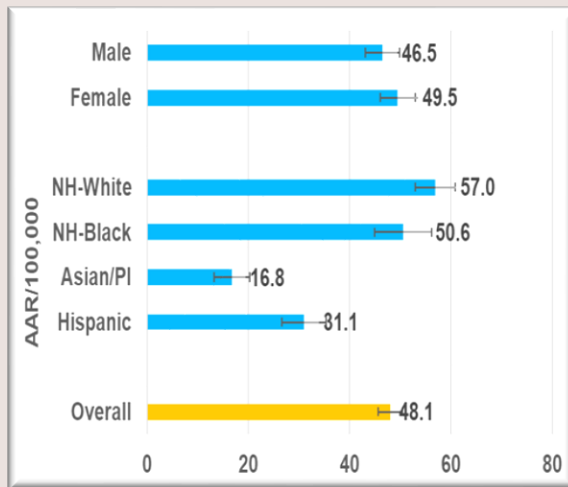
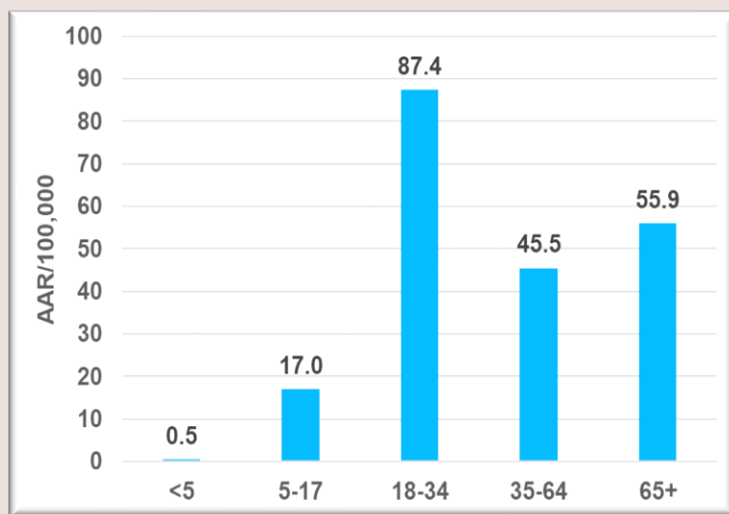
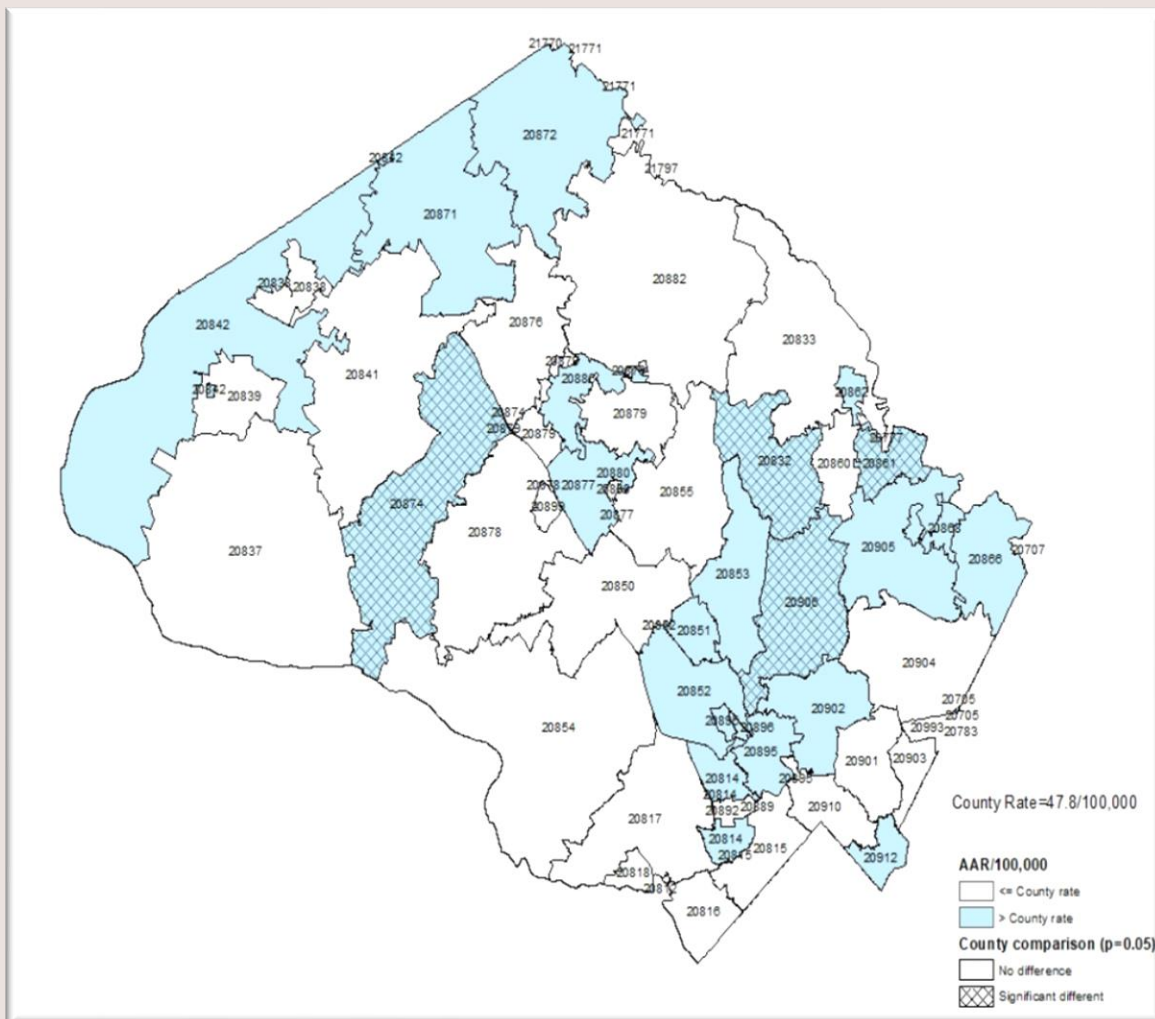


Fig. 141. Suicide Related Hospitalization Rates by Age, Montgomery County 2017-19



**Map 20. Suicide Related Hospitalization Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



- Suicide related ER visit rates decreased over time, similar to those in Maryland; rates in the County were consistently lower than in Maryland (Fig. 142). Rates after 2016 may not be comparable due to the transitions of ICD-9 to ICD-10.
- Among population subgroups, NH-Blacks had the highest rates, followed by NH-Whites, and Hispanic. Asian/PI had the lowest rate; females had higher rates than males (Fig. 143).
- Residents aged 18-34 had the highest rates, followed by those aged 5-17 and 35-64 (Fig. 144).

Fig. 142. Suicide Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland 2010-19

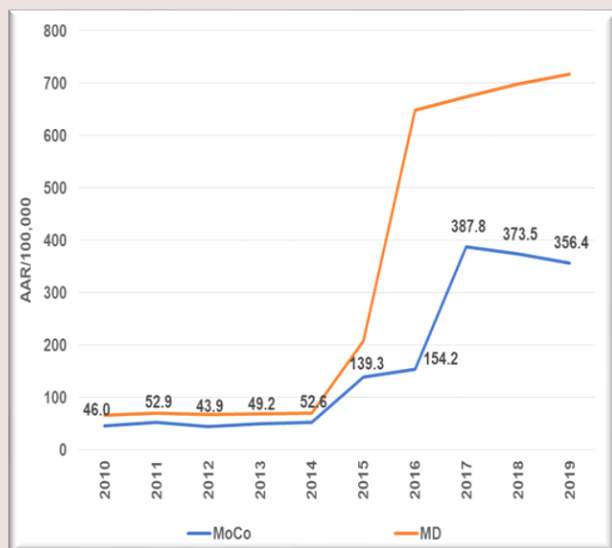


Fig. 143. Suicide Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County 2017-19

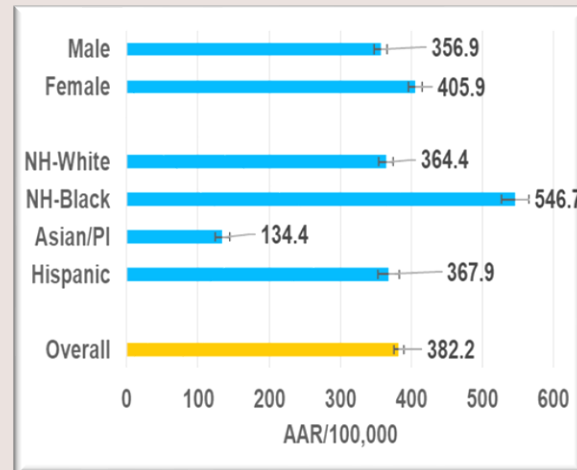
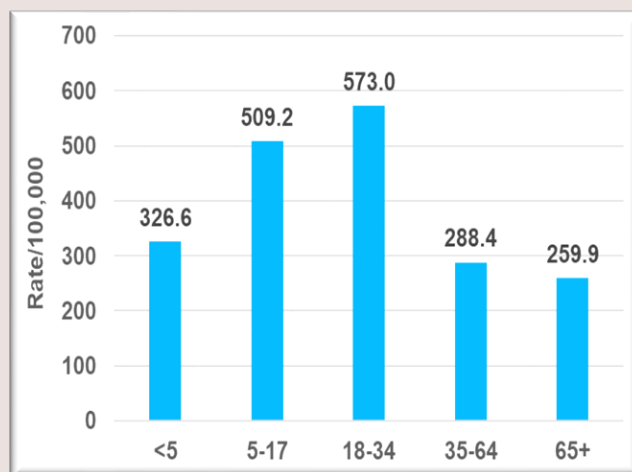
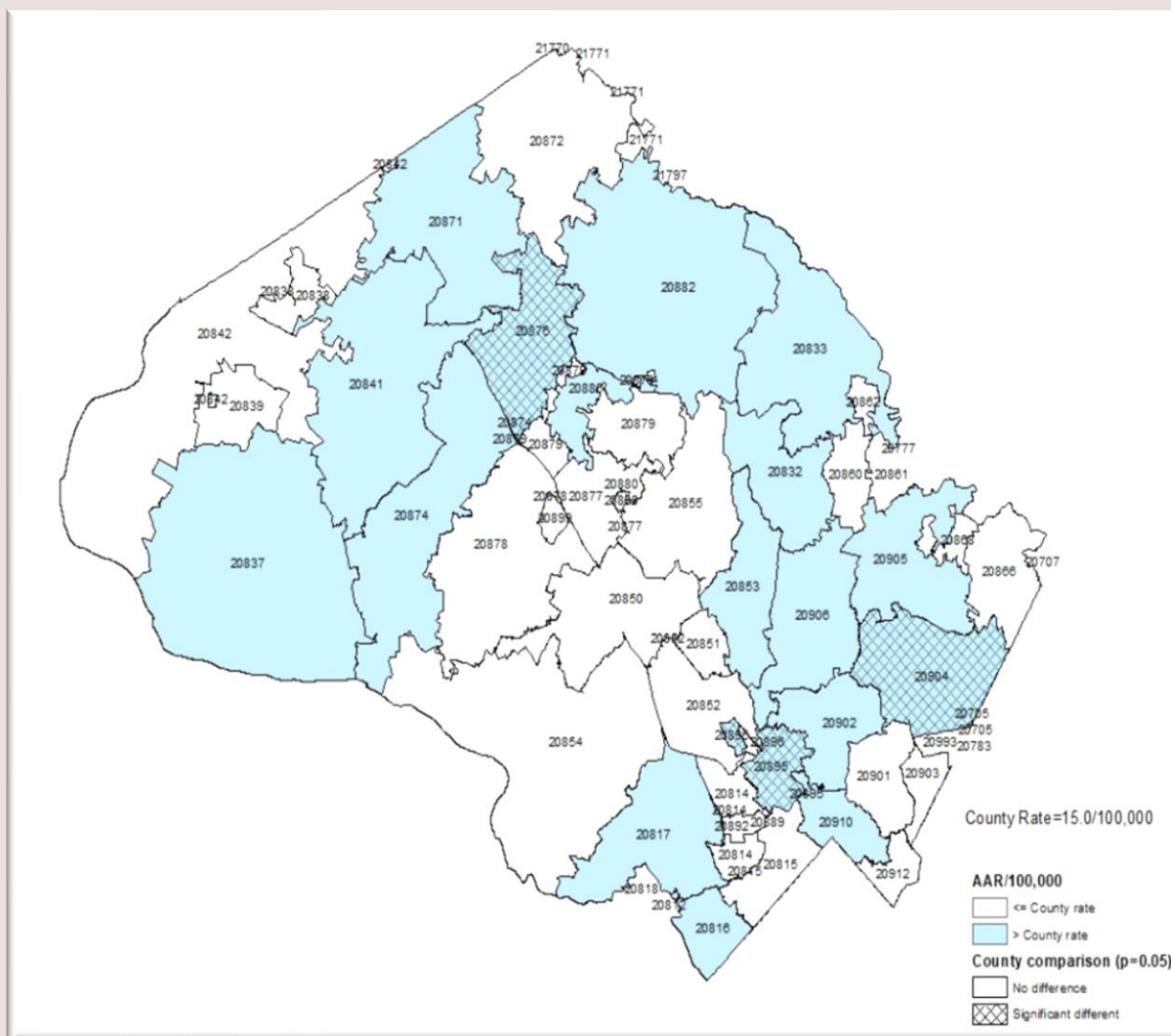


Fig. 144. Suicide Related ER Visit Rates by Age Montgomery County 2017-19

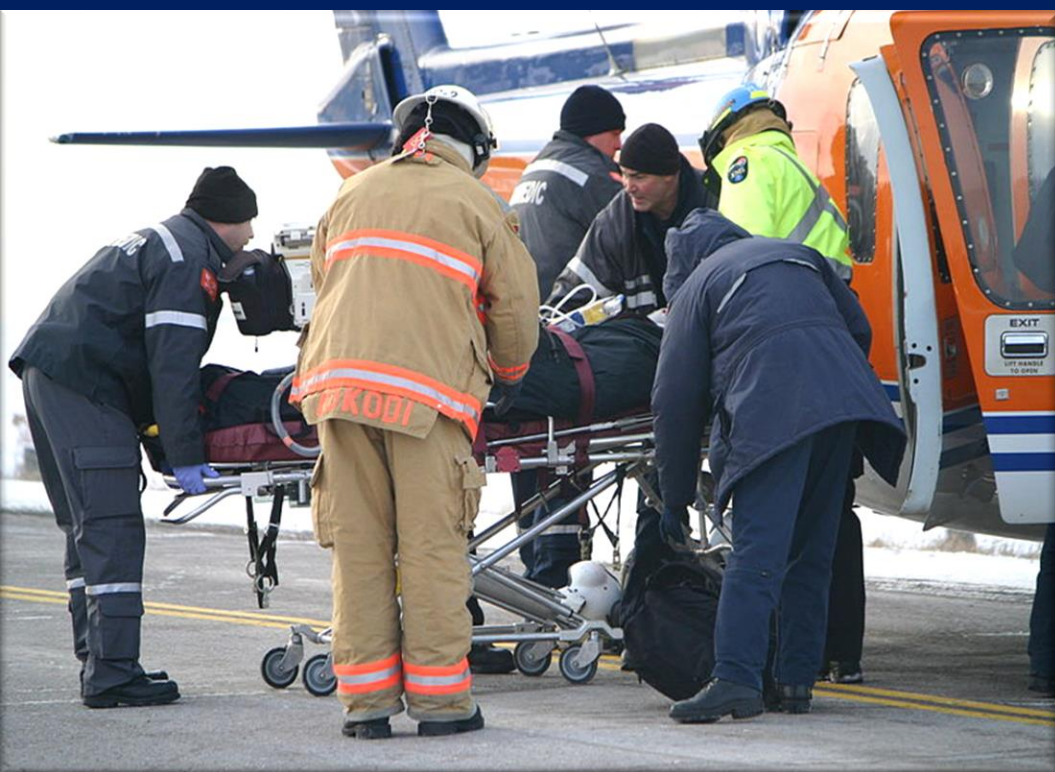


**Map 21. Suicide Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



1.8 suicide attempts per 100 population

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 2013, the burden and costs of injuries alone accounted for more than \$1.13 billion in hospital and emergency department charges in Maryland. The burden of injury in Maryland amounted to 94,145 years of potential life lost (YPLL) in 2013. Forty-One percent of this was due to unintentional injuries, 19.6% due to homicides, and 17.8% due to suicides [30].

**Table 31. Injury Related Mortality by Sex and Race/Ethnicity
Montgomery County, 2017-19**

	Total	Sex		Race/Ethnicity			
		Male	Female	NH-White	NH-Black	Asian/PI	Hispanic
All Injuries	1,308	783	525	788	258	111	145
Motor Vehicle	164	119	45	65	34	22	42
Firearm	114	98	16	64	31	8	11
Fall	318	148	170	236	30	29	22

Overall Injury

- Overall injury mortality rates showed increasing trend between 2010-19 in the County, despite some fluctuations (Fig. 145).
- Among population subgroups, NH-White had the highest rate, followed by NH-Blacks, Hispanics, and Asian/PI; males had much higher rates than females (Fig. 146).
- Residents ages 65 and older had the highest rates, followed by those aged 18-34, and 35-64 (Fig. 147).

Fig. 145. Overall Injury Related Age-Adjusted Mortality Rates Montgomery County 2010-19

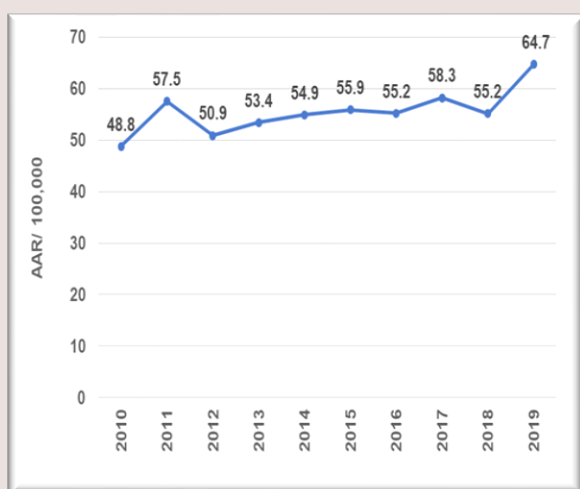


Fig. 146. Overall Injury Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity, Montgomery County 2017-19

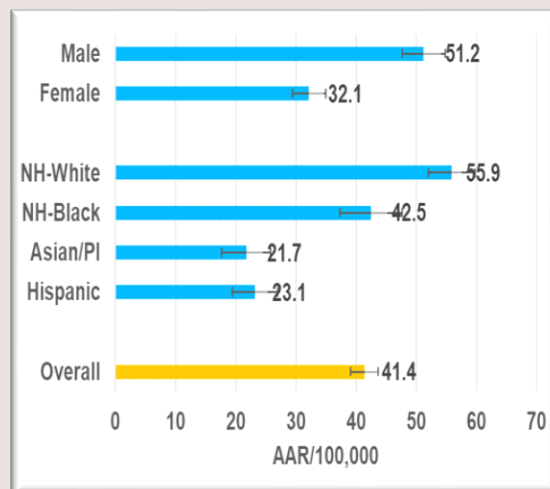
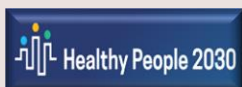
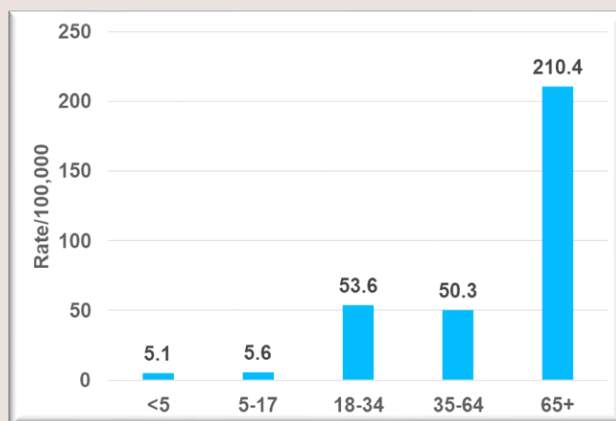
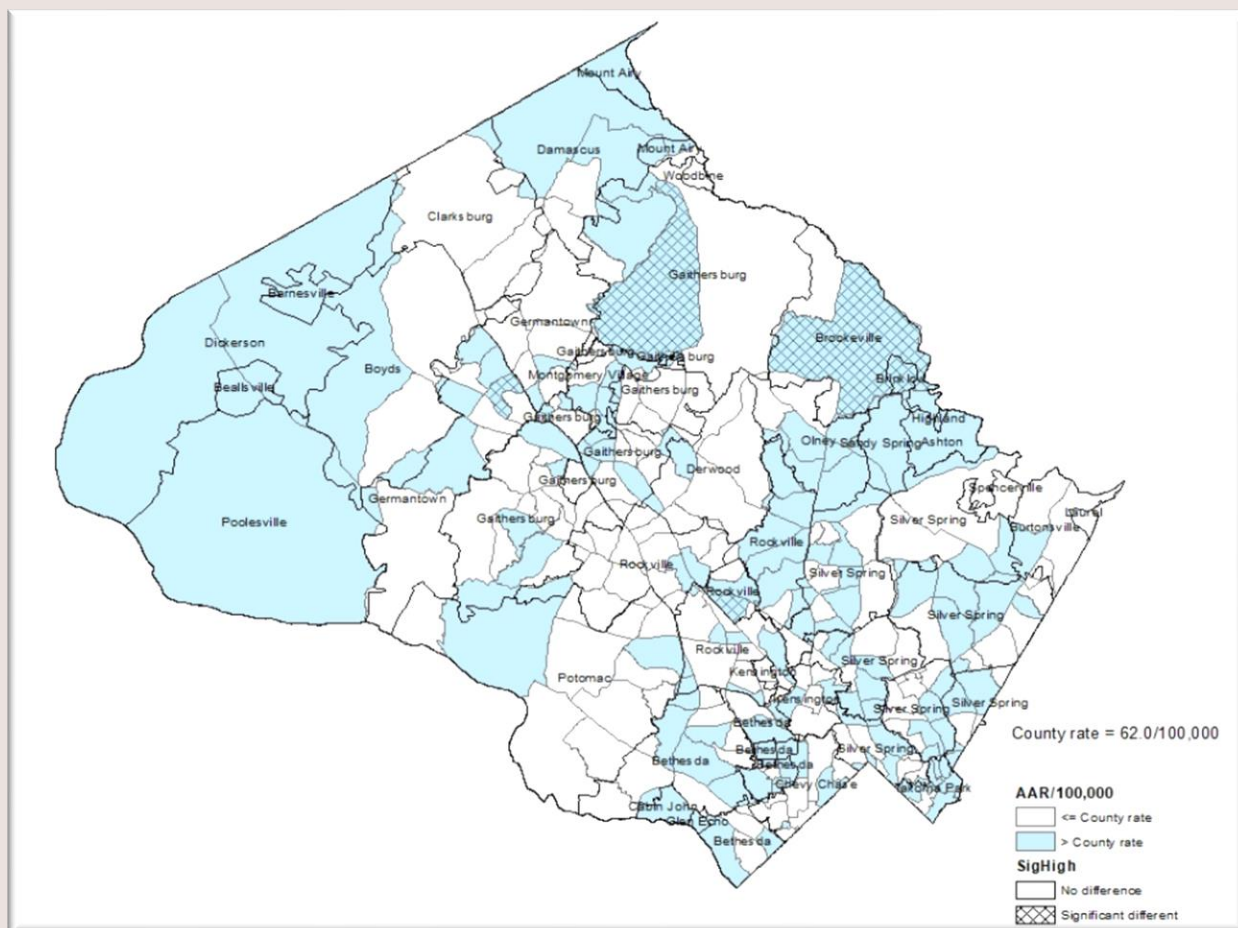


Fig. 147. Overall Injury Related Mortality Rates by Age, Montgomery County, 2017-19



63.1 deaths per 100,000 population caused by injuries

**Map 22. Overall Injury Related Age-Adjusted Mortality Rates by Census Tract
Montgomery County
2017-19**



- 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-Whites had the highest rates, followed by NH-Blacks, Hispanic, and Asian/PI; males had higher rates than females (Fig. 149).
- Residents aged 65 years and older had the highest rates (Fig. 150).

Fig. 148. Overall Injury Related Hospitalization Age-Adjusted Rates Montgomery County and Maryland 2010-19

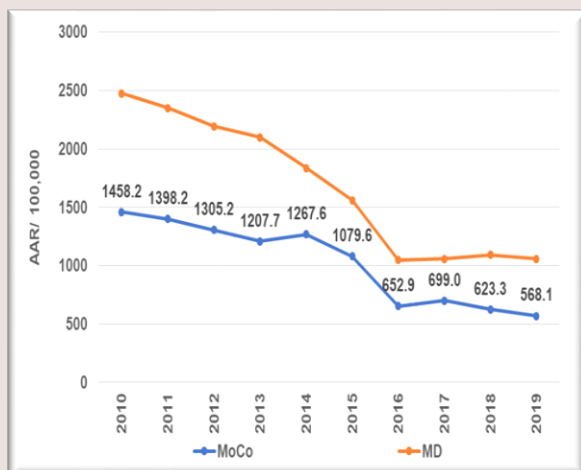


Fig. 149. Overall Injury Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19

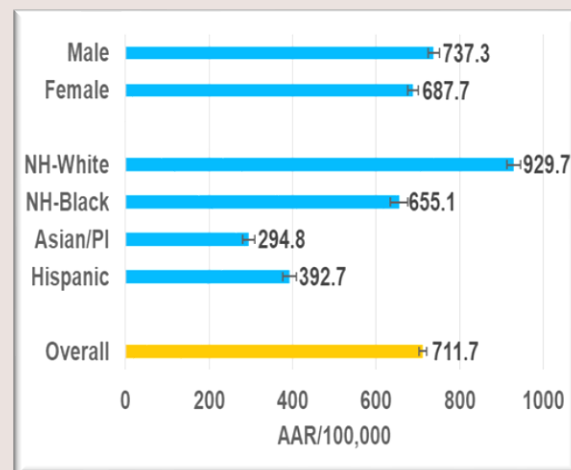
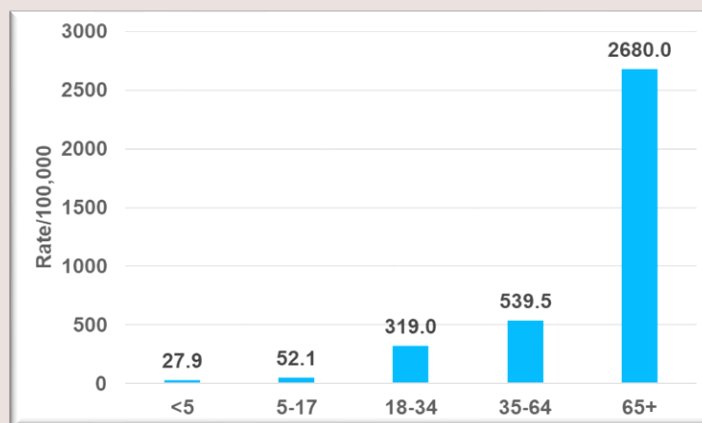
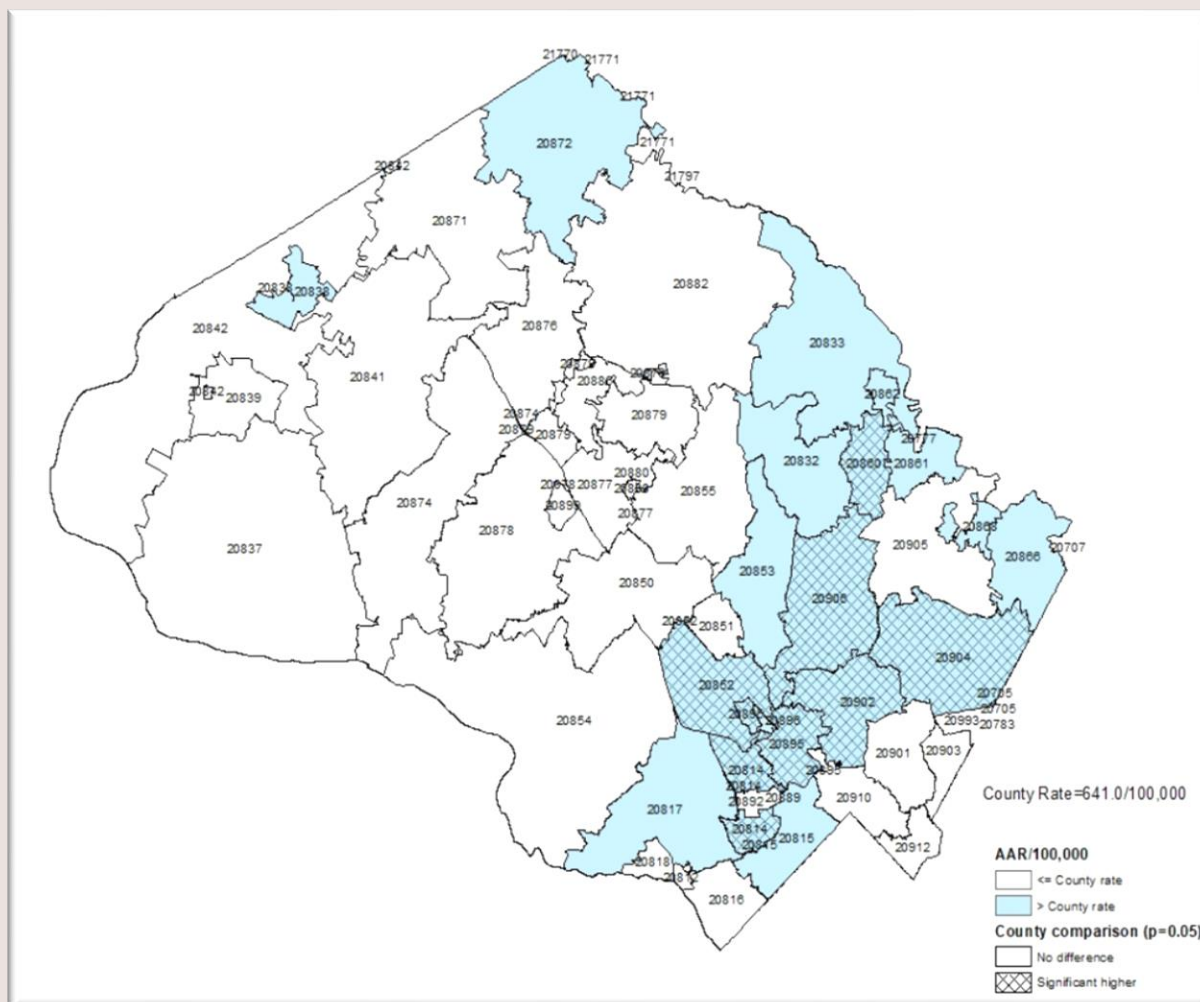


Fig. 150. Overall Injury Related Hospitalization Rates by Age Montgomery County 2017-19



**Map 23. Overall Injury Related Hospitalization Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



- 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-Blacks had the highest rates, followed by Hispanics; Males had higher rates than females (Fig. 152).
- Residents aged 18-34 and 65+ had the highest rates (Fig. 153).

Fig. 151. Overall Injury Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

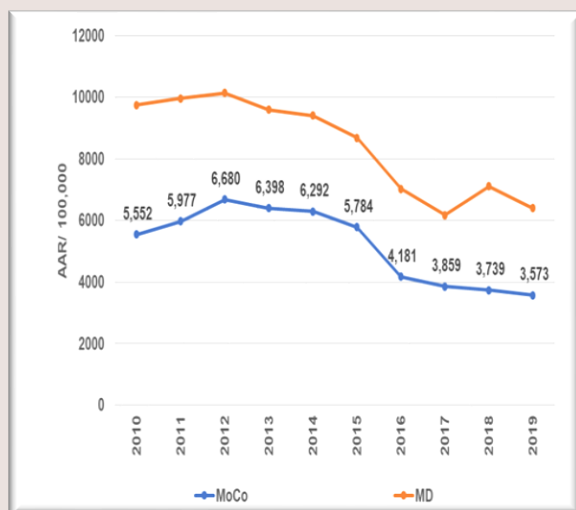


Fig. 152. Overall Injury Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

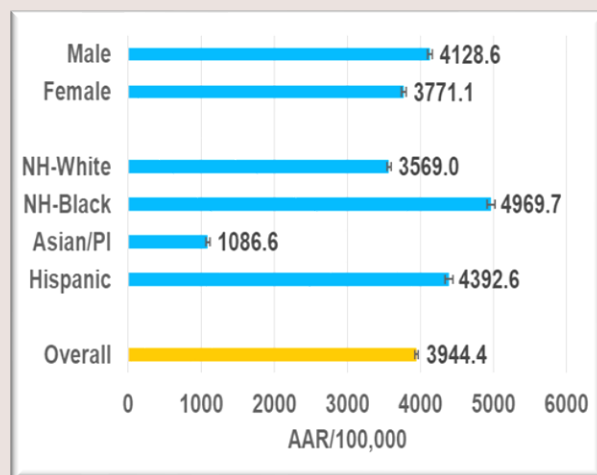
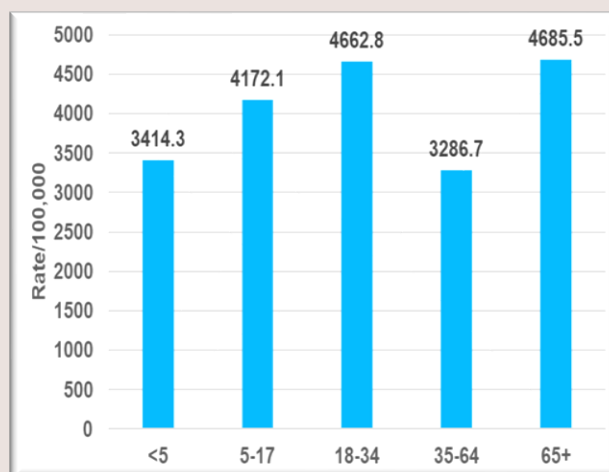
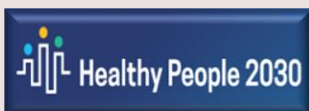
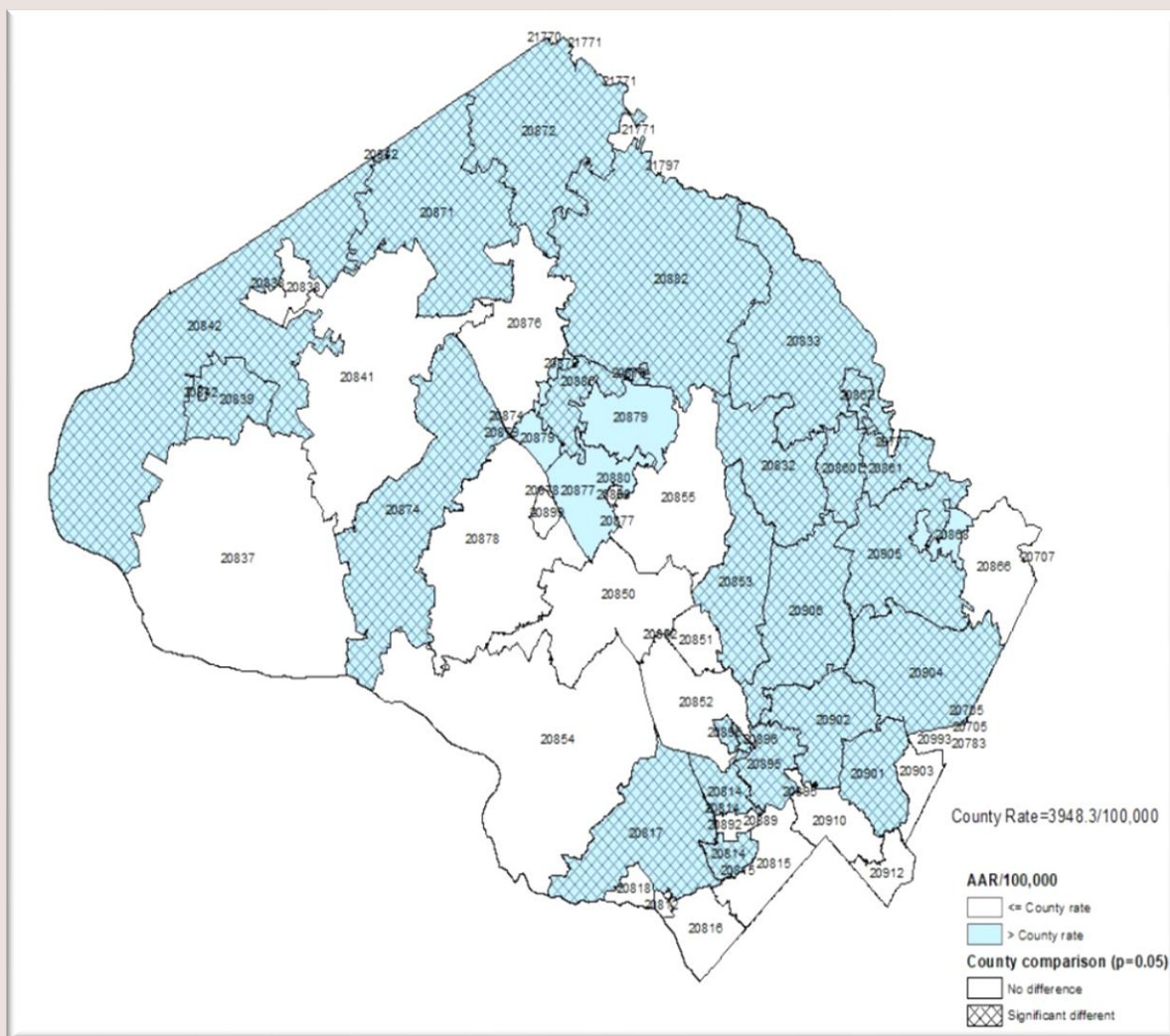


Fig. 153. Overall Injury Related ER Visit Rates by Age, Montgomery County 2017-19



**Map 24. Overall Injury Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**

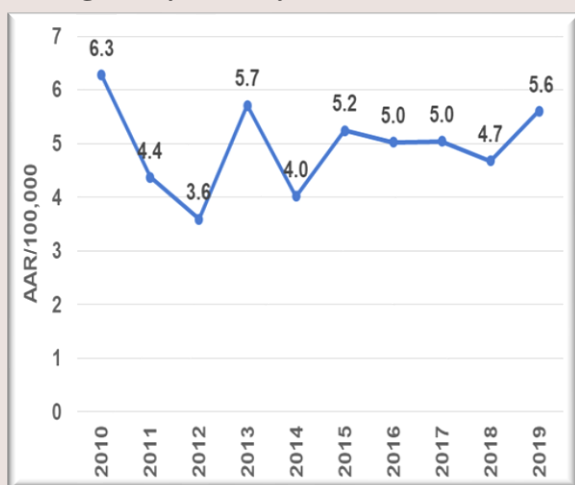


7738.2 ED visits per 100,000 population for nonfatal injuries

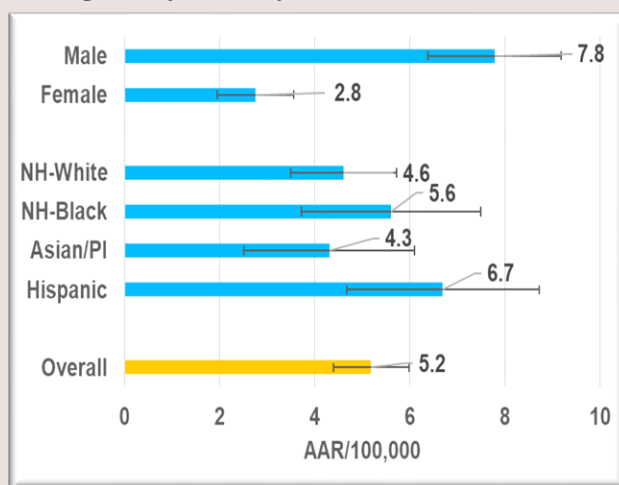
Motor Vehicle

- Motor vehicle mortality rates fluctuated in the County over time (Fig. 154).
- Hispanics had the highest mortality rates among population subgroups, even though these differences were not statistically significantly; males had much higher mortality rates than females (Fig. 155).
- Residents aged 18 to 34 had the highest rates, followed those aged 65 years and older (Fig. 156).

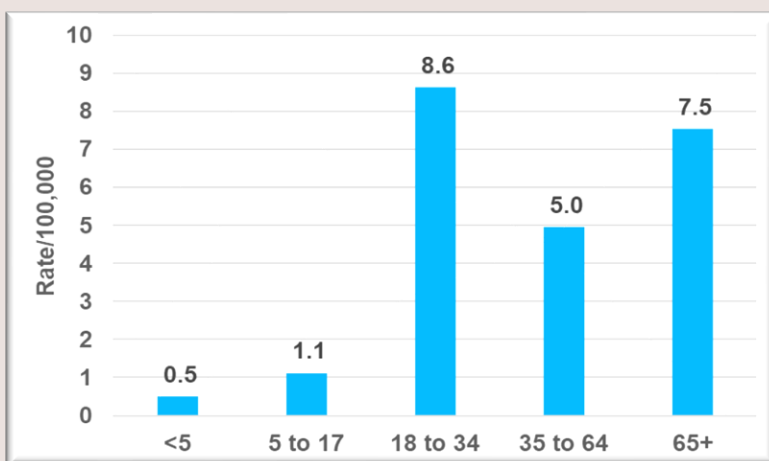
**Fig. 154. Motor Vehicle Related Age-Adjusted Mortality Rates
Montgomery County, 2010-19**



**Fig. 155. Motor Vehicle Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity
Montgomery County, 2017-19**



**Fig. 156. Motor Vehicle Related Mortality Rates by Age
Montgomery County
2017-19**



- 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-Blacks had the highest rates, followed by NH-White, Hispanic and Asian/PI; Males had higher rates than females (Fig. 158).
- Residents 65+ had the highest rates, followed by aged 18-34, and those aged 35-64 (Fig. 159).

Fig. 157. Motor Vehicle Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

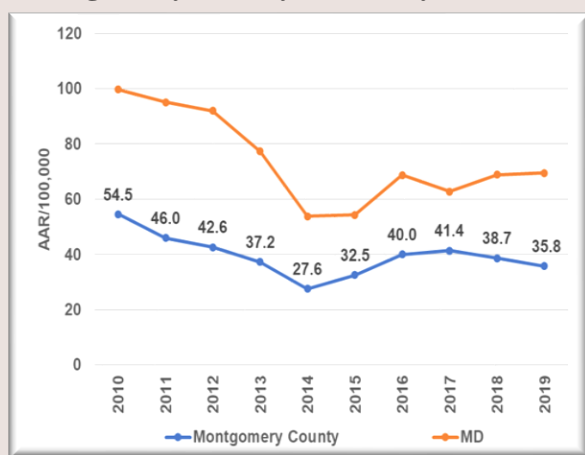


Fig. 158. Motor Vehicle Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

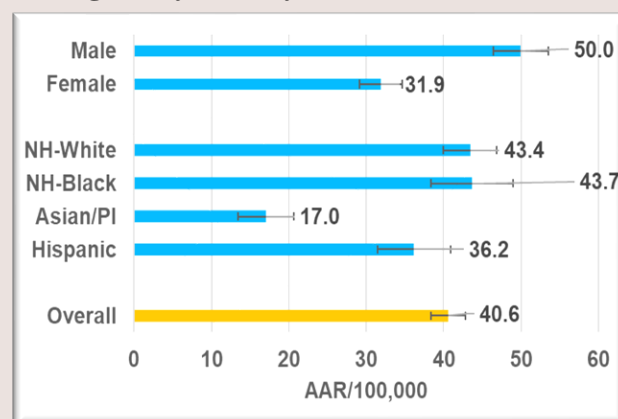
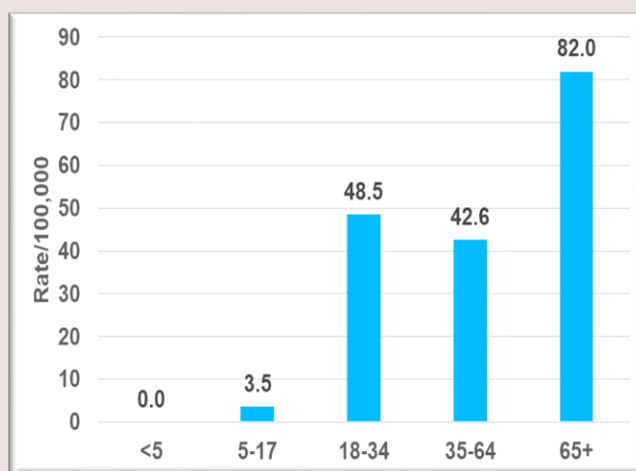


Fig. 159. Motor Vehicle Related Hospitalization Rates by Age Montgomery County 2017-19



- ## Health in Montgomery County, 2010-2019
- ### A Surveillance Report on Population Health

Fig. 160. Motor Vehicle Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

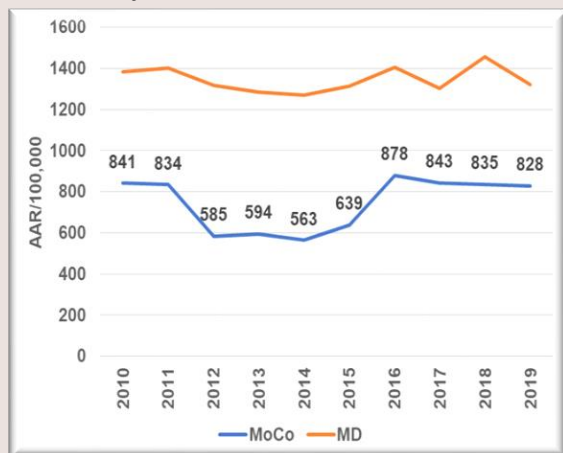
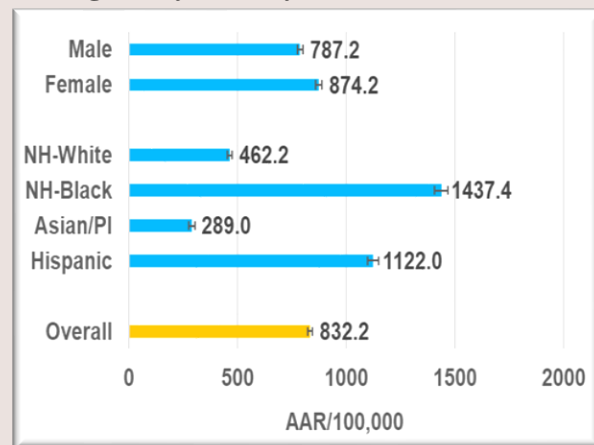
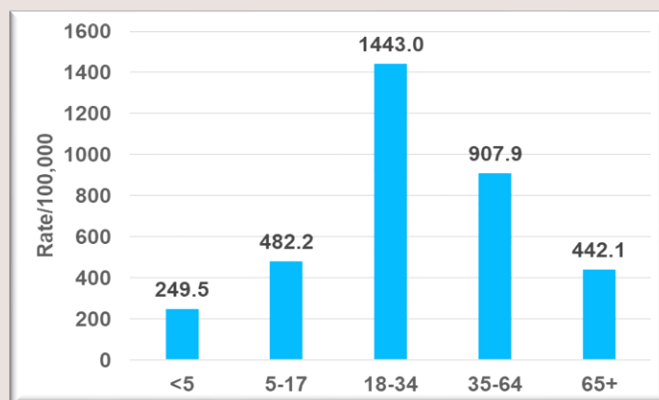


Fig. 161. Motor Vehicle Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

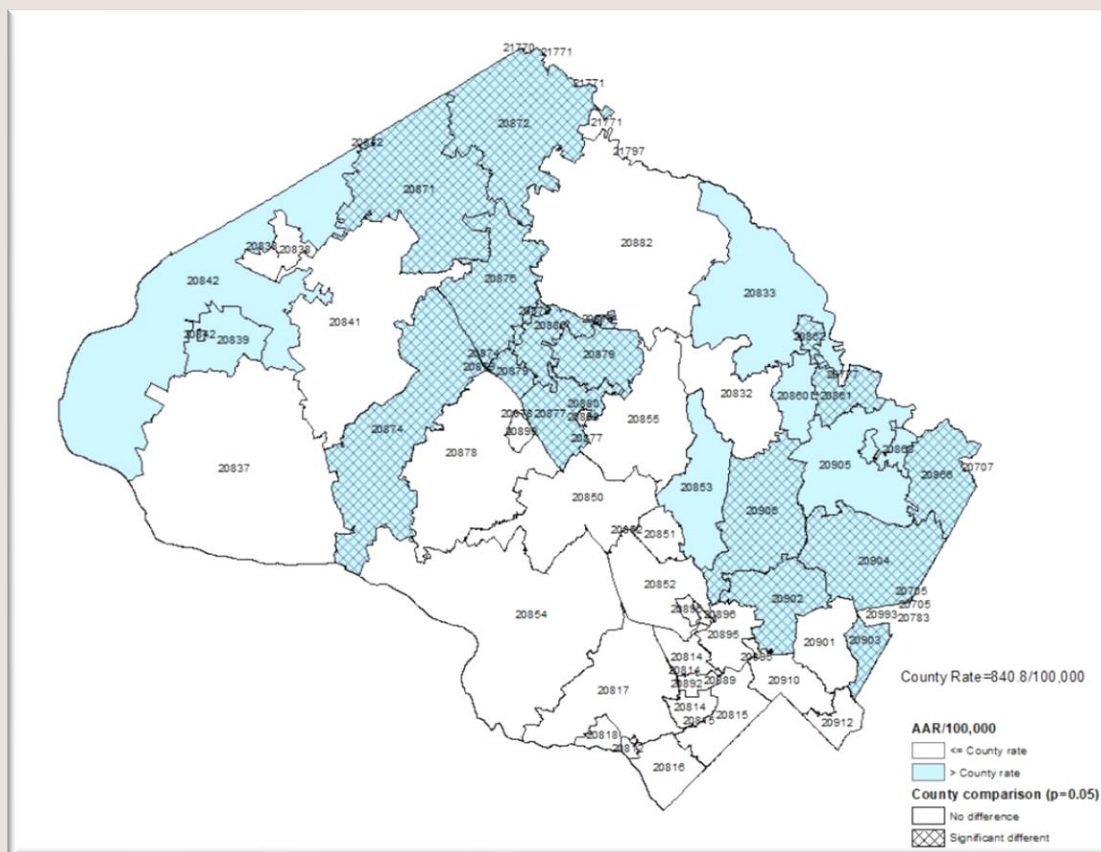


822.3/100,000

Fig. 162. Motor Vehicle Related ER Visit Rates by Age, Montgomery County 2017-19



**Map 26. Motor Vehicle Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



93.7% (95% CI: 91.8-95.7) of adults age 18+ were always compliant with seat belt use in Montgomery County, as compared to 91.8% (95% CI: 90.9-92.7) in Maryland.



10.1 motor vehicle traffic-related deaths per 100,000 population

Firearm

- Firearm mortality rates decreased in the County up to 2017 and increased in 2018 (Fig. 163).
- NH-Blacks had the highest rates, followed by NH-Whites, Hispanics, and Asians/PI; males had higher rates than females (Fig. 164).
- Residents aged 18-34 had the highest rates, followed by those aged 65 years and older (Fig. 165).

Fig. 163. Firearm Related Age-Adjusted Mortality Rates, Montgomery County 2010-19

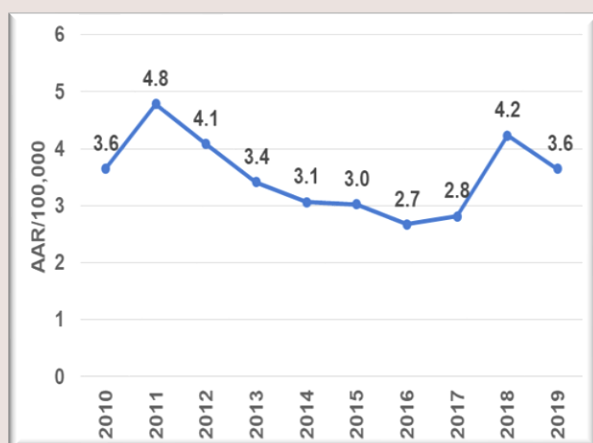


Fig. 164. Firearm Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

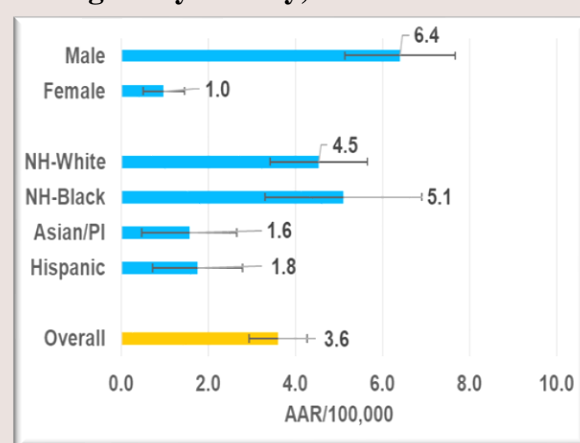
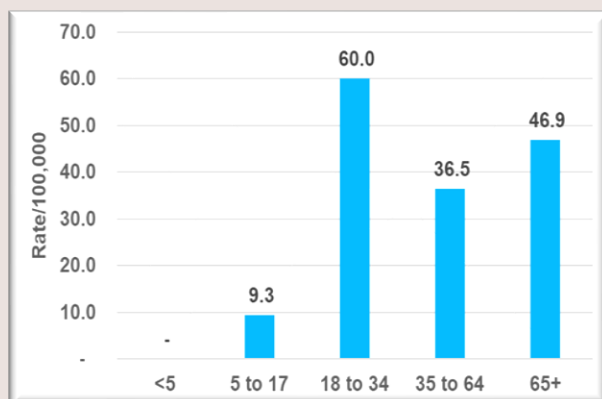


Fig. 165. Firearm Related Mortality Rates by Age, Montgomery County, 2017-19



- Overall firearm related hospitalization rates fluctuated 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 much higher rates than females (Fig. 167).
- Residents aged 18-34 had the highest rates, followed by those aged 35-64 (Fig. 168).

Fig. 166. Firearm Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

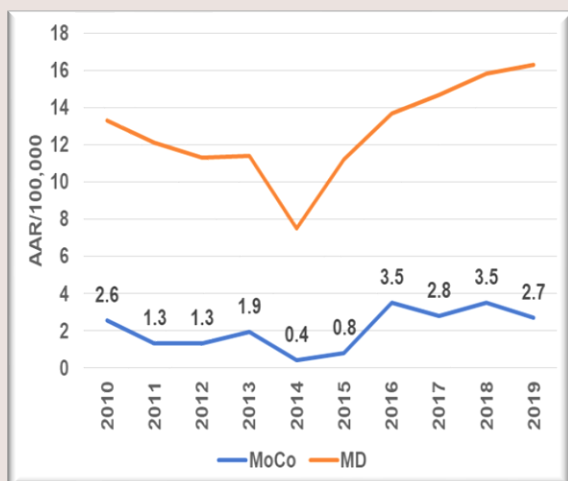
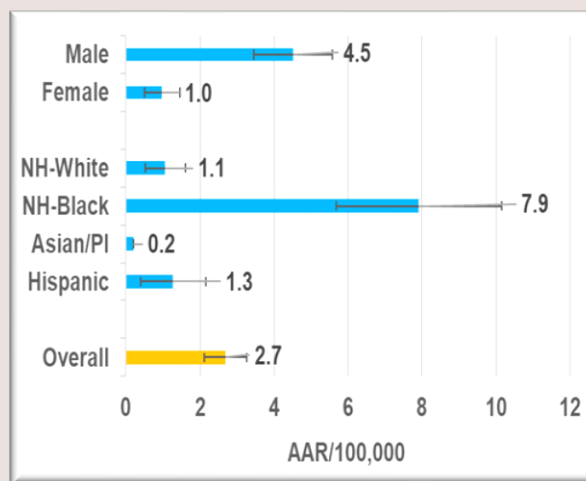
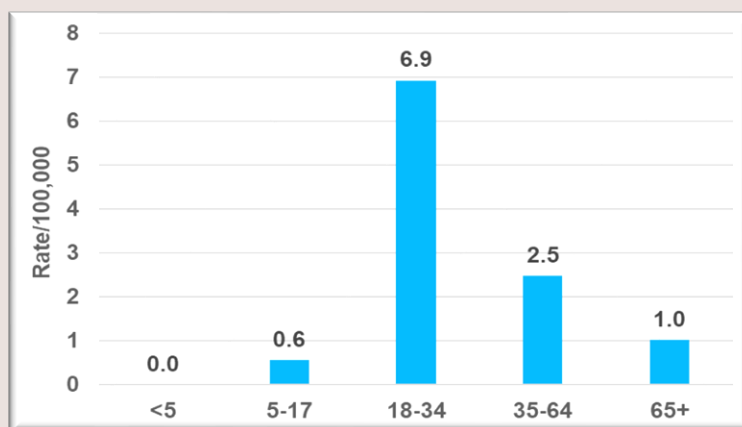


Fig. 167. Firearm Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19



2.7/100,000

Fig. 168. Firearm Related Hospitalization Rates by Age, Montgomery County, 2017-19



- Overall firearm related ER visit rates decreased over time in the County. Maryland had decreasing rates up to 2014 but increased since 2015; the rates in the County were consistently lower than in Maryland (Fig. 169).
- Among population subgroups, NH-Blacks had the highest rates, followed by Hispanic, NH-White, and Asian/PI; males had much higher rates than males (Fig. 170).
- Residents aged 18-34 had the highest rates, followed by those aged 35-64 and those aged 5-17 (Fig. 171).

Fig. 169. Firearm Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19

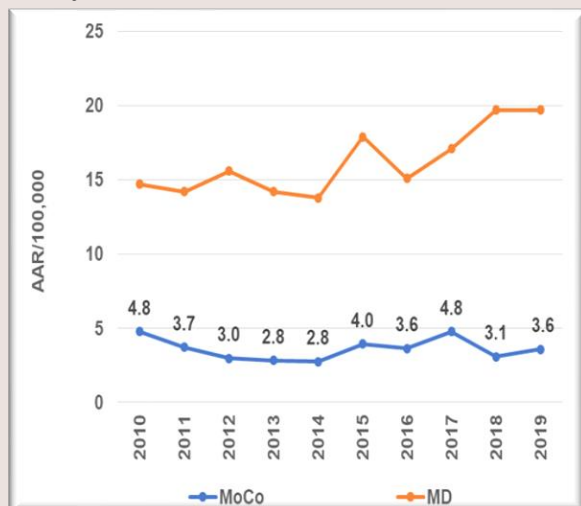


Fig. 170. Firearm Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

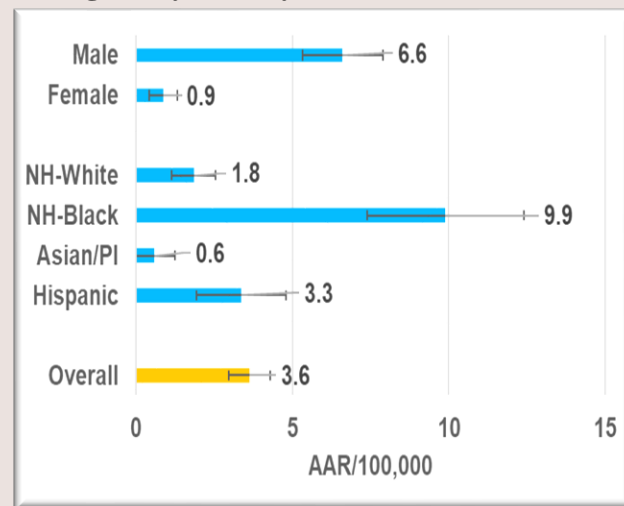
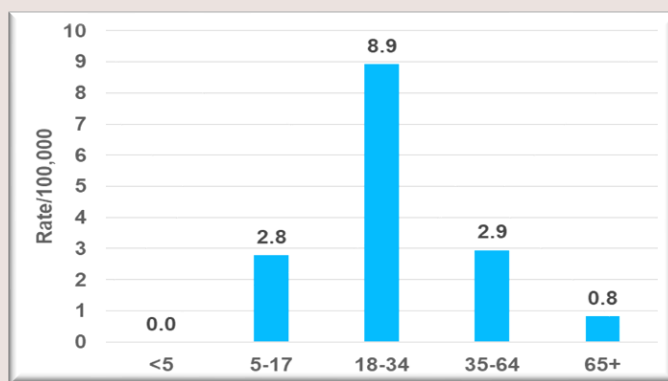


Fig. 171. Firearm Related ER Visit Rates by Age Montgomery County 2017-19

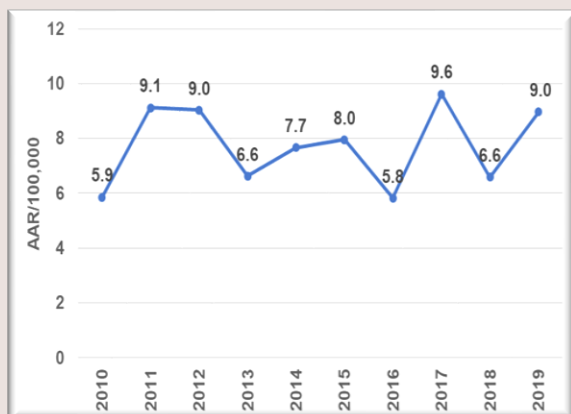


10.1 injuries per 100,000 population for nonfatal firearm-related injuries

Fall

- Fall mortality rates fluctuated in the County over time (Fig. 172).
- NH-Whites had the highest fall mortality rates among population subgroups, though the differences were mostly not statistically significant; males had similar rates with females (Fig. 173).
- Residents aged 65 and older had the highest rates for fall mortality (Fig. 174).

Fig. 172. Fall Related Age-Adjusted Mortality Rates, Montgomery County 2010-19



9.3/100,000

Fig. 173. Fall Related Age-Adjusted Mortality Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

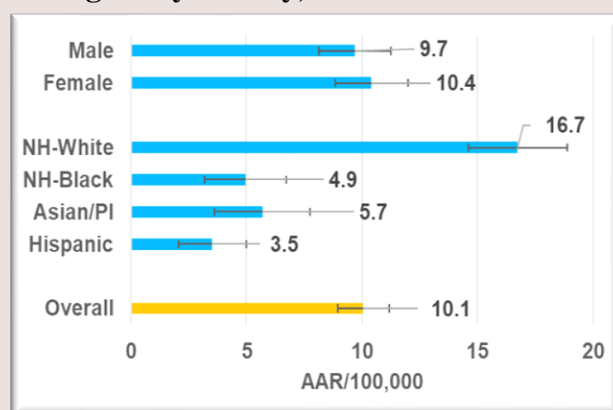
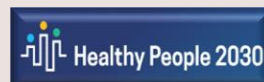
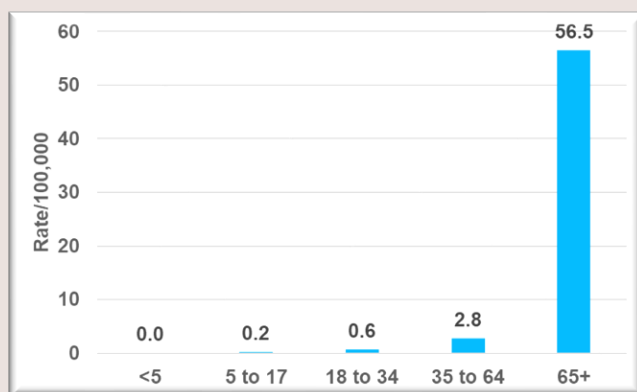


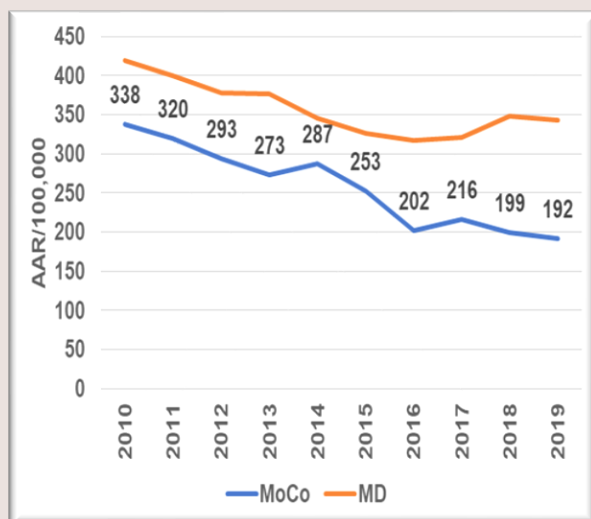
Fig. 174. Fall Related Mortality Rates by Age, Montgomery County, 2017-19



63.4 deaths/100,000 population aged 65+ caused by unintentional falls

- 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, Asian/PI, and Hispanic; females had higher rates than males (Fig. 176).
- Residents aged 65 and older had the highest rates (Fig. 177).

Fig. 175. Fall Related Hospitalization Age-Adjusted Rates, Montgomery County and Maryland, 2010-19



211.5/100,000

Fig. 176. Fall Related Hospitalization Age-Adjusted Rates by Sex and Race/Ethnicity Montgomery County, 2017-19

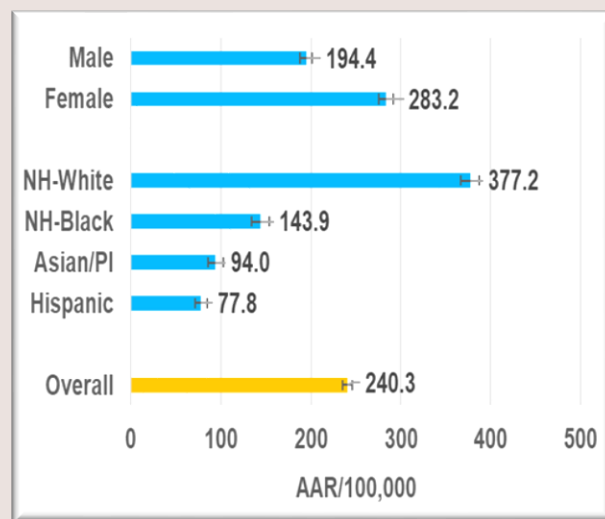
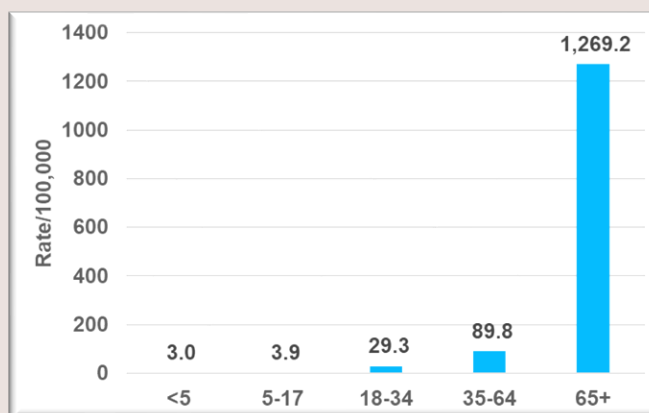
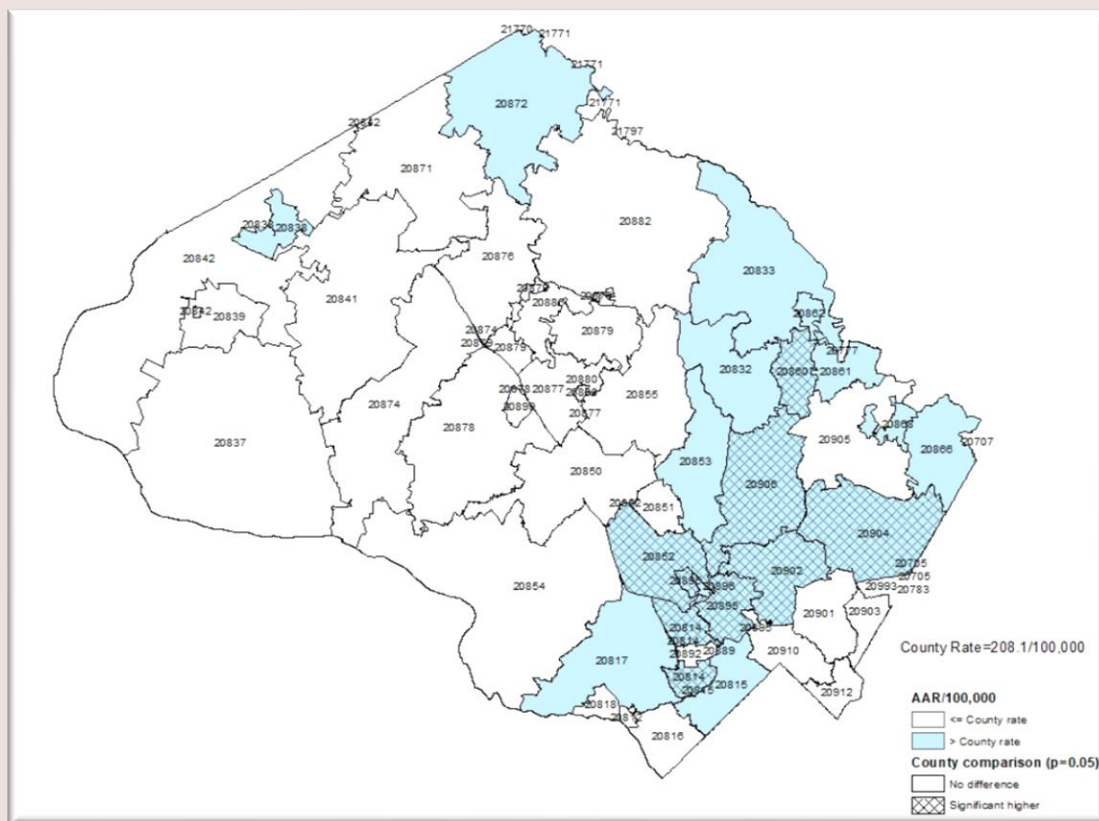


Fig. 177. Fall Related Hospitalization Rates by Age, Montgomery County 2017-19

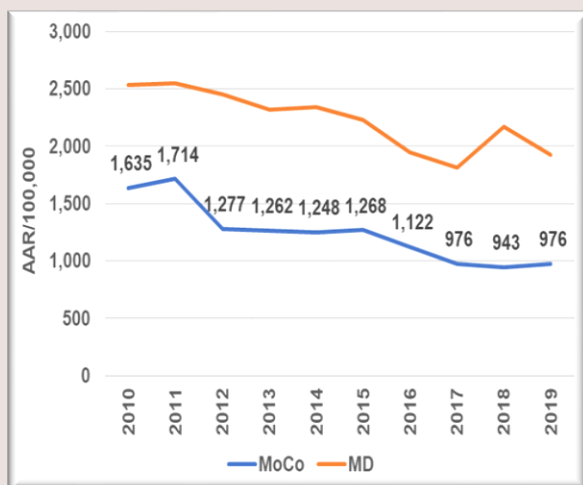


**Map 27. Fall Related Hospitalization Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



- 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 had higher rates, followed by NH-Black and Hispanic, and Asian/PI; females had higher rates than males (Fig. 179).
- Residents aged 65+ had the highest rates, followed by those aged under 5 and 5-17 (Fig. 180).

Fig. 178. Fall Related ER Visit Age-Adjusted Rates, Montgomery County and Maryland, 2010-19



951.8/100,000

Fig. 179. Fall Related ER Visit Age-Adjusted Rates by Sex and Race/Ethnicity, Montgomery County, 2017-19

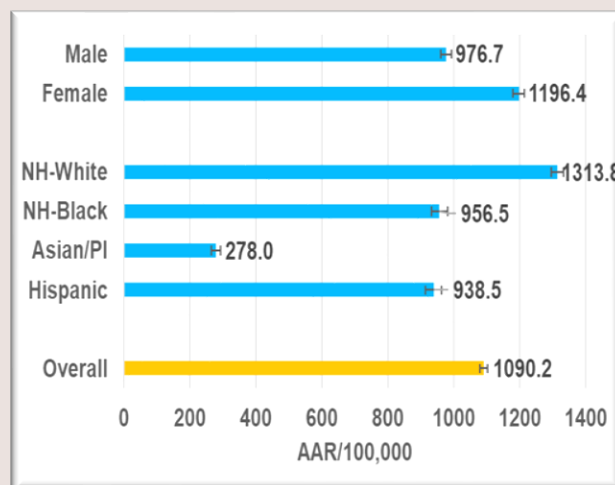
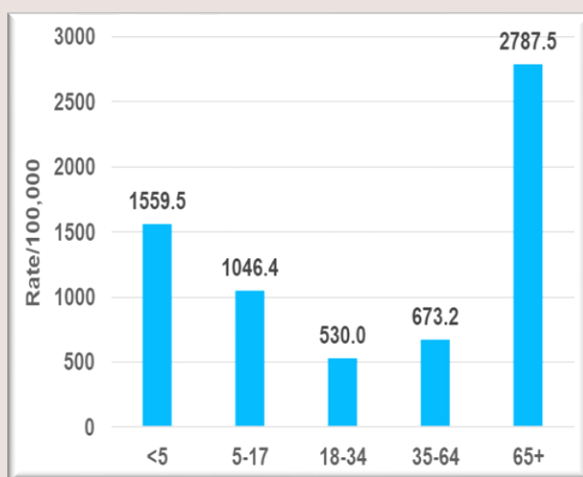
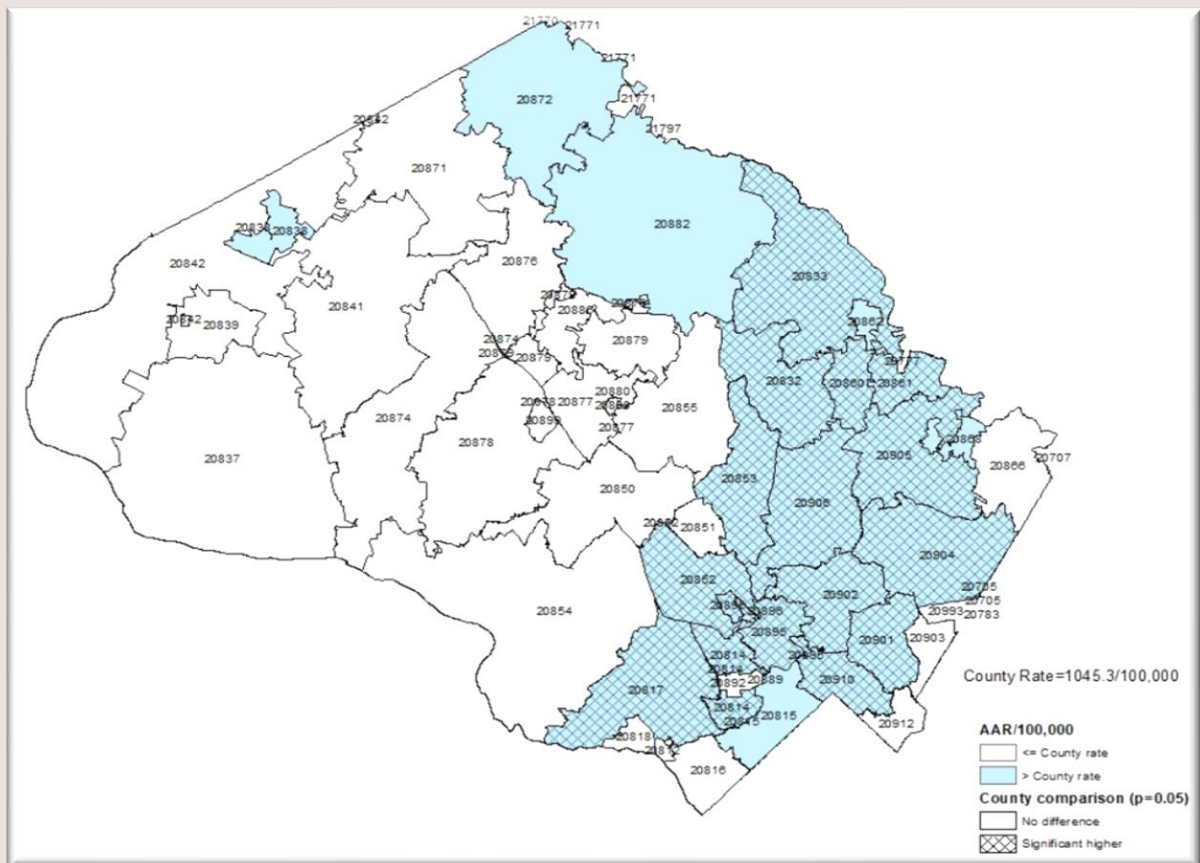


Fig. 180. Fall Related ER Visit Rates by Age Montgomery County 2017-19



5,447 ER visits for falls per 100,000 adults

**Map 28. Fall Related ER Visit Age-Adjusted Rates by Zip Code
Montgomery County
2017-19**



Environmental Health

Environmental health encompasses 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 2018, 0.4% of children ages 0-6 had blood lead levels of 5-9 ug/dL in Montgomery County, much lower than the percentage in Maryland (0.8%) (Table 32).
- Children ages 0-6 with blood lead levels of 5-9 ug/dL in Maryland consistently decreased from 2000-19 (Figure 181).
- Children ages 0-6 with blood lead levels of ≥ 10 ug/dL in Maryland also consistently decreased from 2000-19 (Figure 182).

**Table 32. Children Aged 0-6 Tested for Blood Lead Level
Montgomery County and Maryland, 2018**

Montgomery County and Maryland, 2018				
			MoCo	MD
Children Tested	Age 0-6	Total	96,294	550,484
		No Tested	25,808	131,626
		% Tested	26.8	23.9
Blood Lead Level 5-9 ug/dL				
	Age 0-6	No	112	1,114
		%	0.4	0.8
Blood Lead Level >=10 ug/dL				
	Age 0-6	No	32	295
		%	0.1	0.2

* Source: Childhood blood lead surveillance report, 2018. Maryland Department of the Environment.
<http://mde.maryland.gov/programs/LAND/LeadPoisoningPrevention/Pages/index.aspx>

Fig. 181. Percent Children Age 0-6 Tested with Blood Lead Level 5-9 ug/dL Maryland, 2000-19

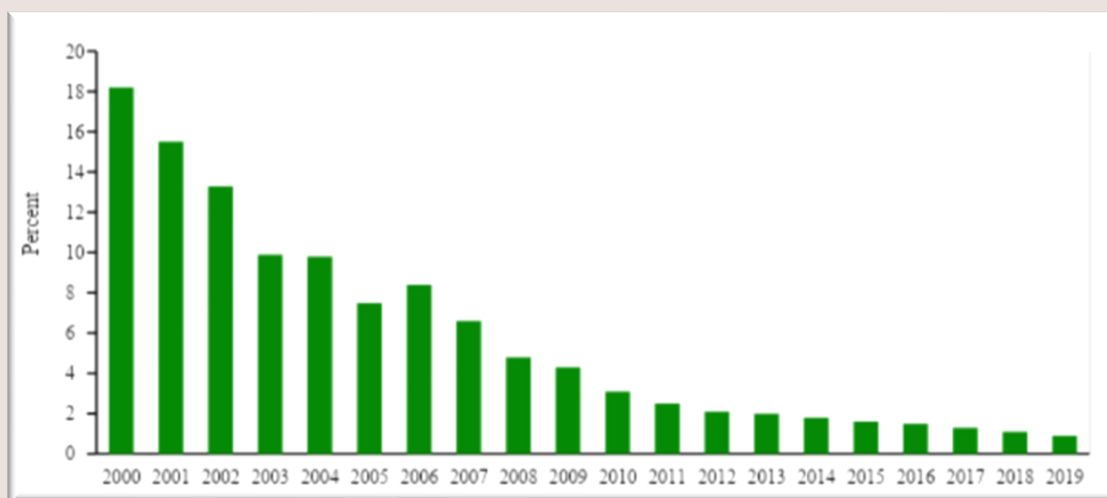
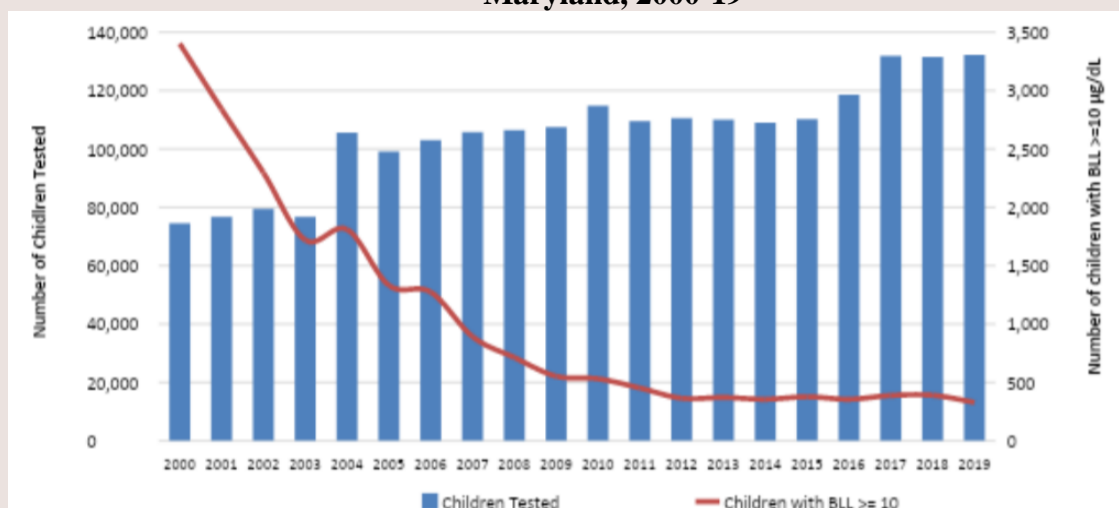
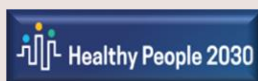


Fig. 182. Children Age 0-6 Tested with Blood Lead Level ≥ 10 ug/dL Maryland, 2000-19



* Source: Childhood blood lead surveillance report, 2019. Maryland Department of the Environment.
<http://mde.maryland.gov/programs/LAND/LeadPoisoningPrevention/Pages/index.aspx>



97.5% of the population aged 1-5 years old is below 1.18 ug/dL of lead in blood samples

Air Pollution and Water

- Fine Particulate Matter PM2.5 (weighted mean and 98th percentile) level decreased in Montgomery County 2013-19.
- For Ozone, the 4th highest daily max 8-hour average in the year (O3 8-hr Max) in Montgomery County reached levels above the U.S. Environmental Protection Agency air quality standard in 2015. Since 2016, the value of O3 8-hr Max stayed below the national air quality standard of 0.070 ppm.
- The quality of drinking water in Montgomery County meets all required EPA standards, including those for inorganic contaminants, metals, disinfection byproduct, and microbial contaminants.

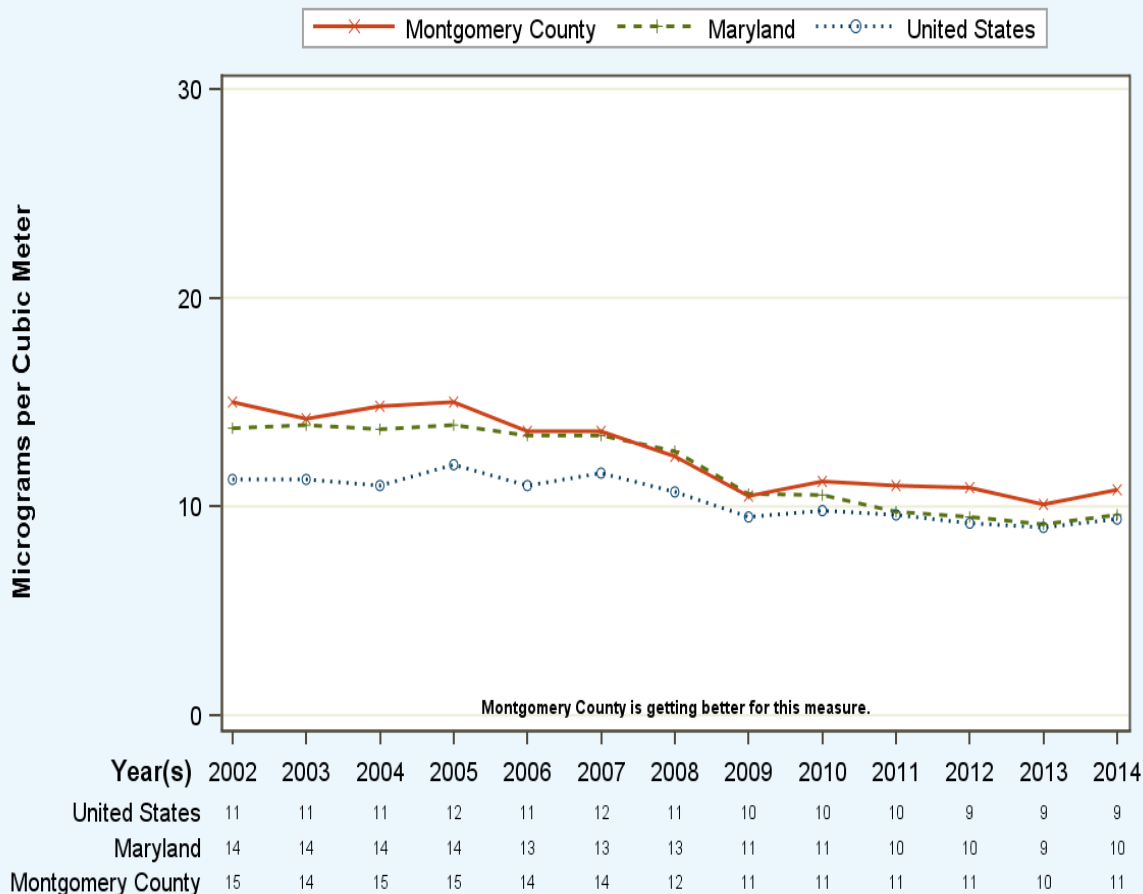
**Table 33. Selected Air Quality Indicators
Montgomery County
2012-19**

	2012	2013	2014	2015	2016	2017	2018	2019
PM2.5 Weighted Mean	10.3	8.1	9	9.7	6.4	5.2	8.5	6.1
PM2.5 98 th ile	23	21	20	22	16	12	18	18
O3 8-hr Max	0.073	0.069	0.064	0.072	0.068	0.065	0.069	0.062
% Unhealthy Days/Year	0.3	0	0	0	0	0	0	0
% Unhealthy Days for Sensitive Groups/Year	1.7	0.3	0	1.4	0	0.7	0	0

* Highlighted calls indicate above air quality standard

** Source: US Environmental Protection Agency. Air Data: <https://www.epa.gov/outdoor-air-quality-data>

Air pollution - particulate matter in Montgomery County, MD **Average Density of Fine Particulate Matter: County, State and National Trends**



*Please see Measuring Progress/Rankings Measures for more information on trends. Trends were measured using all years of data.
 Data in this trend graph are taken from the Environmental Public Health Tracking Network, and will not match data used in the 2014-2016 Rankings.*

** 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
2018-19**

		WSSC				
		Patuxent Tap	Potomac Tap	Rockville	Poolesville	
		MCL*				
Inorganic Contaminants						
	Barium (ppm)	2	0.03	0.03	0.01	1.01
	Nitrate (ppm)	10	1.4	1.7	1	7
	Fluoride (ppm)	4	0.5	0.7	0.5	
		Action Level (AL)	90th Percentile	# Sites Above AL	90th Percentile	
Metals	Copper (ppm)	1.3	0.1	0/55	0.093	0.7
	Lead (ppb)	15	1.1	1/55	NA	0
		MCL	Range		MCL	
Disinfection Byproduct						
	Chlorine (ppm)	4	1.3	0.03-55	1	0.7
	Haloacetic acids (ppb)	60	53	19-72	26	11
	Trihalomethanes (ppb)	80	66	20-94	48	46
Microbial Containments				MCL		
	Turbidity (NTU)	TT=0.3	0.03	0.02	NA	0.288
	Residual Chlorine (ppm)	TT>0.2	>0.2	>0.2	NA	

* MCL- Maximum Contaminant Level

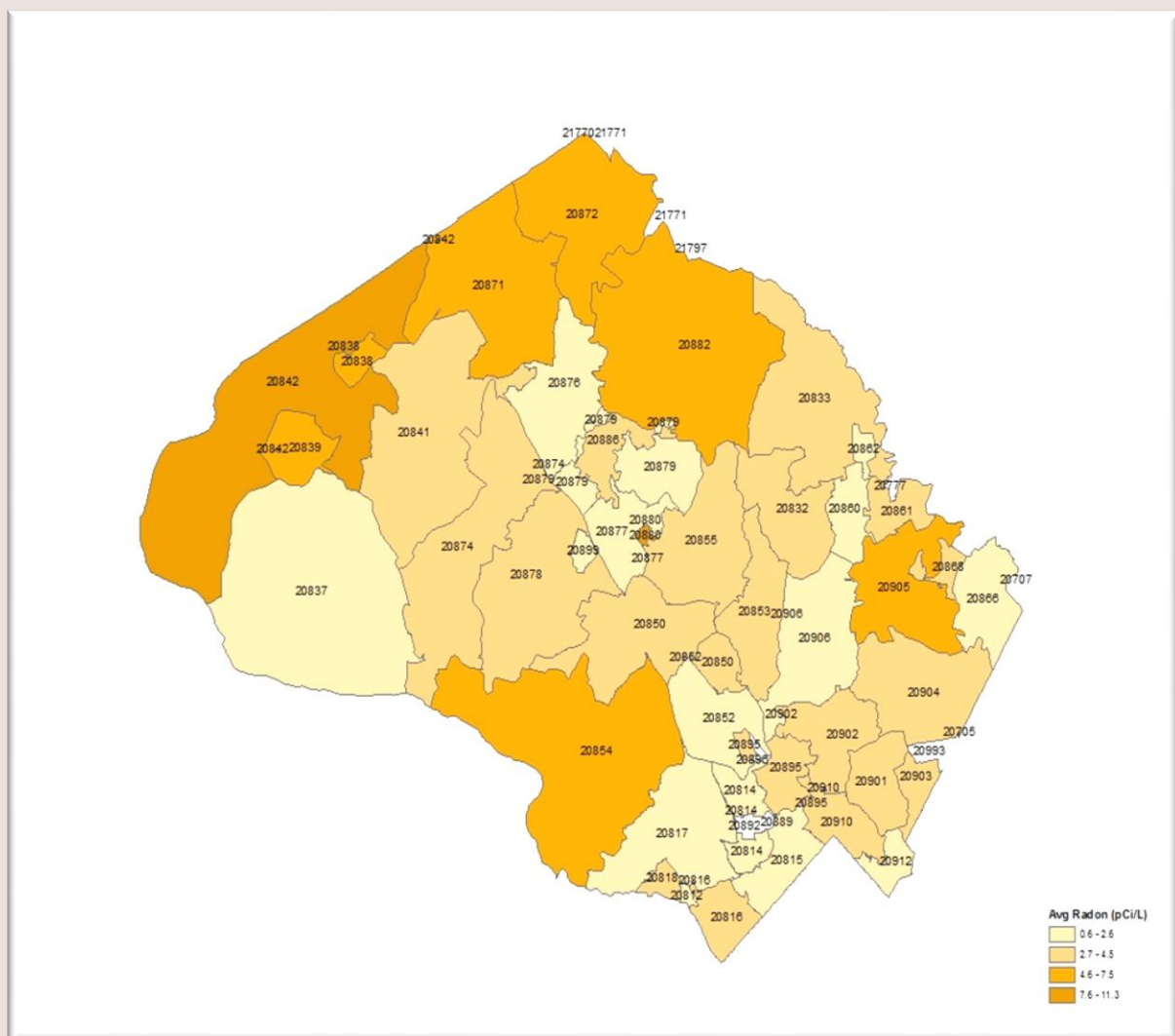
** Source: Maryland Department of the Environment. Consumer Confidence Reports.

https://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Pages/montgomery.aspx
2019 water quality data not available as of April 2021.

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 2017 and 2019 are cancer, heart disease, cerebrovascular disease, accidents, and chronic lower respiratory disease. These leading causes of death remain consistent over the years studied. Heart disease is the leading cause of hospitalization over this period, followed by injury, mental health, cancer, and diabetes. Injury is 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 for both males and females. Both sexes have mental health, cancer, and diabetes 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 between 2017 and 2019, followed by heart disease, and mental health. While chronic lower respiratory disease and diabetes are the 4th and 5th leading cause of ER visits for females, substance abuse and chronic lower respiratory disease are the 4th and 5th leading cause of ER visits for males.



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.

Heart disease, injuries, and mental health are the top 3 leading cause of hospitalization across all race/ethnicity groups, except for Asian/PIs who has cancer is the 3rd leading cause of hospitalization. While cancer is the 4th leading cause of hospitalization for NH-Whites, diabetes is the 4th leading cause for NH-Blacks, Asian/PIs, and Hispanics. The 5th leading cause of hospitalization is diabetes for NH-Whites, cancer for NH-Blacks and Hispanics, and mental health for Asian/PIs. Injury is the leading cause of ER visits between 2017 and 2019, followed by heart disease, mental health for all race/ethnicity groups. Chronic lower respiratory disease is the fourth leading cause for all race/ethnicities except for NH Whites that have a higher percentage of ER visits due to substance abuse.

Age

While cancer, heart disease, and cerebrovascular disease are among the leading cause of deaths across different age groups between 2017 and 2019, 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, heart disease for ages 35-64 and those aged 65 and over. Though variations in the order of causes for hospitalization exist among age groups, injury and chronic lower respiratory 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 4th leading cause for ages 5-17.

While injury is the leading cause of ER visits consistently across all age groups except for those aged 65 and over, variations exist for other leading causes. Heart disease is the leading cause of ER visits for people aged 65 and over and the 2nd leading cause 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 65 and over, chronic lower respiratory disease is the third leading cause for ages 5-17 and the 4th for 18-34, and mental health is the third leading cause of ER visits for ages 35-64.

Geographic Variations

Geographic variations in morbidity and mortality of health conditions are presented by zip code and census tract. 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 in order to evaluate their effectiveness.

This report is strengthened by the use of 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 are 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.

REFERENCES

1. Morello, Carol; Mellnick, Ted (September 19, 2012). *"Seven of nation's 10 most affluent counties are in Washington region"*. Washington Post. Retrieved April 9, 2013.
2. *Complete List: America's Richest Counties*", *Forbes*, February 2, 2008
3. *County Health Rankings and Roadmaps: Building a Culture of Health, County by County*. A Robert Wood Johnson Foundation Program.
<http://www.countyhealthrankings.org/>
4. *Healthy Montgomery: Montgomery County's Community Health Improvement Process*.
<https://www.montgomerycountymd.gov/healthymontgomery/>
5. *Healthy People 2020*. U.S. Department of Health and Human Services.
<https://www.healthypeople.gov/>
6. Bryant AS, Worjloh A, Caughey AB, et al. Racial/ethnic disparities in obstetric outcomes and care: Prevalence and determinants. *Am J Obstet Gynecol*. 2010 Apr;202(4):335–43.
7. Williams DR. Racial/Ethnic Variations in Women's Health: The Social Embeddedness of Health. *Am J Public Health*. 2002 April;92(4):588–97.
8. Siddiqi A, Jones MK, Bruce DJ, Erwin PC. Do racial inequities in infant mortality correspond to variations in societal conditions? A study of state-level income inequality in the U.S., 1992-2007. *Soc Sci Med*. 2016 Sep;164:49–58.
9. Loggins S, Andrade FC. Despite an overall decline in U.S. infant mortality rates, the Black/White disparity persists: recent trends and future projections. *J Community Health*. 2014 Feb;39(1):118–23.
10. Gorman BK. Racial and ethnic variation in low birthweight in the United States: individual and contextual determinants. *Health & Place*. 1999 Sept;5(3):195–207.
11. Blumenshine P, Susan Egerter, Colleen J. Barclay, et al. Socioeconomic Disparities in Adverse Birth Outcomes: A Systematic Review. *Am J Prev Med*. 2010 Sept;39(3):263–72.
12. Braveman PA, Heck K, Egerter S, et al. The Role of Socioeconomic Factors in Black–White Disparities in Preterm Birth. *Am J Pub Health*. 2015 April;105(4):694–702.
13. Larson K, Halfon N. Family income gradients in the health and health care access of US children. *Matern Child Health J*. 2010 Jun 5;14(3):332–42.
14. Larson K, Russ SA, Crall JJ, et al. Influence of multiple social risks on children's health. *Pediatrics*. 2008 Feb 1;121(2):337–44.
15. Long W, Bauchner H, Sege R, Cabral H, Garg A. The Value of the Medical Home for Children Without Special Health Care Needs. *Pediatrics*. 2012 Jan;129(1):87–98.
16. U.S. Department of Health and Human Services, Office of the Surgeon General [Internet]. The Surgeon General's Call to Action to Support Breastfeeding. Rockville (MD): Office of the Surgeon General. c2011– [updated 2014 Aug 12]. Available from: <http://www.surgeongeneral.gov/library/calls/breastfeeding>
17. Task Force on Sudden Infant Death Syndrome. SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment.

- Pediatrics. 2016 Oct:e20162938. Available from:
<http://pediatrics.aappublications.org/content/early/2016/10/20/peds.2016-2938>
18. U.S. Department of Health and Human Services (HHS), Office on Women's Health. HHS blueprint for action on breastfeeding. Washington, DC: HHS; 2000.
 19. Ip S, Chung M, Raman G, et al. Breastfeeding and maternal and infant health outcomes in developed countries. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007. AHRQ Publication No. 07-E007
 20. Shonkoff J, Philips D, editors, and National Research Council and Institute of Medicine Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. From neurons to neighborhoods: The science of early childhood development. Washington, DC: National Academy Press; 2000.
 21. Anda RF, Felitti VJ, Walker J, et al. The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 2006 Apr;256(3):174–86.
 22. Culhane JF and Elo IT. Neighborhood context and reproductive health. *Am J Obstet Gynecol*. 2005 May;192(5S): S22–S29.
 23. Danaei G. et al. "The Preventable Causes of Death in The United States: Comparative Risk Assessment of Dietary, Lifestyle, and Metabolic Risk Factors" "PLoS Medicine" / April 2009 / Vol 6 (4).
 24. Braveman P et al. "Socioeconomic Disparities in Health in The United States: What The Patterns Tell Us" "American Journal of Public Health" / 2010 / Vol 100 (Suppl 1): S186-S196.
 25. Mead H et al "Racial and Ethnic Disparities in U.S. Health Care: A Chartbook" The Commonwealth Fund 2008.
 26. Mayo Clinic, Diseases and Conditions. <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>
 27. Grant, J.E., Potenza, M.N., Weinstein, A. & Gorelick, D.A. (2010). *Introduction to Behavioral Addictions. American Journal of Drug and Alcohol Abuse*. 36(5), 233–241.
 28. U.S. Department of Health and Human Services. (n.d.). What Is Mental Health?
 29. Bienvenu, O.J., Davydow, D.S. & Kendler, K.S. (2011). Psychiatric 'diseases' versus behavioral disorders and degree of genetic influence. *Psychological Medicine*, 41(1), 33–40.
 30. Maryland Department of Health and Mental Hygiene. *Injury in Maryland: 2013 Statistics on Injury-Related Emergency Department Visit, Hospitalizations and Deaths*.
 31. World Health Organization. *Preventing disease through healthy environments*. Geneva, Switzerland: WHO; 2006.

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 of 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, zip code, 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 Health 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 the Office of Planning and Epidemiology at 240-777-1872 about cancer cluster concerns or for advice and further investigations.

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

The Office of Health 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.

FREQUENTLY ASKED QUESTIONS

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 the Office of Health Planning and Epidemiology at 240-777-1872 for more information.

7. *This report summarizes data from 2010-2019. It is now 2022. 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 is prevalence 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. Prevalence 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 Health 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 the 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 the Maryland Cancer Registry, whereas data on infectious diseases are provided by the 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 the 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 the Centers for Disease Control and Prevention. Area Health Resource File (AHRF) is from the U.S. Department of Health and Human Service's Health Resources & Services Administration (HRSA). Data on population estimates are derived from the American Community Survey (ACS) of the U.S. Census Bureau.

In addition, the Office of Health Planning and Epidemiology uses other data sources such as program data collected in electronic medical records and the 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 topics 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:

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

5. Population Weights

Population estimates for Montgomery County are based on data from the U.S. 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

<i>Age</i>	<i>Population in thousands</i>	<i>Adjustment weight</i>
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 by controlling 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, cautions should 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
Chronic Disease			
All cancer sites	140-142(0-9), 143-144(0,1,8,9), 145-148(0-9), 149(0,1,8,9), 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 cancer			C34
Female breast cancer			C50 (female only)
Colon and Rectum cancer			C18-C20, C26.0
Prostate cancer			C61
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, 41,50,51,60,61,70,71,80,81,9 0,91), 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
Heart Disease	390-398, 400-405, 410-417, 420-429	I00-I51	I00-I51
Behavioral Health			

	Hospitalization and ER Visit		Mortality
	ICD-9	ICD-10	ICD-10
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, O90.6, O99.34(0-5), R45.85, R46.6, R46.81, T14.91, T36-T65, T71, 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, V62.84	

Drug-induced Deaths			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,F12.1-F12.5,F12.7-F12.9,F13.1-F13.5,F13.7-F13.9,F14.1-F14.5,F14.7-F14.9,F15.1-F15.5,F15.7-F15.9,F16.1-F16.5,F16.7-F16.9,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
Substance Abuse	E291, E929, E303-E305, E357.5, E425.5, E535, E571, E357.5, E648.3, E779.5, E965-E970, E975, E980	F1110, F1111, F11120, F11121, F11122, F11129, F1114, F11150, F11151, F11159, F11181, F11182, F11188, F1119, F1120, F1121, F11220, F11221, F11222, F11229, F1123, F1124, F11250, F11251, F11259, F11281, F11282, F11288, F1129, F1190, F11920, F11921, F11922, F11929, F1193, F1194, F11950, F11951, F11959, F11981, F11982, F11988, F1199, F1210, F1211, F12120, F12121, F12122, F12129, F12150, F12151, F12159, F12180, F12188, F1219, F1220, F1221, F12220, F12221, F12222, F12229, F12250, F12251, F12259, F12280, F12288, F1229, F1290, F12920, F12921, F12922, F12929, F12950, F12951, F12959, F12980, F12988, F1299, F1310, F1311, F13120, F13121, F13129, F1314, F13150, F13151, F13159, F13180, F13181, F13182, F13188, F1319, F1320, F1321, F13220, F13221, F13229, F13230, F13231, F13232, F13239, F1324, F13250, F13251, F13259, F1326, F1327, F13280,	X40–X49, X60–X69, X85–X90, Y10–Y19, Y35.2, U01(.6–.7)

		F13281, F13282, F13288, F1329, F1390, F13920, F13921, F13929, F13930, F13931, F13932, F13939, F1394, F13950, F13951, F13959, F1396, F1397, F13980, F13981, F13982, F13988, F1399, F1410, F1411, F14120, F14121, F14122, F14129, F1414, F14150, F14151, F14159, F14180, F14181, F14182, F14188, F1419, F1420, F1421, F14220, F14221, F14222, F14229, F1423, F1424, F14250, F14251, F14259, F14280, F14281, F14282, F14288, F1429, F1490, F14920, F14921, F14922, F14929, F1494, F14950, F14951, F14959, F14980, F14981, F14982, F14988, F1499, F1510, F1511, F15120, F15121, F15122, F15129, F1514, F15150, F15151, F15159, F15180, F15181, F15182, F15188, F1519, F1520, F1521, F15220, F15221, F15222, F15229, F1523, F1524, F15250, F15251, F15259, F15280, F15281, F15282, F15288, F1529, F1590, F15920, F15921, F15922, F15929, F1593, F1594, F15950, F15951, F15959, F15980, F15981, F15982, F15988, F1599, F1610, F1611, F16120, F16121, F16122, F16129, F1614, F16150, F16151, F16159, F16180, F16183, F16188, F1619, F1620, F1621, F16220, F16221, F16229, F1624, F16250, F16251, F16259, F16280, F16283, F16288, F1629, F1690, F16920, F16921, F16929, F1694, F16950, F16951, F16959, F16980, F16983, F16988, F1699, F17200, F17201, F17203, F17208, F17209, F17210, F17211, F17213, F17218, F17219, F17220, F17221, F17223, F17228, F17229, F17290, F17291, F17293, F17298, F17299, F1810, F1811, F18120, F18121, F18129, F1814, F18150, F18151, F18159, F1817, F18180, F18188, F1819, F1820, F1821, F18220, F18221, F18229, F1824, F18250, F18251, F18259, F1827, F18280, F18288, F1829, F1890, F18920, F18921, F18929, F1894, F18950, F18951, F18959, F1897, F18980, F18988, F1899, F1910, F1911, F19120, F19121, F19122, F19129, F1914, F19150, F19151, F19159, F1916, F1917, F19180, F19181, F19182, F19188, F1919, F1920, F1921, F19220, F19221,	
--	--	--	--

		F19222, F19229, F19230, F19231, F19232, F19239, F1924, F19250, F19251, F19259, F1926, F1927, F19280, F19281, F19282, F19288, F1929, F1990, F19920, F19921, F19922, F19929, F19930, F19931, F19932, F19939, F1994, F19950, F19951, F19959, F1996, F1997, F19980, F19981, F19982, F19988, F1999, F550, F551, F552, F553, F554, F558, O355XX0, O355XX1, O355XX2, O355XX3, O355XX4, O355XX5, O355XX9, O99320, O99321, O99322, O99323, O99324, O99325, P0441, P0449, P961, P962, T400X1A, T400X1D, T400X1S, T400X3A, T400X3D, T400X3S, T400X4A, T400X4D, T400X4S, T400X5A, T400X5D, T400X5S, T400X6A, T400X6D, T400X6S, T401X1A, T401X1D, T401X1S, T401X3A, T401X3D, T401X3S, T401X4A, T401X4D, T401X4S, T401X5A, T401X5D, T401X5S, T405X1A, T405X1D, T405X1S, T405X3A, T405X3D, T405X3S, T405X4A, T405X4D, T405X4S, T405X5A, T405X5D, T405X5S, T405X6A, T405X6D, T405X6S, T407X1A, T407X1D, T407X1S, T407X3A, T407X3D, T407X3S, T407X4A, T407X4D, T407X4S, T407X5A, T407X5D, T407X5S, T407X6A, T407X6D, T407X6S, T408X1A, T408X1D, T408X1S, T408X3A, T408X3D, T408X3S, T408X4A, T408X4D, T408X4S, T408X5A, T408X5D, T408X5S, T40901A, T40901D, T40901S, T40903A, T40903D, T40903S, T40904A, T40904D, T40904S, T40905A, T40905D, T40905S, T40906A, T40906D, T40906S, T40991A, T40991D, T40991S, T40993A, T40993D, T40993S, T40994A, T40994D, T40994S, T40995A, T40995D, T40995S, T40996A, T40996D, T40996S	
--	--	--	--

Suicide	E950–E959	T14.91, T36-T65, T71, X71-X83	X60–X84, Y87.0, U03
Injury			
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, 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),	V01–Y36, Y85–Y87, Y89, U01–U03

		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), Y99.0, Y99.1, Y99.2, Y99.8, Y99.9	
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, E958.5, E968.5, E988.5	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(.1, .9), V09.2, V12–V14(.3–.9), V19(.4–.6), V20–V28(.3–.9), V29(.4–.9), V30–V39(.4–.9), V40–V49(.4–.9), V50–V59(.4–.9), V60–V69(.4–.9) V70–V79(.4–.9), V80(.3–.5), V81.1, V82.1, V83–V86(.0–.3), V87(.0–.8), V89.2

APPENDIX C: SOURCES OF ADDITIONAL INFORMATION

For more information on populations, 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
<https://www.montgomerycountymd.gov/healthymontgomery/>
- 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 Rankings
<https://www.americahealthrankings.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 Youth 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/>
- Healthy People 2030. U.S. Department of Health and Human Services
<https://health.gov/healthypeople>
- 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>

Office of Health Planning and Epidemiology Publications

- Health in Montgomery County 2008-2016: A Surveillance Report on Population Health
<https://www.montgomerycountymd.gov/healthymontgomery/Resources/Files/HM-Resources/Publications/PopHealthReportFINAL.pdf>
- Report on Infectious Disease, 2013-2017
https://www.montgomerycountymd.gov/healthymontgomery/Resources/Files/HM-Resources/Publications/Infectious%20Disease%20Report_10-15-18_FINAL.pdf
- Maternal and Infant Health in Montgomery County, Maryland 2008-2017
<https://www.montgomerycountymd.gov/HHS/Resources/Files/MaternalInfantHealthReport.pdf>
- The Zip Code Ranking Project
<https://www.montgomerycountymd.gov/healthymontgomery/Resources/Files/HM-Resources/Publications/Zipcode%20Ranking%20Final%20Results.pdf>
- Healthy Montgomery 2023 Goals and Objectives
<https://www.montgomerycountymd.gov/HHS/Resources/Files/Reports/HM2023%20Goal%20Setting.pdf>
- Hospital Community Benefit Service Areas Report on Healthy Montgomery Core Measures, 2009-2017
https://www.montgomerycountymd.gov/healthymontgomery/Resources/Files/Reports/Hospital-CBSA-Report-2009-17_Final.pdf