Anne Arundel County

Community Health Needs Assessment (CHNA) **2019**

A Collaboration With:

Anne Arundel Medical Center

University of Maryland Baltimore Washington Medical Center

Anne Arundel County Department of Health

Anne Arundel County Mental Health Agency

Community Foundation of Anne Arundel County

Annapolis and Anne Arundel County YWCA

Anne Arundel County Partnership for Children, Youth and Families

The **highest percentage of poverty** is in the **Brooklyn Park** ZIP Code at 27.3%

74,522 county residents currently reside in a **food desert**

An average of 444 **children per month were abused or neglected** from March 2016 through February 2017

The number of **free lunches** served daily to students has increased 7% in four years

The number of **crisis interventions** in the public school system for **social and emotional issues** doubled since 2013

Overall there has been a 70% **increase** in residents seeking **mental health services** since 2012

The **percent of uninsured residents** in Anne Arundel County continued to decline, reaching a low of 5.3%

The rate of **emergency department opioid overdose** encounters for County residents has **risen** 91% since 2014

Anne Arundel County

Community Health Needs Assesment 2019

Preface

The Context of Health Care in Maryland and Anne Arundel County.

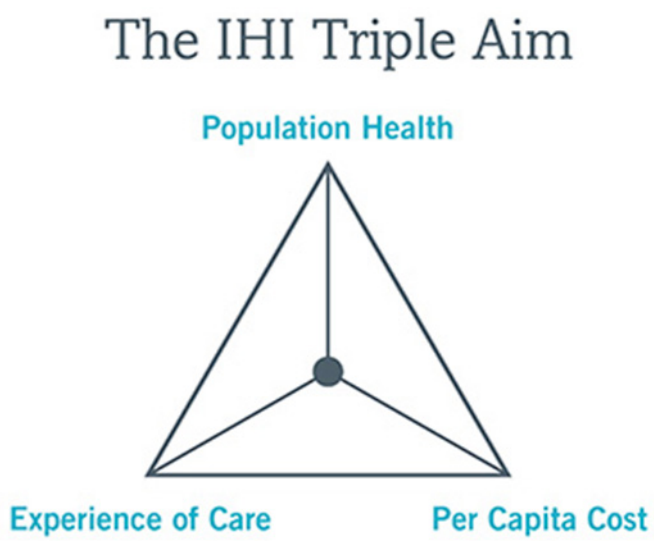
The health care landscape in Anne Arundel County, Maryland, and the United States has been rapidly changing over the past several years and will continue to evolve. Health system reforms in public health, health care, insurance and other sectors are resulting in dramatic changes to both financing and service delivery. These changes include improving the efficiency and effectiveness of health organizations and services, as well as increasing connections and collaborations among public health, health care, and other sectors. (Source: CDC, http://www.cdc.gov/stltpublichealth/program/transformation/index.html)

Maryland, in particular, is a leader in health system transformation. Since January, 2014, Maryland's hospitals, guided by an innovative agreement with the Centers for Medicare & Medicaid Services, have been making progress toward the Institute for Healthcare Improvement's Triple Aim of Health Care: to reduce costs, improve the health of communities and improve the experience of care for patients. Maryland is the only state in the nation that sets the rates hospitals can charge for their services. Rates are the same for all patients for the same service in the same hospital, whether they have Medicare, Medicaid, private health insurance, or pay out of their own pocket. The Maryland Medicare waiver or "All-Payer" model was modernized to better reflect the current state of health care – a trend toward more outpatient care and prevention, and less inpatient care. The new waiver agreement aligns with the goals of the Triple Aim of Health Care — less expensive care, better experiences for patients, and healthier communities. The new agreement requires hospitals and the state to achieve specific cost and quality targets. (Source: http://www.mhaonline.org/docs/default-source/advocacy/legislative/md-general-assembly/Priorities/leave-behinds/waiver-101.pdf?sfvrsn=2)

All of Maryland's hospitals now operate under fixed annual budgets that shift incentives from volume to value. This is a model where hospitals are not rewarded based on how many patients they treat, but rather on how successful they are in keeping their patients and communities healthy. The result; hospitals are keeping costs down by trimming unnecessary use of hospital services, improving quality, and working to keep members of their communities healthier and out of the hospital. To do this, hospitals have moved care beyond their walls and into communities by expanding preventive care and collaborating with others to make sure care does not stop after a patient leaves the hospital. (Source: http://www.mhaonline.org/docs/default-source/advocacy/legislative/md-general-assembly/Priorities/leave-behinds/waiver-101.pdf?sfvrsn=2) New models of care are being developed that include care coordination and navigation services, community health workers, non-traditional settings of care and unique partnerships. There is an increased awareness of the need to address the socioeconomic determinants of health through these new care models.

Starting in January, 2019, Maryland's hospitals will operate under a new contract with the federal government, designed to test whether the improvements hospitals have made under the All-Payer Model can be expanded to all health care providers. Rather than focusing on how hospitals alone can deliver efficient, high-quality care, physicians, skilled-nursing facilities, home health providers, and others, will be incentivized to improve how they coordinate care for patients and how they address societal health problems such as diabetes, heart disease, and opioid use disorders. In doing so, Maryland's entire health care system will work to ensure that patients receive the right care, at the right time, in the right setting. (Adapted from/source: https://www.mhaonline.org/transforming-health-care/tracking-our-all-payer-experiment)

At the same time, due to the expansion of Medicaid and the decrease in uninsured patients, many public health departments are reducing the direct clinical services they provide. Increasingly, health departments are focusing their efforts on prevention and education, helping newly insured and others access health care services, and convening community stakeholders in coalitions to improve community health. Other governmental agencies are also increasingly being tasked with helping to keep the communities they serve healthier and able to live more productive lives. All of these changes have placed an increased emphasis on public-private partnerships, coalition building and advocacy for community health improvements. There is increased collaboration between health systems, community hospitals, insurance companies, physician practices, long-term care and other providers, as well as community-based organizations, public health departments, and patients and consumers. These collaborations will only continue to grow and mature.
Anne Arundel County is fortunate that it has many strong, existing partnerships to improve the health and well-being of Anne Arundel County residents.



Foreword

The summative (quantitative) data contained in this needs assessment was gathered from a variety of local, state and national sources. Population and socio-economic statistics were compiled using data from the United States (U.S.) Census Bureau's Population Estimates Program and the American Community Survey 1-Year and 5 Year Estimates. These data should be considered less reliable due to the gap of eight years since the last full census. All data here are based on census estimates. Birth and death data files were obtained from the Maryland Department of Health and Mental Hygiene, Vital Statistics Administration. The emergency department and inpatient hospital discharge data files were obtained from the Maryland Health Services Cost Review Commission for topics like birth, mortality and hospital utilization. Other data sources used for this report were: Maryland Vital Statistics Annual Reports, Maryland Department of Health and Mental Hygiene's Annual Cancer Reports, Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention's CDC WONDER Online Database, Centers for Medicare and Medicaid Services, National Vital Statistics Reports and County Health Rankings, and a variety of local databases. The specific data sources are listed throughout the report.

The 2019 CHNA draws on qualitative data gathered from 26 key informants and 11 focus groups. Focus group areas included emergency department personnel, low income youth, behavioral health providers, Hispanic residents, advocates, domestic violence victims and a host of others representing a total of 185 participants. A full list of focus groups and key informants can be found below. Interviews and conversations were recorded, with the permission of participants, and transcribed verbatim. The author thanks Lisa Kovacs, Administrative Coordinator at the Anne Arundel County Partnership for Children, Youth and Families, for the hours of transcription time spent ensuring this CHNA accurately represents the voices of our community. The data was read and reread until dominant themes emerged which became the subtext of the report. All participants gave permission for their words to be used in the final report, although their identities are protected.

The 2019 CHNA draws on qualitative data gathered from 26 key informants as follows:

CEO, Anne Arundel Medical Center (AAMC)
CEO, University of Maryland Baltimore Washington Medical Center
Anne Arundel County Health Officer
Executive Director, Anne Arundel County Mental Health Agency
Director, Anne Arundel County Crisis Response
Clinical Director, Anne Arundel County Mental Health Agency
Domestic Violence Coordinator, AAMC
County legislative leader
Director, Department of Social Services

Schools Superintendent
Middle School Ambassador
Three Domestic Violence victims
Director, Anne Arundel County Department of Aging and Disabilities
Hispanic Community leader
Anne Arundel County Chief of Police
Anne Arundel County Transportation Director
County Executive
County Administrative Officer
Faith leader
Public housing resident
Formally homeless youth
Executive Director, Community Health Agency
Executive Director, YWCA
Executive Director of Alternate Education for the public school system

Eleven focus groups contributed to the report as follows:

AAAMC and UMBWMC Emergency Department and Emergency Response (14).
Low-Income Youth from Public Housing (32).
Behavioral Health Providers (40)
Domestic Violence and Sexual Assault Victims (7)
Seniors (10)
Hispanic Community (5)
Human services providers and advocates (14)
Early childhood advocates (10)
Community Health providers (4)
Aging and Disabilities providers (7)
Pupil Personnel Workers (20)
Anne Arundel County Health Department senior staff (12)
Criminal justice representatives (5)

Information Gaps in the Data

- The last full US Census of the population was completed in 2010. All census data used in this report is based on summary estimates completed each year since then.
- The mental health secondary data in this report reflects the public mental health system only.
- Numbers for heroin and other opiate addictions rely on police reports and emergency room data. There is no accurate count for the number of heroin addicts in the county.
- Domestic violence numbers are unreliable. Many incidences go unreported, reflect those seeking medical attention, or who seek support through a domestic violence provider or the court system.
- Opinions from youth consumers of mental health services were not captured in this report.
- There is no accurate count of the number of undocumented residents in the county
- Homeless family numbers are unreliable. They reflect only those families who have been served in a shelter or by a homeless service provider.

About the Author

Dr. Pamela Brown is currently the Executive Director of the Anne Arundel County Partnership for Children, Youth and Families. She completed her Ph.D. in Educational Leadership at Florida Atlantic University. Her dissertation focused on the importance of community partnerships in diverse neighborhoods. She is a University Research Reviewer and Dissertation Chair for the University of Phoenix specializing in qualitative case study methods. She is certified to conduct ethical research through the Collaborative Institutional Training Initiative at the University of Miami. She has been conducting community needs assessments for over 20 years.

The 2019 Anne Arundel County Community Health Needs Assessment (CHNA) is the result of an extended collaboration between the following partners: Anne Arundel Medical Center, University of Maryland Baltimore Washington Medical Center, Anne Arundel County Department of Health, Anne Arundel County Mental Health Agency, Community Foundation of Anne Arundel County, Anne Arundel County Partnership for Children, Youth and Families and the YWCA of Annapolis and Anne Arundel County. All organizations throughout Anne Arundel County, including community-based organizations, non-profits, faith-based organizations, government and businesses are encouraged to use the CHNA findings.

Summary of Principal Findings

Population: The Anne Arundel County population has grown 14.3 percent since 2000 to 559,737 residents. The county's population is aging. Those over 65 have increased by 11 percent since 2014 while the percentages of those 19 and under have decreased slightly.

Hispanic Population: The Hispanic population is growing more significantly than all races/ethnicities and is now at 7.9 percent or 39, 402 residents, still lower than the state average of 9.8 percent. The County has the fourth largest Hispanic population by percentage among Maryland counties. The distribution of the Hispanic population is uneven in the county with a high of 20.3 percent in the City of Annapolis.

Health: Life expectancy for the county has risen to 79.6 years. Cancer remains the leading cause of death, although the numbers have seen a 1 percent decrease since 2013. Accidental (unintentional injury) deaths have risen to the fourth leading cause of death, driven most likely by increases in opioid overdose deaths. Heart disease accounts for 22 percent or 974 of all county deaths as of 2016. That number has risen almost 10 percent since 2013.

Overweight and Obesity: Overweight and obesity continue to create health issues for county residents. Between 2012 and 2016, the percent of overweight adults (Body Mass Index of 25 to 29.9) 18 years and older in Anne Arundel County rose slightly from 36.7 percent to 37.2 percent. The percent of county residents who are classified as obese (Body Mass Index 30 and over) also rose from 27 to 31 percent.

Mental Health: There has been a 70 percent increase in residents seeking mental health services since 2012; 16,343 residents were served by the county mental health agency in 2018. The two highest increases in numbers served are the early childhood population and those over 65. Increased mental health and behavioral issues in the birth to five early childhood population are causing widespread concern in every system.

Substance Abuse: In 2017, Anne Arundel County police reported almost 1,100 opioid-related overdoses occurring within the county, a 171 percent increase since 2014. Fentanyl-related deaths in the county have increased significantly since 2013 and surpassed heroin related deaths through currently reported data for 2017. The current opioid crisis has many victims. The number of newborns assessed positive for substances in their systems, including methadone, has risen 144 percent since 2014 from 74 to 181. Grandparents and great grandparents are raising children with little governmental help.

Domestic Violence: The data since 2015 shows an upward trend. The statistics for the 2018 year are alarming. The numbers for the six month period are almost as high as for the previous 12 months. These statistics confirm anecdotal data from police, schools and hospital personnel who all reported a notable increase in domestic violence over the same period.

Child Physical and Sexual Abuse: In 2018, the county's Child Advocacy Center investigated 326 sexual abuse cases, of which seven were for sexual assault. Respondents noted a large increase in the number of child on child sexual assaults that are being reported by the school system and other agencies.

Sex Trafficking Victims: Anne Arundel County is in the top five jurisdictions in Maryland for sex trafficking. While the numbers were stable between 2015 and 2017, data for the first 6 months of 2018 are showing an almost 100 percent increase in cases.

Emergency Departments: The two county hospital emergency departments at AAMC and UMBWMC have become the 'catch all' for somatic and behavioral health treatment. As one provider noted 'we are the new church door' for many of the socio-economic issues in the county. They are often the receiving facilities for behavioral health issues. In 2017, there were 12,446 behavioral health encounters; mood disorders accounted for 26.3 percent of those.

The Environment: The 2016 State of the Bay Report from the Chesapeake Bay Foundation showed that each of the three indicator categories—pollution, habitat, and fisheries have improved since 2014. However, despite many efforts by federal, state, and local governments and other interested parties, pollution in the Bay does not meet existing water quality standards. All of the county's waterways are considered "impaired" because of excessive levels of major contaminants, which are largely a result of untreated storm water runoff.

Transportation: The lack of public transportation continues to be a major issue for the county. The majority of county residents (80 percent) drive to work alone in their cars every day; 7.7 percent car pool; 2 percent walk; and 2 percent take a bus. There are now five regional transit routes, eight Annapolis routes, four local bus routes and four commuter bus routes. Additionally there are two pilot bus routes in South County. There are large areas of the county that are underserved or not served at all, including North and West County.

Homelessness: Homelessness is a continuing issue for individuals and families in the county. The county served 1,684 homeless individuals in 2017, including 269 families. There are still only three homeless shelters in the county and three rapid rehousing programs. In 2018, 1,260 homeless youth were identified in the county public school system. North County schools accounted for 337 of the homeless children, triple the amount for 2016

Social Media: The use of social media, including the active use of smart phones and tablets, is a major concern for residents and professionals in every area of the county. The constant access to electronic information is impacting every age group and demographic. Babies as young as 12 months have been observed in the county holding iPhones and tablets. One early childhood provider described this as "soothing by cell phone."

Geography: The majority of negative social and health indicators continue to polarize in North and South County and Annapolis. In South County, access to health care is very limited and there are few primary care doctors. Those residents with transportation often travel to Glen Burnie to access primary care. Owensville Health Center is inaccessible to those residents who live in areas like Deale and have no transportation. Brooklyn Park (North County) is both a Medically Underserved and a Health Shortage Area and continues to have high indicators of need, as does Glen Burnie.

Community Health Needs Assessment 2018

Introduction 10
Chapter 1: Somatic Health 20
Births 21
Infant Mortality 21
Low Birth Weight 22
Health Care Access 23
Access to Outpatient Care 24
Senior Health 26
Hospital Admissions 27
Limited English Proficiency Residents 29
Summary 29
Needs 29
Chapter 2: Behavioral Health 30
Mental Health 30
Access 31
Mental Health and Behavioral Issues in Early Childhood 32
Mental Health and Older Youth 33
The Opioid Crisis 35
Other Subtance Use 37
Behavioral Health and Seniors 39
Summary 39
Needs 40
Chapter 3: Social Determinants of Health 41
Hospital and Emergency Department Patterns Related to Social Determinants 42
Overweight and Obesity 42
Access to Healthy Food 43
Hungry Children 44
Housing 45
Homelessness 45
Domestic Violence 46
Child Physical and Sexual Abuse 47
Sex Trafficking Victims 47
Transportation 47
Sports and Recreation 48
Social Media as a Public Health Issue 48
Increase in Violence 49
Summary 50
Needs 50

Chapter 4: Service Delivery Issues **51**
Emergency Departments – the new "Church Door" 51
Service Delivery Issues in the Emergency Room 51
Developmentally/Intellectually Disabled Youth and Adults 52
Communication Issues 52
Required Speed of Service Delivery 53
Impact of Social Media 53
Summary 53
Needs 53
References **54**

Introduction

County Overview

Anne Arundel County is the fifth largest county in the state covering 415 square miles. It has 534 miles of natural shoreline. For the majority of residents the county is a wonderful place to live. Most recent household median income estimates stand at $91,918 (US Census estimates, 2016.) The unemployment rate (as of January 2018) is 3.9 percent, lower than the state average of 4.6 percent. However, there are 32,368 Anne Arundel County residents (5.8 percent) living below the poverty level. The rate of poverty for children is much higher, at 9.3 percent. Single female head of household numbers are even higher and there are racial disparities; 14.8 percent of White and 19.3 of African American single female head of households are at or below the poverty level. Economic distress is spread unequally throughout the county with pockets of low income and poverty level families clustered in North and South County areas and in Annapolis.

In 2018, residents are most concerned about the heroin/opioid crisis, gun violence, behavioral issues among the very young, and the impact of social media on every facet of our lives and the lives of our children. Participants in this needs assessment cited lack of transportation as the biggest barrier to success, from accessing appropriate medical care to acquiring and retaining employment. The lack of quality, affordable child care and the scarcity of affordable housing are continuing barriers for poverty level and low-income families as they try to move towards self-sufficiency.

Anne Arundel County is served by two major hospitals: Anne Arundel Medical Center in Annapolis and the University of Maryland Baltimore Washington Medical Center in Glen Burnie (Figure 1.) Due to their location, residents living in the northern part of county often choose to be served by MedStar Harbor Hospital, in Baltimore City. Residents in the southern part of the county often seek medical care in Calvert and Prince George's counties.

Figure 1: Anne Arundel County Hospital Locations

Anne Arundel County Department of Health, 2018

Physical and behavioral health services are available at three Federally Qualified Health Centers (FQHCs) and at the Anne Arundel County Department of Health (six clinic sites.) Medicaid recipients and other low-income, uninsured residents can obtain a wide variety of quality mental health services through The Anne Arundel County Mental Health Agency, Inc. (AACMHA).

There are eight options for primary care community clinics in Anne Arundel County. The clinics serve newborns to geriatrics, and work with those who are low-income, uninsured, or have other means of Medical Assistance, such as Medicaid. Self-pay patients are charged for services based on gross household income and number of household dependents.

Population Demographics

The most recent census estimates on the diversity of the county illustrate a diminishing White, Caucasian population. The Hispanic population has grown over 205.4 percent since the year 2000 (Table 3.) The most common foreign languages in Anne Arundel County are Spanish (26,124 speakers), Tagalog (2,810 speakers), and Korean (2,751 speakers.) Compared to other places, Anne Arundel County has a relative high number of Greek (737 speakers), Korean (2,751 speakers), and African Languages (2,387 speakers.)

Table 3: Anne Arundel County Ethnic and Racial Composition (2000-2016)

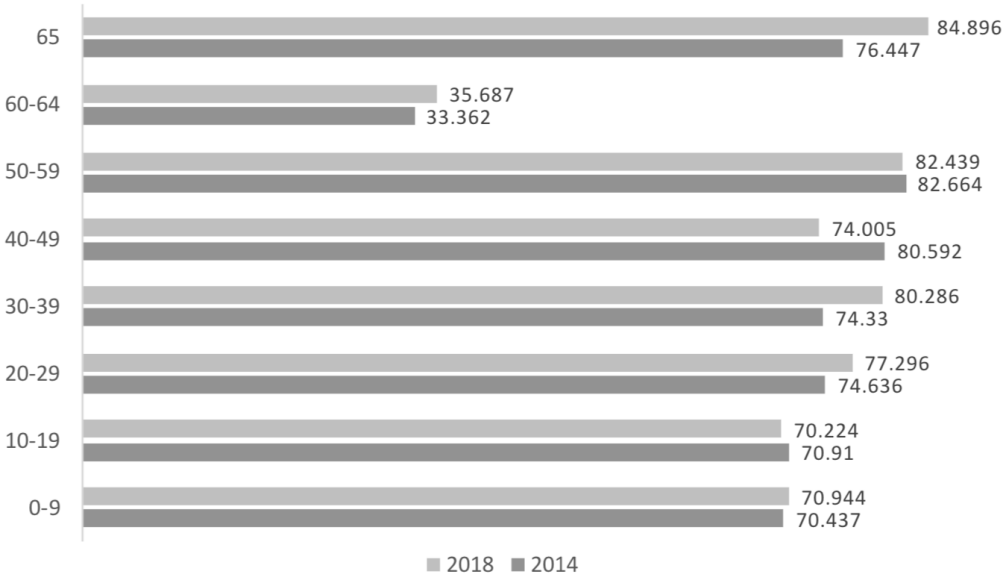
Ethnic/Racial Composition in Anne Arundel County, 2000-2016							
	2000		2010		2016		Percent Change 2010 - 2016
	Amount	%	Amount	%	Amount	%	%
Total	**489,656**	**100**	**537,656**	**100**	**559,737**	**100**	**14.3**
Non-Hispanic Whites	390,519	79.8	405,456	75.4	393,514	70.3%	0.8
Other Races:	**99,137**	**20.2**	**132,200**	**24.6**	**126,821**	22.7%	**27.9**
Hispanic or Latino	12,902	2.6	32,902	6.1	39,402	7.9%	205.4
Black/African- American	65,755	13.4	83,484	15.5	87,090	15.6%	32.4
Other*	20,480	4.2	15,814	3	39,731	7.1%	94

* Includes: "American Indian and Alaskan Native", "Asian", "Native Hawaiian or other Pacific Islander", "Some other race", or "Two or more races". Therefore, the "White" and "Black" figures are those who were counted as "White alone" or "Black alone."

U.S. Census Bureau, American Community Survey, 2016

Anne Arundel County has an aging population. Those over 65 have increased by 11 percent since 2014 while the percentages of those 19 and under have decreased slightly. (Figure 2.)

Figure 2: Anne Arundel County Age Distribution (2014-2018)



Anne Arundel County Economic Development Corporation, 2018

The Hispanic Community

While the White Caucasian population of the county continues to diminish, the Hispanic population is growing more significantly than all races/ethnicities and is now at 7.9 percent (still lower than the state average of 9.8 percent.) The County has the fourth largest Hispanic population by percentage among Maryland counties. The distribution of the population is uneven in the county with a high of 20.3 percent Hispanic in the City of Annapolis. The largest sector of the Hispanic population is from Central American countries, including a growing population from El Salvador. This is significantly different from the overall U.S. Hispanic population, which is overwhelmingly Mexican (63 percent.)

Traditional governmental systems, from the city and county police departments, to the public schools and health systems, are struggling to adequately respond to this growing Spanish speaking population. Only seven Annapolis police officers speak Spanish as do nine percent of full-time civilian personnel, and only nine county police officers speak Spanish, (City of Annapolis Police Department, 2017.) The public school system has a shortage of teachers for English Language Learners (Anne Arundel County Public Schools, 2018) and the county mental health agency reports a woeful lack of Spanish speaking counselors. There is only one Spanish speaking psychiatrist in the entire county (Anne Arundel County Mental Health Agency, 2018.)

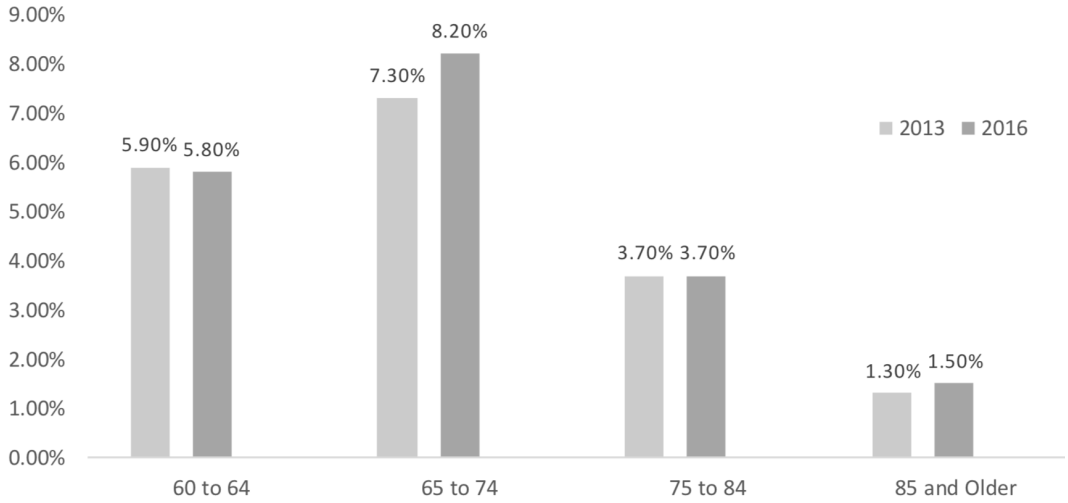
Senior Population

The number of Americans over the age of 60 is continuing to increase. The large demographic of Baby Boomers (those born between 1946 and 1964) is now defining the aging population; 10,000 people in the nation turn 65 every day (U.S. Health and Human Services, 2018.) Seniors are also living longer through advanced medical care, early diagnosis and treatment, and better nutrition.

'Seniors' is a very broad term for a group that now spans almost four decades. Service providers see the aging population in three quite distinct groups; 55- 69 years of age, 70-84 years of age and 85 and older. Each group has very distinct needs emotionally, physically and psychologically.

In Anne Arundel County there has been an increase since 2013 in those residents over 60 from 18.2 percent to 19.2 percent. The largest increase is in the 65-74 age group with a smaller increase for the 85 and older group (Figure 3.) As each group continues to age, their requirements for supports and services increase.

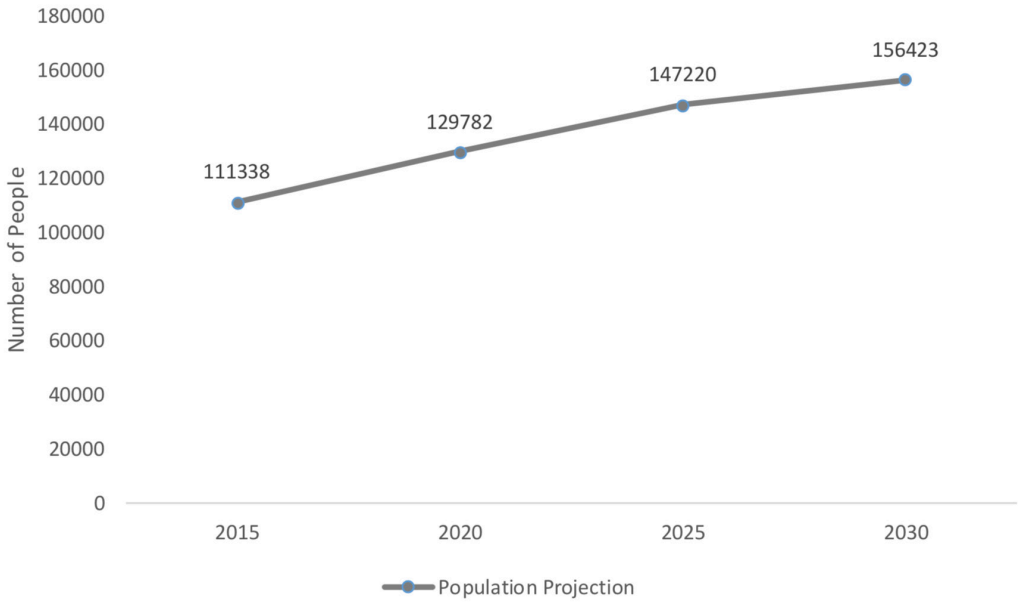
Figure 3: Senior Age Demographics in Anne Arundel County (2013, 2016)



U.S. Census Bureau, American Community Survey, 2016 Estimates

The county's senior population is expected to continue rapid growth until 2030 when the trend line begins to dip (Figure 4.) The Maryland Department of Aging State Plan (2017) predicts there will be a 40.49 percent increase in seniors living in Anne Arundel County during this period from 80,000 seniors to over 150,000 in 2030.

Figure 4: Maryland's 60+ Population Projections for Anne Arundel County (2015-2030)



Maryland Department of Aging, 2017

Income

The gap between rich and poor continues to widen. The number of resident households with an income above $200,000 has grown by over 38 percent. Those households with an income below $25,000 have shrunk, but only slightly (Table 4.) Anne Arundel County Economic Development Corporation offers more recent income estimates than census data suggesting that in 2018, the median household income for the county is now standing at $99,652; 19 percent more than the state and 65 percent more than the nation.

Table 4: Estimated Annual Household Income Numbers for Anne Arundel County (2010, 2016)

Estimated Annual Household Income Numbers 2010 and 2016					
Totals	**2010:**		**2016:**		
Per household	Number	%	Number	%	Percent Change
Less than $25,000	20,819	10.7	20,439	10.0	-1.80%
25,000-34,999	12,201	6.2	10,875	5.3	-10.90%
35,000-49,999	19,077	9.7	18,775	9.2	-1.60%
50,000-74,999	34,853	17.7	32,573	15.9	-6.50%
75,000-99,999	29,982	15.3	29,148	14.2	-2.80%
100,000-199,999	61,569	31.0	68,734	33.6	11.60%
200,000 and above	17,498	9.0	24,285	11.9	38.80%

US Census Bureau American Community Survey, 2016 estimates

Poverty

Poverty is defined in different ways. The official United States poverty rate is decided by the Federal government. As of 2018, a family of four (two adults, two children) with an annual income below $25,100 is living in poverty. There are 32,368 Anne Arundel County residents (5.8 percent) living below the poverty level (Table 5), a slight dip from the 2016 level of 33,618 (6.1 percent) although the trend line is still up slightly since 2014. There are 31,377 households led by single parents, of which 22,565 have a female as the head of household. Economic well-being for households headed by a single parent can be fragile. Estimates suggest 14.7 percent of the single parent households in the county make an income that is below the federal poverty level.

Table 5: Poverty Status, Anne Arundel County (2014-2017)

Poverty Status, Anne Arundel County, 2014-2017								
	2014		2015		2016		2017	
	Below poverty level	Percent below poverty level	Below poverty level	Percent below poverty level	Below poverty level	Percent below poverty level	Below poverty level	Percent below poverty level
Population below poverty level	31,573	5.9%	31,573	5.9%	33,168	6.10%	32,368	5.8%
Age								
Under 18 years	8,846	7.1%	8,359	6.7%	8,923	7.10%	9,024	7.1%
18 to 64 years	8,377	6.8%	19,571	5.7%	20,126	5.80%	18,585	5.3%
65 years and over	3,563	5.2%	3,643	5.1%	4119	5.60%	4,759	6.0%
Race and Ethnicity								
White, not Hispanic or Latino	18,365	4.6%	18,875	4.7%	18,237	4.70%	18,367	4.5%
Black or African American alone	8,608	10.5%	8,622	10.3%	8,153	9.70%	9,417	10.7%
Asian alone	1,744	9.1%	1,524	7.8%	1,423	7.20%	787	3.7%
Hispanic or Latino origin (of any race)	3,165	8.9%	3,018	8.2%	3,643	9.50%	5,491	12.5%

US Census Bureau, American Community Survey, 2016 Estimates

Poverty continues to be concentrated in the North and South of the county (Table 6.) The highest percentage of poverty is in the ZIP Code that contains Brooklyn Park at a staggering 27.3 percent followed by Curtis Bay; both areas border Baltimore City. North Beach and Deale (South County) have almost twice the level of poverty as the county average.

Table 6: Anne Arundel County Selected Poverty Percentages by ZIP Code (2016)

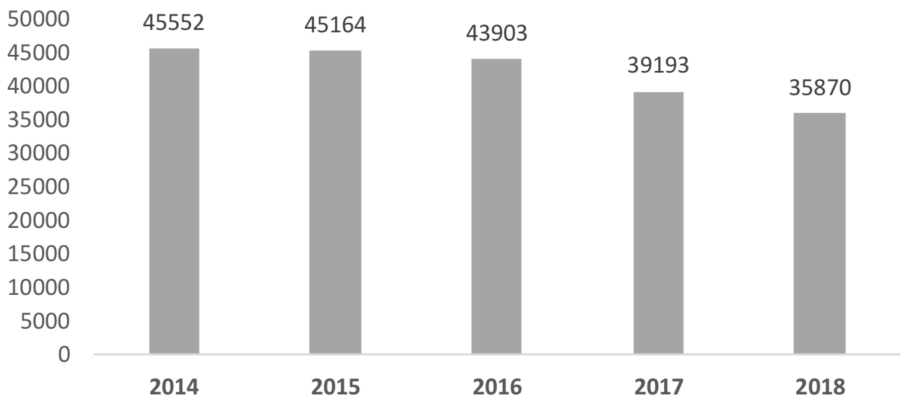
Selected Poverty Percentages by ZIP Code, 2016 Anne Arundel County		
ZIP Code	**Area**	**Poverty Percentage**
21225	Brooklyn Park	27.3%
21226	Curtis Bay	16.6%
21060	Glen Burnie (East)	7.9%
21061	Glen Burnie (West)	9.2%
20714	North Beach	10.6%
20751	Deale	10.8%
	Anne Arundel County	5.8% (2017 estimates)

US Census Bureau, American Community Survey, 2016 and 2017 Estimates

Low income residents can also be measured by the numbers receiving what used to be called food stamps and is now the Supplemental Nutrition Assistance Program (SNAP). Snap participation is down 21 percent since peaking in 2014 at 45,552 (Figure 5.) This is partly due to reinstated work requirements and a decrease in adult eligibility, as well as the improving economy.

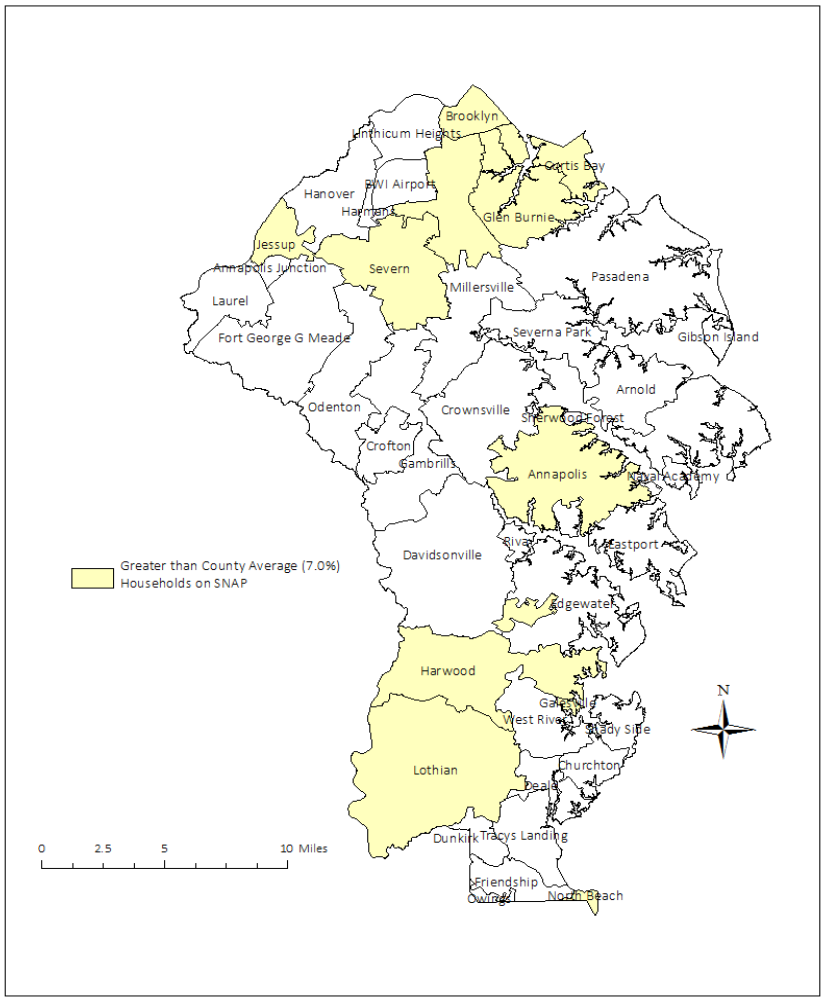
Figure 5: Anne Arundel County SNAP Recipients (2014-2018)

Anne Arundel County Department of Social Services, 2018



According to 2016 US Census American Community Survey estimates, SNAP recipients are spread unevenly across the county (Figure 6) with the largest number in North and South County areas and Annapolis.

Figure 6: Anne Arundel County SNAP recipients (2016)



US Census Bureau American Community Survey, 2016 Estimates

Child Maltreatment

According to the Center for Disease Control (2018) high poverty and concentrated neighborhood disadvantage increases the likelihood that a child will suffer abuse and neglect. In Anne Arundel County, an average of 444 children per month were abused or neglected from March 2016 through February 2017, an increase of almost 13 percent since 2014.

Table 7: Counties in Maryland with the Highest Number of Child Maltreatment Reports (2017)

Counties in Maryland with the Highest Number of Child Maltreatment Reports, 2017	
	Monthly Average from March 2016-February, 2017
Montgomery	526
Baltimore City	554
Prince George's	748
Anne Arundel	444
Baltimore County	414

Maryland Department of Human Resources, 2017

The numbers of Anne Arundel County families receiving in-home services from county social services has risen every year since 2014. Child protective investigations for abuse and neglect were decreasing until 2018. Most alarming, the numbers of newborns exposed to illegal substances has increased 158 percent since 2014 (Table 8.)

Table 8: Anne Arundel County Child Welfare Key Indicators (2014-Present)

Anne Arundel County Child Welfare Key Indicators 2014 - Present					
	2014	**2015**	**2016**	**2017**	**2018 (September)**
Families Receiving in Home Services	483	607	662	753	625
New Children Receiving in Home Services	1005	1016	1139	1429	1196
New CPS Accepted Investigations	2400	2154	2161	2185	2243
New Substance Exposed Newborn Assessments	74	169	197	174	191

Anne Arundel County Department of Social Services, 2018

The Environment

Anne Arundel County is a place of natural beauty that can be enjoyed through two state and 70 county parks linked by an extensive network of recreation and transportation trails. With 534 miles of linear coastline, the county ranks second for waterfront in the state and second in the nation when compared to other counties. The county has a wealth of waters, including the Magothy River, the Upper Patuxent River, the Rhode River, the Severn River, the South and West Rivers and the Patapsco River.

The Chesapeake Bay is perhaps Anne Arundel County's most treasured natural resource, constituting the largest estuary in the United States. Many Anne Arundel communities are within one mile of the Bay shoreline. The 2016 State of the Bay Report from the Chesapeake Bay Foundation shows that each of the three indicator categories; pollution, habitat, and fisheries, have improved since 2014 (Table 1.) However, despite many efforts by federal, state, and local governments and other interested parties, pollution in the Bay does not meet existing water quality standards.

According to the Anne Arundel County Department of Public Works, all of Anne Arundel County's waterways are considered "impaired" because of excessive levels of major contaminants, which are largely a result of untreated storm water runoff. All storm water runoff ends up in nearby streams, rivers and eventually the Chesapeake Bay, without prior treatment. Since storm water comes into contact with litter, gasoline, oils, brake pad dust from cars, pesticides, waste from pets and many other toxins along its journey, storm water is a significant source of pollution to the county waterways.

Table 1: Chesapeake Bay Health Indicators, 2014 to 2016 Comparison

	Indicator	**2016**	**2014**	**Grade**
Pollution	Nitrogen	17	+1	F
	Phosphorus	28	+3	D
	Dissolved Oxygen	40	+3	C
	Water Clarity	20	+2	D-
	Toxins	28	0	D
Habitat	Forested Buffers	57	-1	B
	Wetlands	42	0	C
	Underwater Grasses	24	+2	D-
	Resource Lands	32	0	D+
Fisheries	Rockfish	66	+2	
	Blue Crabs	55	+10	B
	Oysters	10	+2	F
	Shad	11	+2	F

Chesapeake Bay Foundation, 2017

The Anne Arundel County Department of Health (2018) identified five potential groundwater problem areas for water quality within the county due to saltwater intrusion, volatile organic compounds (VOCs) and elevated levels of nitrate, radium, arsenic and cadmium. The areas are Annapolis Neck, Gambrills Area, Northern Anne Arundel County (generally all areas north of U.S. Route 50), Fort Meade/Odenton Area and the Annapolis/Edgewater Peninsula.

Lead in School Buildings

As of August, 2018, 19 public schools had unacceptable levels of lead in their drinking water. Although the Center for Disease Control does not set an unsafe level of lead, the U.S. Environmental Protection Agency recommends water be shut off at any faucet where lead levels exceed 20 parts per billion. Children are especially susceptible to lead poisoning. It can result in an array of negative health affects including reduced IQ, impaired growth, hearing loss and severe neurological problems. At Glen Burnie High School, 71 water outlets tested above that level. Of the elementary schools, 18 had at least one faucet at the unacceptable for lead level (Table 2.)

Table 2: Anne Arundel County Public Schools with Unacceptable Lead Levels

Schools with faucets above 20 parts per billion for lead	Number of faucets
Brooklyn Park Elementary School	23
Sunset Elementary	14
Hilltop Elementary	13
High Point Elementary	13
Overlook Elementary	10
Park Elementary	10
Belle Grove Elementary	8
Linthicum Elementary	5
Solley Elementary	5
Oakwood Elementary	3
Marley Glen Special Elementary	4
George Cromwell Elementary	2
Glendale Elementary	2
Richard Henry Lee Elementary	2
Woodside Elementary	2
Ferndale Elementary	1
North Glen Elementary	1
Point Pleasant Elementary	1

Maryland Department of the Environment, 2018

Air quality is another issue for the county. Anne Arundel was given an F by the American Lung Association in 2018 for an average of 13 high ozone days, a reduction from the 2013 rate of 23 days. High ozone causes respiratory harm (e.g. worsened asthma, worsened COPD, inflammation,) can cause cardiovascular harm (e.g. heart attacks, strokes, heart disease, congestive heart failure) and may cause harm to the central nervous system.

Summary

In 2018, Anne Arundel County is still a land of plenty. Low unemployment, high median household income, growing cultural diversity and acres of natural beauty make the county a desirable place to live. However, deep and stubborn pockets of poverty to the South and North of the county and in the City of Annapolis, require focused attention. As one administrator noted:

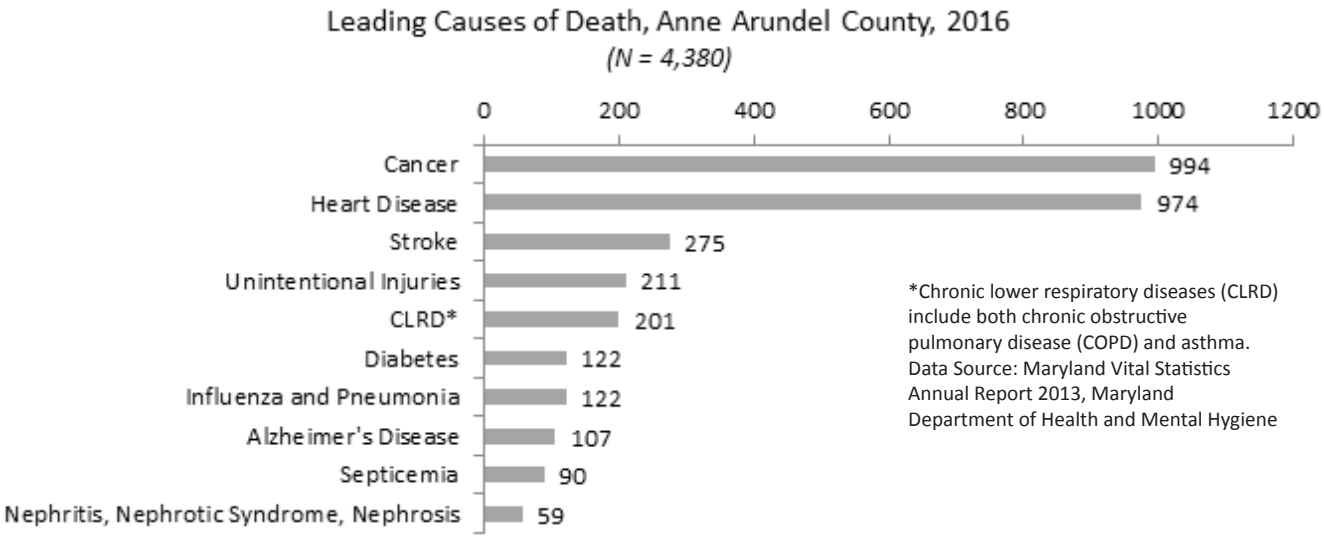
> There is a lot of suffering, there are a lot of people with challenges in this community and as good a job as we're doing, these problems are not going to be solved overnight.

While our bay and watersheds are improving, air quality is still an issue for vulnerable residents. Newly required testing for lead pollution in the drinking water at public schools points to the need for public action, especially at the elementary level when children are most susceptible.

Chapter 1 - Somatic Health

In 2016, there were 4,380 deaths in Anne Arundel County, and life expectancy was 79.6 years. Accidental (unintentional injury) deaths rose to the fourth leading cause of death driven by increases in opioid overdose deaths. Cancer was the leading cause of death, although these number have seen a 1 percent decrease since 2013 (Figure 7.) Overweight and obesity continue to drive poor health outcomes for the county, including secondary issues such as diabetes.

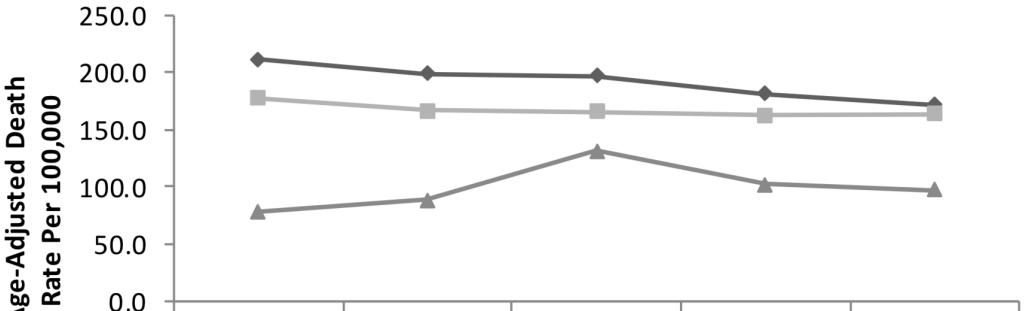
Figure 7: Leading Causes of Death, Anne Arundel County (2016)



Maryland Department of Health, Vital Statistics Administration, 2016

Heart disease accounts for 22 percent or 974 of all county deaths as of 2016. That number has risen almost 10 percent since 2013. Age-adjusted death rates for coronary heart disease decreased for Blacks and Whites between 2013 and 2016. While Blacks still have the highest death rates in the county per 100,000 residents, that number decreased by 18 percent in just three years . The decrease for Whites was only 8 percent (Figure 8.)

Figure 8: Age Adjusted Death Rate per 100,000 (2010-2016)



	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016
Black	211.8	199.0	197.2	181.8	171.7
White	177.5	167.2	165.7	163.0	163.9
Asian	78.4	88.3	132.0	102.5	97.0

Centers for Disease Control and Prevention, 2016

*Individuals of Hispanic origin were included within the White or Black estimates and are not listed separately.

Births

Many factors affect pregnancy and childbirth including the mother's pre-pregnancy health status, the mother's age at birth, access to health care and socioeconomic status (Anne Arundel County Department of Health, 2018.) In 2016, there were 6,994 births in Anne Arundel County. Of those births, 4,357 were non-Hispanic White, 1,251 were non-Hispanic Black and 896 were Hispanic. The Hispanic population is showing the greatest increase, at 15 percent, yet, according to participants, there is a lack of affordable OBGYN services for this population.

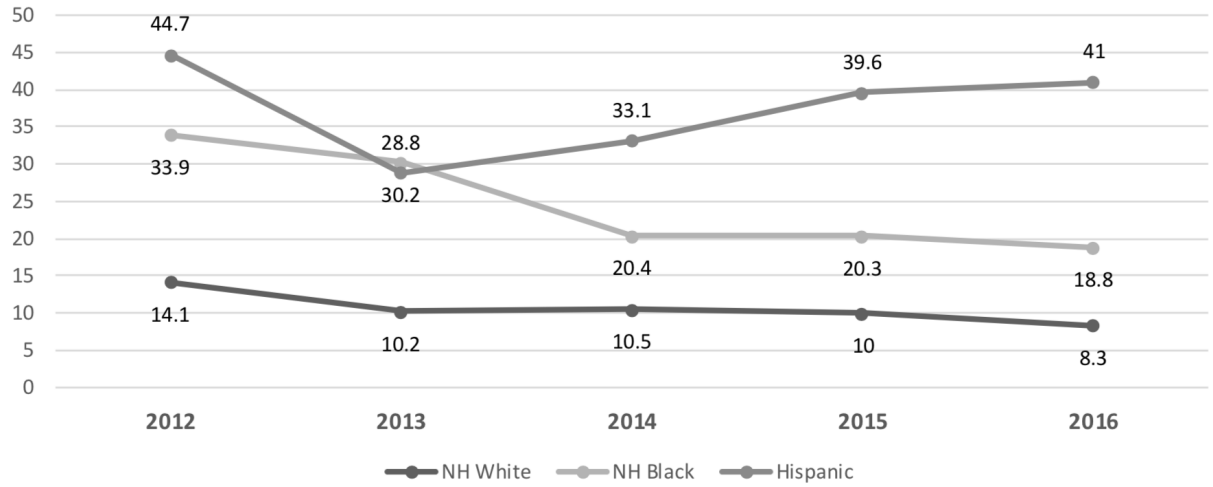
Table 9: Anne Arundel County Births by Race and Ethnicity (2012-2016)

Anne Arundel County Births by Race and Ethnicity 2012 - 2016					
	2012	**2013**	**2014**	**2015**	**2016**
Total	6,852	6,814	6,968	6,924	6,994
NH*White	4,514	4,399	4,483	4,383	4,357
NH Black	1,195	1,204	1,236	1,259	1,291
Hispanic	782	827	866	847	896

Anne Arundel County Department of Health, 2018

The teen birth rate has dropped for all races/ethnicities since 2012, although the Hispanic rate has shown an uptick since 2013. The Black teen birth rate has dropped by almost half since 2012 (Figure 9.)

Figure 9: Teen Birth Rates by Race/Ethnicity for Anne Arundel County (2012-2016)



Maryland Department of Health, Vital Statistics Administration, 2012-2016 Annual Reports

Infant Mortality

Infant mortality measures deaths during the first year of life. In 2016, there were 39 infant deaths in Anne Arundel County, with an overall infant mortality rate of 5.6 per 1,000 live births, lower than the State and the Nation (Table 10.) A significant disparity continues to exist between white and black infant mortality. In 2016, non-Hispanic black infants in Anne Arundel County had a mortality rate of 10.5 per 1,000 live births, double that for non-Hispanic white infants. The same disparity is seen at the state and national levels (Table 10.)

Table 10: Infant Mortality Rate Comparison (2012-2016)

Infant Mortality Rate Comparison, 2012 - 2016					
	2012	**2013**	**2014**	**2015**	**2016**
Infant Mortality- All Races per 1,000 Live Births					
Anne Arundel	6.4	5.6	5.7	5.1	5.6
Maryland	6.3	6.6	6.5	6.7	6.5
United States	6.0	6.0	5.8	5.9	5.9
Infant Mortality- Non-Hispanic White per 1,000 Live Births					
Anne Arundel	5.3	3.9	3.8	3.6	5.3
Maryland	3.8	4.6	4.4	4.0	4.3
United States	5.0	5.1	4.9	4.9	5.0
Infant Mortality- Non-Hispanic Black per 1,000 Live Births					
Anne Arundel	8.4	10.8	12.9	9.5	10.1
Maryland	10.4	10.6	10.7	11.3	10.5
United States	11.2	11.1	10.9	11.3	10.8
Infant Mortality- Hispanic (Any Race) per 1,000 Live Births					
Anne Arundel	7.7	7.3	**	**	**
Maryland	5.5	4.7	4.4	5.5	5.4
United States	5.1	5.0	5.0	5.0	5.0

** Rate not calculated, fewer than 5 deaths.

Maryland Department of Health, Vital Statistics Administration, 2012-2016 Annual Reports

U.S. Department of Health and Human Services, Healthy People 2020

Low Birthweight

Low birthweight is a term used to describe babies who are born weighing less than 2,500 grams (five and a half pounds.) In contrast, the average newborn weighs about 8 pounds. Risk factors for low birthweight include using street drugs and abusing prescription drugs, exposure to air pollution or lead, low socioeconomic status and domestic violence (March of Dimes, 2018.) Low birth weight infants run the risk of developing health issues, hyperactivity disorders and developmental issues, especially those developmental issues related to school achievement. The pre-conception and pre-birth health of the mother are contributing factors, often related to limited access to health and pre-natal care.

In Anne Arundel County, the percentage of low birth weight babies is dropping slowly and is less than the state average at 7.4 percent (Table 11.)

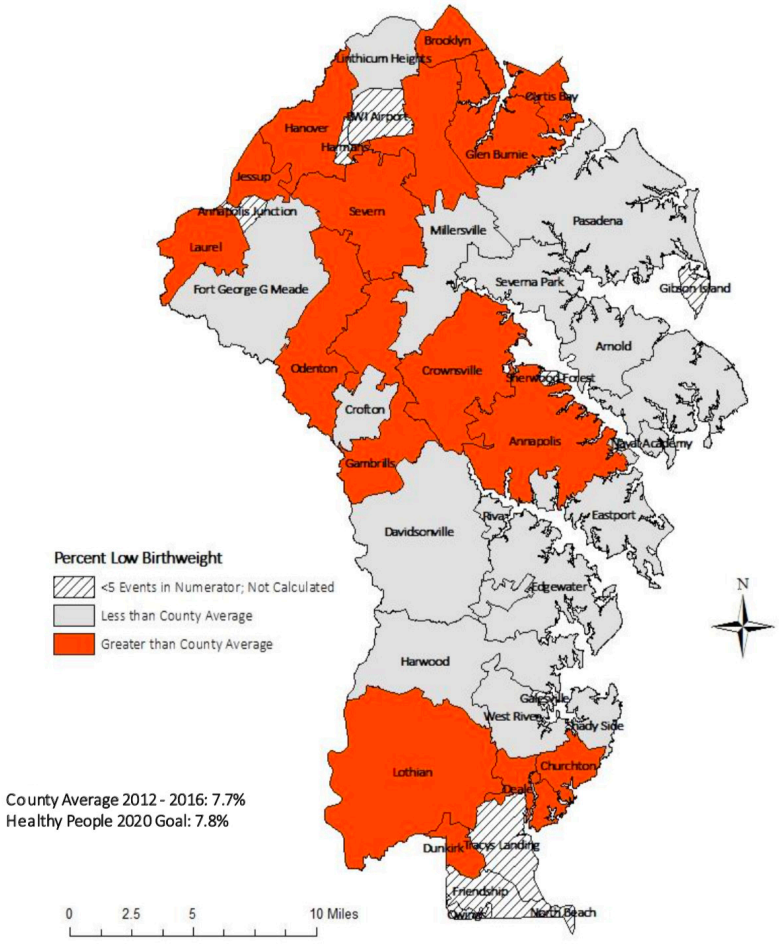
Table 11: Percentage of Babies Born of Low Birth Weight (2016)

Percentage of Babies Born of Low Birth Weight, 2016			
Percentage of Low Birth Weight (<2500 g) Babies	**Anne Arundel**	**Maryland**	**United States**
2014	7.5%	8.5%	8.0%
2016	7.4%	8.6%	8.2%

Anne Arundel County Department of Health, 2018

There are several ZIP Codes concentrated in the northern part of the county where the percentage of low birth weight infants is much higher than 7.5 percent, especially in the North of the County (Figure 10.)

Figure 10: Anne Arundel County Percent Low Birth Weight by ZIP Code



Anne Arundel County Department of Health, 2018

Health Care Access

The Affordable Care Act (ACA) continues to increase county residents' access to health care. Under the ACA, persons whose income is up to 138 percent of the poverty level are eligible for Medicaid. Persons whose income is above 138 percent but below 400 percent of the poverty level have the option to purchase health insurance through the Maryland Health Connection (the state's insurance marketplace/exchange). However, access issues remain. As one respondent commented:

> People believe they have access to healthcare on the Medicaid side but there's so many that do not accept Medicaid and that's a real barrier to access and then people who have the high deductible health plans can't make their deductible

A small percentage of county residents such as undocumented persons, those not enrolled in Medicaid despite being eligible, and persons opting to pay the annual penalty instead of purchasing insurance, still remain uninsured. However, the percent of uninsured residents in Anne Arundel County continued to decline, reaching a low of 5.3 percent of residents in 2018.

The number of Medicaid enrollments increased from 84,616 in 2014 to 93,425 in May 2018, a ten percent increase (Table 12.) Specialist care is an access issue for the Medicaid and uninsured populations. While primary care may be accessible through community health clinics, finding specialists who will take referrals without private insurance is difficult. As one provider noted:

> We can use preventive primary care – there's no problem with that, but if someone needs cardiology or oncology and they are uninsured, not all specialists will see them or do payment plans – that's an access to care issue

Table 12: Medicaid Enrollment by Age, Sex and Race/Ethnicity, Anne Arundel County (May 2018)

Medicaid Enrollment by Age, Sex and Race/Ethnicity Anne Arundel County, May 2018		
	Medicaid Enrollment 2014	**Medicaid Enrollment 2018**
Total Enrollment	84,616	93425
Age		
Under 20 Years	37,843	44572
21 to 64 Years	43,040	44216
65 Years and Over	3,733	4637
Sex		
Male	37,186	42133
Female	47,430	51292
Race/Ethnicity		
White, NH	39,793 (47%)	35824
Black, NH	25,193 (30%)	22718
Hispanic, Any Race	6,349 (8%)	920
Asian	3,829 (5%)	4274

Maryland Department of Health, 2018

Access to Outpatient Care

Access to outpatient care is a continuing issue in the county. Having a primary care provider reduces nonfinancial barriers to obtaining care, facilitates access to services, and increases the frequency of contacts with health care providers. Without a primary care provider, people have more difficulty obtaining prescriptions and attending necessary appointments. According to county health rankings, the patient to primary care physician ratio in Anne Arundel (1,450:1) is worse than in Maryland (1,140:1) and the U.S. top performing counties which are among the 90th percentile in ranking (1,030:1). The actual number of primary care physicians in the county has increased by only five since 2014 (Table 13.) As one provider noted:

> The percentages (primary care doctors) are still low and that's still a problem. I think primary care docs do have large caseloads and that is hard on folks. But I just think we need to make primary care more attractive to medical schools.

Similarly, the patient to dentist and mental health providers' ratio in Anne Arundel is worse than in Maryland and the U.S. top performing counties.

Table 13: Primary Care Physicians, Dentists and Mental Health Providers in Anne Arundel County (2018)

Primary Care Physicians, Dentists and Mental Health Providers Anne Arundel County, Maryland				
	Anne Arundel County Total	**Anne Arundel County Ratio**	**Maryland Ratio**	**Top U.S. Counties (90th percentile)**
Primary Care Physicians (2018)	386	1,450:1	1,140:1	1,030:1
Dentists (2018)	378	1,480:1	1,320:1	1,280:1
Mental health providers (2018)	861	650:1	460:1	330:1

County Health Rankings, Anne Arundel County Department of Health, 2018

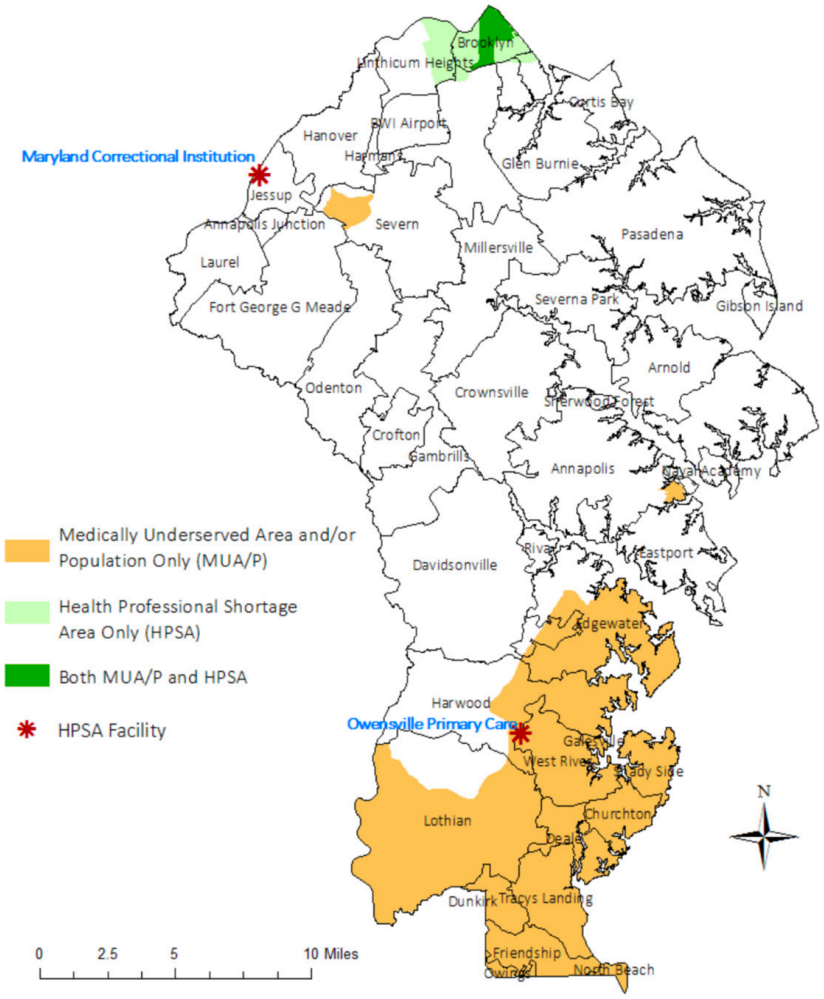
Heath Professional Shortage Areas

Health Professional Shortage Areas (HPSAs) are designated by Health Resources and Services Administration (HRSA) as having shortages of primary medical care, dental or mental health providers and may be geographic or facility-based. In Anne Arundel County there is currently one designated Primary Care HPSA facility (Owensville Primary Care), 1 Dental HPSA facility (Owensville Primary Care) and 2 Mental Health HPSA facilities (Owensville Primary Care and Maryland Correctional Institution, Jessup.)

Medically Underserved Areas

Medically Underserved Areas (MUA) are designated based on four variables: ratio of primary medical care physicians per 1,000 population, infant mortality rate, percentage of the population with incomes below the poverty level, and percentage of the population age 65 or over. There are 11 census tracts in Anne Arundel County which are designated as medically underserved areas or populations. Approximately 54,700 (10 percent) of the county's population lives in these 11 census tracts. Brooklyn Park in North County is both an HPSA and an MUA.

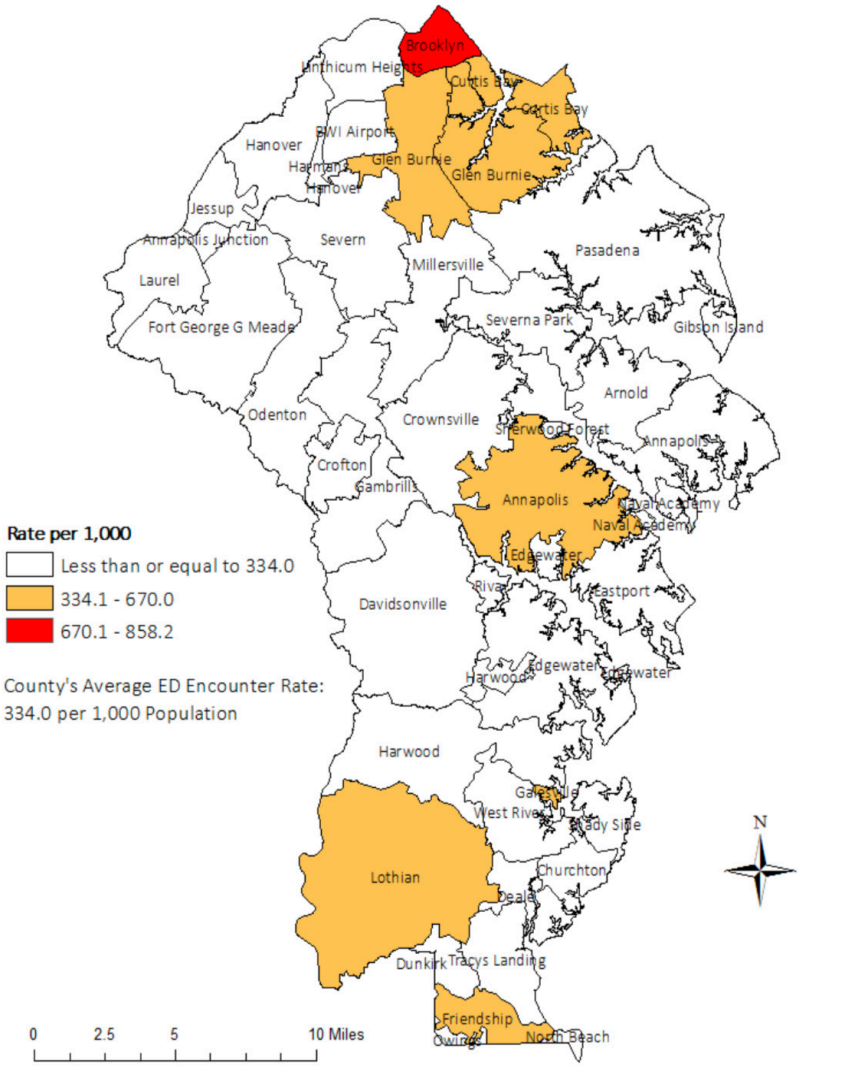
Figure 11: Health Professional Shortage Areas in Anne Arundel County



Anne Arundel County Department of Health, 2018

In 2016, 9.6 percent of Emergency Department visits were by uninsured residents. Although not all visits to the Emergency Department are avoidable, care in lower level settings for some conditions, such as diabetes and hypertension, can potentially reduce the number of visits, thereby reducing costs and increasing the quality of care. (Anne Arundel County Department of Health, 2018.) The rate of Emergency Department visits increases for those residents living in Medically Underserved and Health Professional Shortage Areas (Figure 12.)

Figure 12: Emergency Department Encounters per 1,000 Population by ZIP Code, Anne Arundel County, 2017



Anne Arundel County Department of Health, 2018

Senior Health

Most seniors have at least one chronic health condition, and many have multiple conditions. The top five conditions seniors suffer from are hypertension, hyperlipidemia, arthritis, ischemic heart disease and diabetes (Administration on Aging Administration for Community Living, 2018.) According to participants, chronic health issues are often created by such social determinants of health as poverty and the lack of caring friends and relatives; both increasingly common in the Medicare population.

Multiple participants noted that the seniors they served are prescribed a lot of different medications for health and behavioral health issues as they age. Many prescriptions are multiples of the same kind of medicine, some of which do not react well together. Often seniors have issues remembering to take pills at the right time and in the right dose. As one participant noted:

> We've had some seniors on 26 different medications. The truth of the matter is that there's 10 in their purse, 10 different ones in their cabinets, there's a couple on their night stands, they don't know where one is, maybe they couldn't afford the other one and it's still sitting at the pharmacy.

The number of Medicare beneficiaries is rising in the county as a result of the growing senior population. The county has served almost 3,000 new beneficiaries in the last three years. The number who are also eligible for Medicaid, due to low income, rose from 10.9 percent to 11.3 percent in three years (Table 14.) Half of all people on Medicare have incomes less than $26,200 (Jacobson, Griffin and Neuman (2017.)

Table 14: Medicare Beneficiaries in Anne Arundel County, 2013-2016 Comparison

Medicare Beneficiaries in Anne Arundel County 2013 - 2016 Comparison		
Beneficiary Demographic Characteristics	**2013 (Number or Percentage)**	**2016 (Number or Percentage)**
Beneficiaries with Part A & Part B	75,607	78,529
Fee-for-service Beneficiaries	69,420	70,606
Medicare Advantage (MA) Beneficiaries	6,187	7,923
Average Age	72 years	72
Female	56.2%	56.5%
Male	43.8%	43.5%
White, NH	82.2%	81.5%
Black	31.1%	12.5%
Hispanic, Any Race	1.3%	1.6%
Eligible for Medicaid	10.9%	11.3%

Anne Arundel County Department of Health, 2018

Hospital Admissions

In 2017 there were 59, 277 hospital stays in Anne Arundel County; a rate of 104.3 stays per thousand (Table 15.) The hospitalization rate increased with age from 68.7 hospitalizations per 1,000 population among 0–18 year olds, to 262.5 hospitalizations per 1,000 population among those aged 65 years and over. (Note: This data only includes Anne Arundel County residents admitted to hospitals in Maryland.)

Table 15: Inpatient Hospitalizations in Anne Arundel County (2017)

Inpatient Hospitalizations Anne Arundel County 2017		
	Number	**Rate per 1,000**
Total Hospitalizations	59,277	104.3
Age		
0 to 18 Years	9,763	68.7
19 to 39 Years	12,917	83.3
40 to 64 Years	16,607	84.9
65 Years and Over	19,990	262.5
Sex		
Male	25,656	92.7
Female	33,621	118.8
Race/Ethnicity		
White, NH	38,719	96.9
Black, NH	11,747	132.5
Asian, NH	1,271	62.1
Hispanic (Any Race)	3,368	84.7

Anne Arundel County Department of Health, 2017

The rate changes depending on ZIP code. The ZIP Code containing Brooklyn Park has the highest rate of hospitalization at 163.9 per 1,000 residents. The Glen Burnie rates are also notable when population density is considered (Table 16.)

Table 16: Inpatient Hospitalizations by ZIP Code, Anne Arundel County, 2017

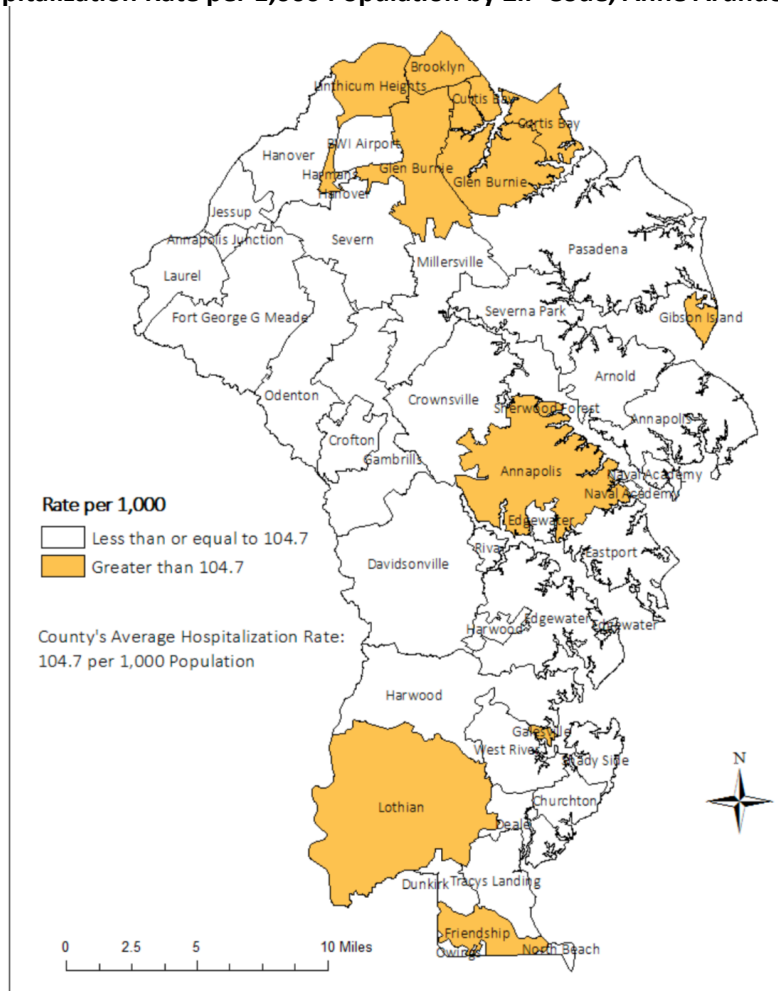
Inpatient Hospitalizations by ZIP Code Anne Arundel County 2017			
Town	**Zip Code**	**Number**	**Rate per 1,000**
Brooklyn	21225	2396	169.3
Curtis Bay	21226	555	126.4
Friendship	20758	66	155.3
Galesville	20765	53	147.2
Glen Burnie (East)	21060	4307	133.9
Glen Burnie (West)	21061	6717	123.8

Anne Arundel County Department of Health, 2018

Lack of access to primary care, multiple health issues presenting at the same time, poverty, unhealthy food and lack of medication management were reasons given for the high rates. As one provider noted:

> We have seen a huge increase in the acuity of our patients… they have multiple issues; congestive heart failure and renal failure and diabetes not just one. A number of patients with very complex and multiple issues along with poor social determinants of good health.

Figure 13: Hospitalization Rate per 1,000 Population by ZIP Code, Anne Arundel County (2017)



Anne Arundel County Department of Health, 2017

Limited English Proficient Residents

The numbers of Limited English Proficient residents are growing, especially in North County. Hospitals are required to serve such residents and provide translation services. Several participants noted a rise in the population. Anecdotal information suggest their health needs are also being served in community health clinics. While the numbers of bi-lingual health care professionals appear to be growing slowly, there is a lack of interpreters who understand medical terminology. As one provider recounted:

> We have a patient who saved months for his neurological, to see a neurosurgeon for follow up; $715 a visit which he knew ahead of time, and he and his wife scrimped and saved and they went in. The wife had to translate, she has no medical knowledge whatsoever. And the gentlemen left with no idea what the guy said.

Summary

Overall, the physical health of county residents and their access to health services have improved since 2014. However, in the densely populated areas of Glen Burnie and Brooklyn Park, (Health Professional Shortage and Medically Underserved Areas) costs are being driven up by emergency room visits and increased hospitalization rates. Environmental issues continue to put the Chesapeake Bay, its shoreline, and county rivers at risk.

Needs

- Increased numbers of community health clinics, especially in Medically Underserved Areas
- A plan to recruit primary care physicians.
- Limited English Proficient services
- Access to specialist services for the uninsured and the Medicaid population
- Medication management for Seniors
- Healthy living and preventative health care to avoid hospitalizations
- A plan to address the social determinants of health.
- Increased focus on areas of high need and few resources; Brooklyn Park and Glen Burnie, Annapolis and South County.

Mental Health

The rise in behavioral health issues for every age group, and the lack of appropriate services and service providers, were the major concerns for all participants in this needs assessment. These issues are exacerbated by providers who don't accept Medicaid and Medicare, and patients with inadequate health insurance, or no insurance at all. Overall there has been a 70 percent increase in residents seeking public mental health services since 2012; 16,343 residents were served by the county mental health agency in 2018 (Table 17.) The two highest increases in residents served are the early childhood population and those over 65. Participants in this needs assessment shared many opinions as to why mental health issues are increasing including, poverty, isolation, social media, increasing societal violence, the fast pace of a technological world and the reduction of stigma around mental health services. Several commented on the intergenerational and socio economical nature of mental health. As one provider noted:

> I think you go back to the families that are struggling in poverty who are multi-generational and living together; it's the hereditary piece. It's the third generation bipolar schizophrenic whose child is showing ADHD acting out behaviors where we know we worked with Mom 10 years prior or the Grandmother. We're dealing with more at an even younger age, you're talking first and second grade.

Table 17: Individuals Served in the Public Mental Health System (2012-2018)

Individuals Served in the Public Mental Health System 2012 - 2018							
Age Range	**FY 2012**	**FY 2016**	**FY 2017**	**% Change**	**FY 2018**	**% Change**	**% Increase 2012-2018**
Early Child (0-5)	392	460	492	7.0%	548	11.4%	**40%**
Child (6-12)	1,821	2,596	2,774	6.9%	2,999	8.1%	**65%**
Adolescent (13-17)	1,388	1,923	1,929	0.3%	2,128	10.3%	**55%**
Transitional (18-21)	586	792	884	11.6%	926	4.8%	**58%**
Adult (22 to 64)	5,351	8,520	9,036	6.1%	9,628	6.6%	**80%**
Elderly (65 and over)	59	92	105	14.1%	119	13.3%	**102%**
TOTAL	**9,597**	**14,383**	**15,220**	**5.8%**	**16,348**	**7.4%**	**70%**

* Based on claims paid through September 30, 2018.

Anne Arundel County Mental Health Agency, 2018

The County's hospital Emergency Departments are often the receiving facilities for behavioral health issues. In 2017, there were 12,446 behavioral health encounters; mood disorders accounted for 26.3 percent of those and over 20 percent were alcohol related (Table 18.)

Table 18: ED Encounters for Behavioral Health Conditions in Anne Arundel County (2017)

ED Encounters for Behavioral Health Conditions, Anne Arundel County 2017			
	Condition	**Frequency**	**Percent**
1	Mood Disorders	3,277	26.3
2	Alcohol-Related Disorders	2,546	20.8
3	Substance-Related Disorders	2,212	17.8
4	Anxiety Disorders	1,654	13.3
5	Suicide and Intentional Self-Inflicted Injuries	724	5.8
6	Schizophrenia and Other Psychotic Disorders	655	5.3
7	Attention-Deficit Conduct and Disruptive Behavior Disorders	379	3.1
8	Delirium Dementia and Amnestic and Other Cognitive Disorders	348	2.8
9	Adjustment Disorders	295	2.4
10	Miscellaneous Mental Health Disorders	112	0.9
	Total	12,446	

Anne Arundel County Department of Health, 2018

Access

The Affordable Care Act continues to increase access to mental health services through expanded Medicaid services. The total numbers served in the county public mental health system have increased 13 percent in two years from 14,383 in 2016 to 16,348 in 2018 (Table 17.) Those with private insurance struggle the most to access care due to limited coverage, high deductibles, time limits and providers who will not accept private insurance. As one provider noted:

> The clinical mental health services, the co-pays and deductibles in the new insured world will break your back. If you're pay check to pay check and you need a 30 dollar co-pay once a week, for the next six weeks, that probably isn't going to happen

Table 19: Three Year Comparison for Medicaid Insured and Uninsured Individuals

Three Year Comparison Medicaid/Uninsured					
	Persons Served				
	FY 2016	**FY 2017**	**% Change**	**FY 2018**	**% Change**
Medicaid	13,824	14,626	5.80%	15,694	7.30%
Medicaid State Funded	1,923	2,342	21.80%	2,591	10.60%
Uninsured	746	488	-34.60%	642	31.60%
Total	**14,383**	**15,220**	**5.80%**	**16,348**	**7.40%**

Anne Arundel County Mental Health Agency, 2018

The number of out-patient mental health providers in the county continues to grow; an increase of 4.6 percent from 366 in 2014 to 383 in 2018. However, the ratio of mental health providers to residents in the county is much lower than the state (Table 20.)

The county lacks psychiatrists and geriatric psychiatrists, especially for those residents with dementia and Alzheimer's. According to public mental health providers there is one Spanish-speaking psychiatrist in the county available to the Hispanic uninsured population. There are very few Spanish speaking mental health counselors.

Table 20: Mental Health Providers in Anne Arundel County, Maryland 2018

Mental Health Providers Anne Arundel County, Maryland				
	Anne Arundel County Total	**Anne Arundel County Ratio**	**Maryland Ratio**	**Top U.S. Counties (90th percentile)**
Mental health providers (2018)	861	650:1	460:1	330:1

Anne Arundel County Department of Health, 2018

Residential services are a growing and urgent need. In Anne Arundel County, there are only 24 crisis temporary beds and only one inpatient psychiatric unit with 24 beds which is located in Northern Anne Arundel County. Those beds are virtually always full. There are 263 beds for the chronically mentally ill scattered throughout the county. There are no residential services for adolescents. Both hospitals are currently expanding their mental health services as a result. University of Maryland Baltimore Washington Medical Center (UMBWMC) just added ten beds to their in-patient psychiatric unit which will allow them to serve 650 more residents per year. Anne Arundel Medical Center (AAMC) broke ground on a new mental health hospital in 2018 which will add 16 beds and serve 900 patients. The need is overwhelming. As one provider noted:

> So if you come to our campus with a broken bone, I've got 30 orthopedists who want to fix your bone. But if you come to our hospital with a broken soul, we've got [few psychiatrists].

Mental Health and Behavioral Issues in Early Childhood

Increased mental health and behavioral issues in the birth to five early childhood population are causing widespread concern in every system. Behavioral problems in children as young as two years old are disrupting child care facilities including Early Head Start and Head Start. They are causing consternation for parents and increasing stress for preschool and kindergarten teachers. Hospital personnel described young children in the emergency room as "totally out of control" and physically assaulting staff who try to calm them. Parents are described as "exhausted and desperate - looking for a place they can keep their child safe." As one provider commented:

> The shift is more and more towards the younger set. It used to be that when five, six, and seven year olds came in we thought they just needed better parenting. We don't say that anymore because a lot of these kids are really sick. About 50% of them need to be hospitalized

Professionals are divided as to the cause of this increase but they all agree that this is a new phenomenon unrelated to income. Many suggested the use of social media by parents and young children is leading to huge deficits in social and emotional skills. It is no longer surprising to see young children "biting, scratching," and even "throwing chairs" in kindergarten classrooms. Children as young as two are being diagnosed with Attention Deficit Disorder and medicated accordingly.

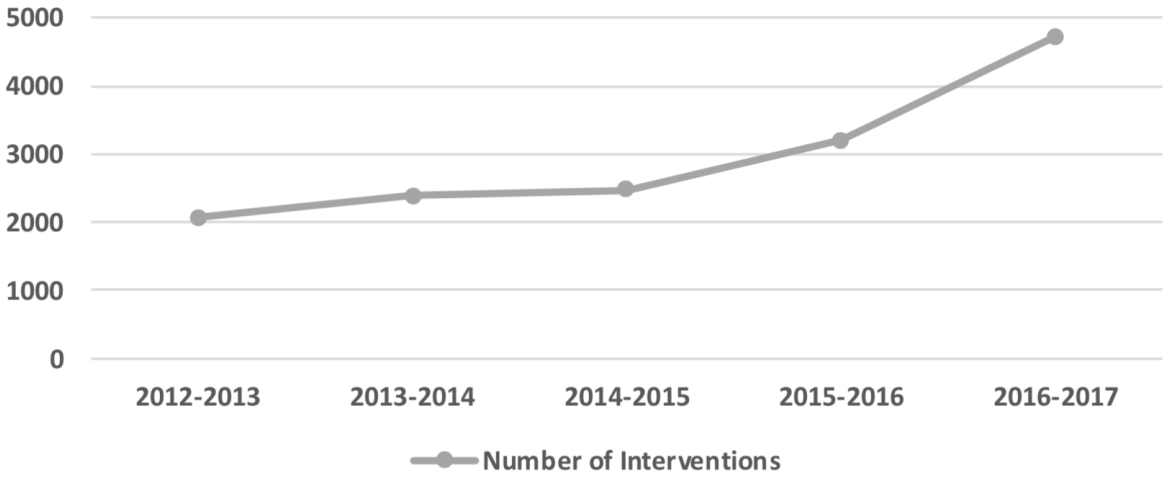
Some serious mental health issues are surfacing earlier; often co-occurring with developmental issues such as autism. As one professional commented "we've seen some kids with even psychotic issues at a very young age." According to the Anne Arundel County Mental Health Agency (2018) the birth to five population is showing another large increase in use of mental health services, a rise of 11.4 percent in one year (Table 17.) Yet there is a huge lack of resources inside the public school system and within the community for this age group. According to participants from hospitals and schools, suicidal ideation and "cutting" behaviors are becoming more and more common at the elementary school level. Pediatricians are attempting to manage the crisis, usually with medications. Many professionals commented that for the 0- 5 population, parents are the most important piece of the picture. As one noted:

> If you took the child out of the environment would we still see the behavior? It is not just the traditional (intergenerational poverty) environments, it is truly parents. Even if you have an environment that feels or looks okay you may have a parent who is not skilled. We obviously have more vulnerable families who have issues with opioids. There may be kids acting out, but when you see the parenting up close …

Mental Health and Older Youth

The Anne Arundel County Department of Health provides school health services to all public school students through school health assistants and nurses. The nurses' work with school system guidance counselors to address students' physical and mental health issues as they are identified and coordinate interventions as needed. The number of crisis interventions in the public school system for social and emotional issues has doubled since 2013 (Figure 14.)

Figure 14: Number of Crisis Interventions for Social/Emotional Problems in Anne Arundel County Public Schools (2012-2017)

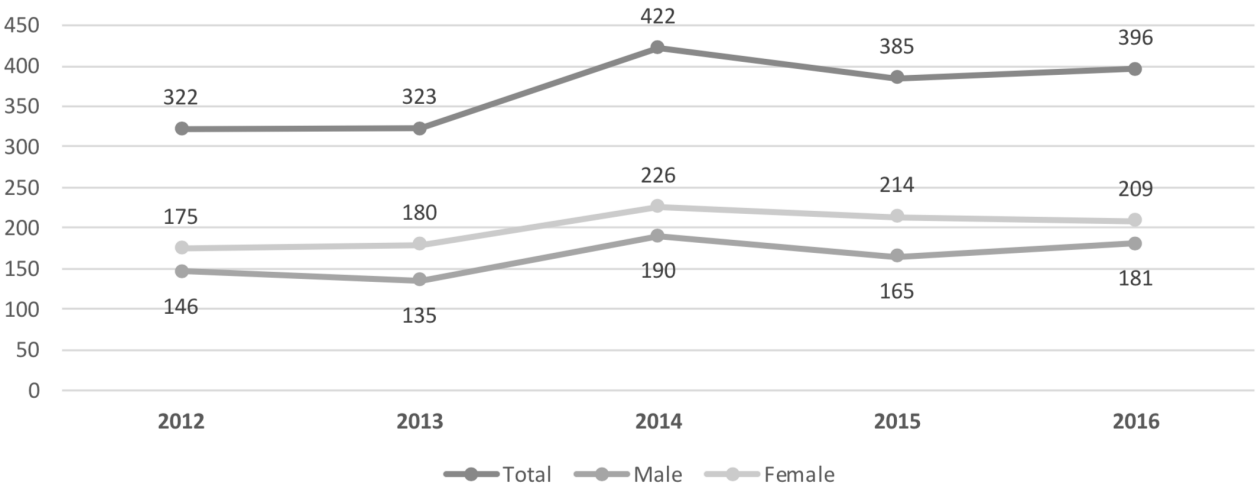


Anne Arundel County Department of Health, 2018

As of 2016, the Anne Arundel County youth suicide rate was 7.8 per 100,000, an increase compared to the rate of 5.3 per 100,000 in 2012. The Centers for Disease Control and Prevention (CDC) estimates that for each youth suicide, there are 25 suicide attempts. Between 2012 and 2016, there were 1,306 Emergency Department encounters in Maryland hospitals for suicide attempts by Anne Arundel County youth aged 10 to 24 years, an average of 261 per year. Similar to the completed suicides among this age group, there were more Emergency Department encounters for suicide attempts between 2012-2016 (compared to the previous report for 2008-2012,) costing Emergency Departments an estimated $1.1 million (Anne Arundel County health Department, 2016.). According to the 2016 High School Youth Risk Behavior Survey, the percentage of Anne Arundel County high school students who felt so sad or hopeless almost every day for 2 weeks in a row that they stopped doing some usual activities, increased significantly between 2014 and 2016.

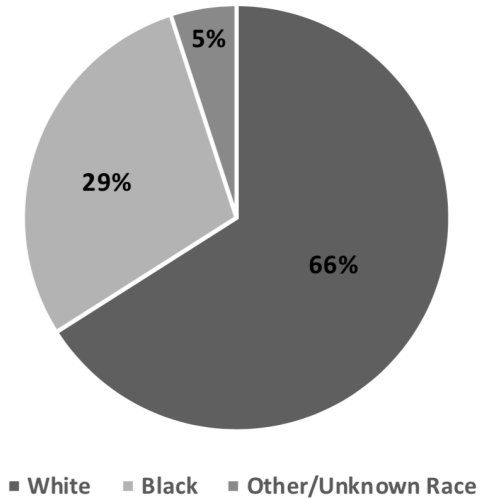
The number of Emergency Evaluations by county police for juvenile suicidal or out of control behavior has been steadily rising since 2012 (Figure 15.) County police performed over 1,800 emergency evaluations for juveniles (ages 17 years and under) for suicidal or out of control behavior from 2012 through 2016. Two thirds of the juveniles were White, 29 percent Black (Figure 16.)

Figure 15: Emergency Evaluations Reported by Anne Arundel County Police for Juvenile Suicidal or Out of Control Behavior by Sex (2012-2016)



Anne Arundel County Department of Health, 2016

Figure 16: Emergency Evaluations Reported by Police for Suicidal or Out of Control Behavior by Race (2012 – 2016)



Anne Arundel County Police Department, 2016

Participants emphasized the growing mental health issues for youth throughout the school system. Cutting behaviors, depression and anxiety are increasing. There has been an over ten percent rise in mental health services for those youth 6-12 years since 2016 and an 8.1 percent rise in those age 12-17 years. Educators stressed that many children are impacted by trauma, poverty and substance abuse issues at home. As one noted:

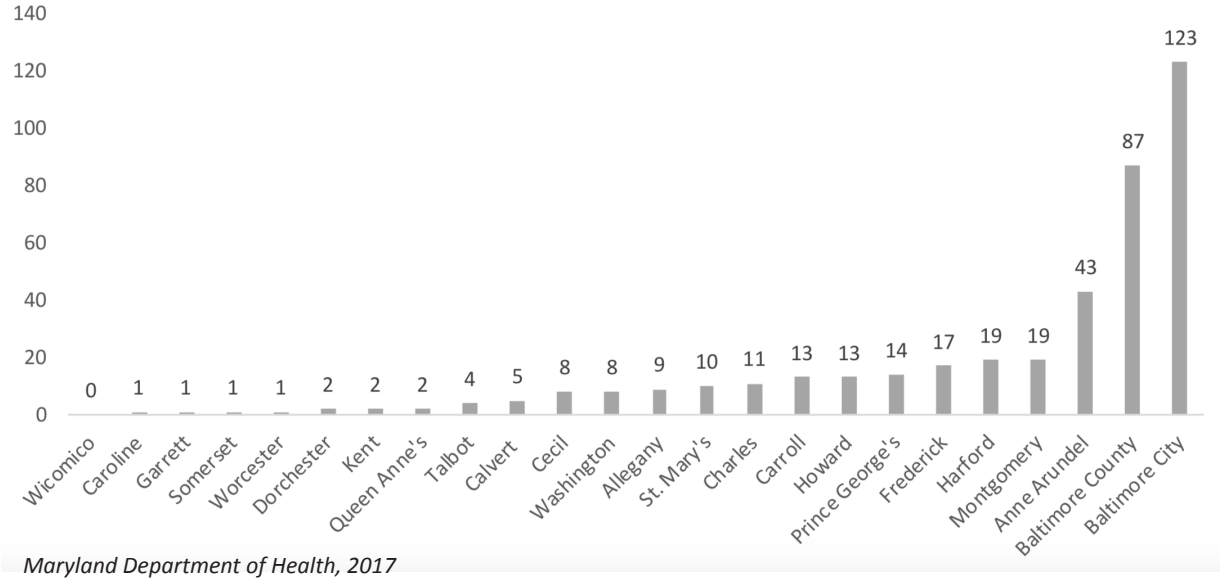
> We have kids that are totally out of control. It's coming from a multitude of factors, and lack of parenting is a huge piece of it. The worst three cases I can think of we had parents who were on pills, one experiencing homelessness and one about to be evicted.

The Opioid Crisis

Prescription Opioids

Prescription opioid addiction is now a major public health crisis. Although Anne Arundel County is the fifth largest county in the state in terms of population, it has the third highest rate of prescription opioid related deaths as of 2017 (Figure 17.)

Figure 17: Number of Prescription Opioid-Related Deaths Occurring in Maryland by Place of Occurrence (2017)



Maryland Department of Health, 2017

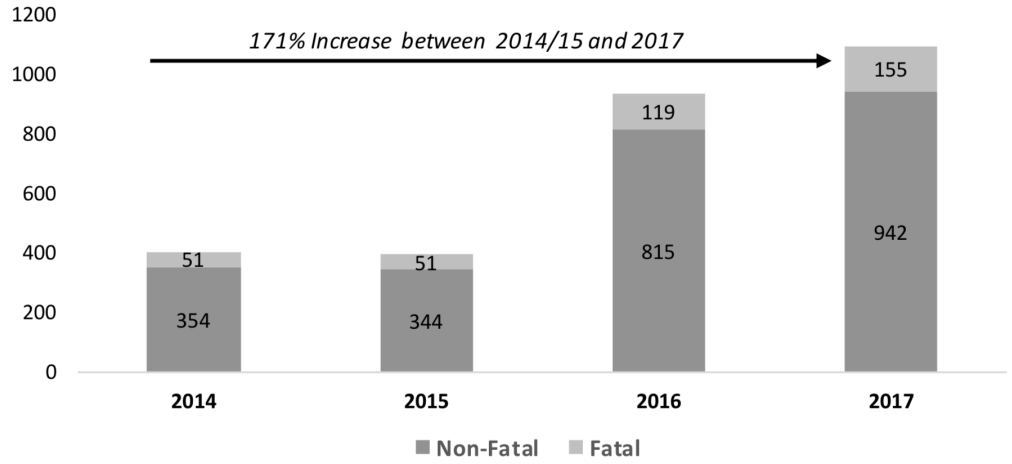
County health professionals acknowledge that, while opioids are helpful to patients with extreme pain issues, opioid addiction is a major issue. The medical community has tightened regulations and behaviors around opioids and 2017 saw the first decrease in prescription overdose use since 2013, from 48 to 43 deaths (Maryland Department of Health, 2018.) According to one provider, it is important to manage pain but at the same time make sure excess supply is diminished:

> We don't want to withhold pain medicine from patients (who need it) but decrease the excess supply that is sitting out there in everyone's medicine cabinets.

Opioid/Heroin Overdoses

In 2017, Anne Arundel County police reported almost 1,100 opioid-related overdoses occurring within the county, a 171 percent increase since 2014 (Figure 18.)

Figure 18: Opioid-Related Overdoses Occurring in Anne Arundel County (2014-2017)



Note: In 2017, there were 117 Persons with 2 or more overdoses.

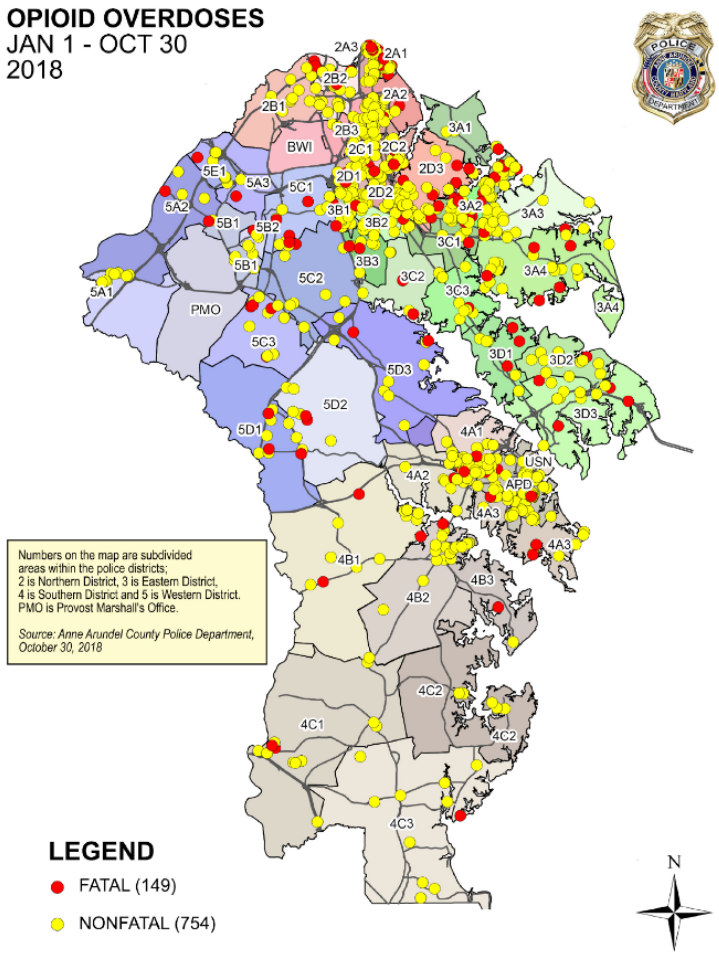
Anne Arundel County Police Department, 2018

As of October 30, 2018, there were 903 total overdoses year to date, a 1.4 percent decrease from 916 in 2017 (Figure 19.) Several county initiatives have contributed to that reduction including the very successful Safe Stations program. As of April 20th, 2017, every police and fire department in the City of Annapolis and Anne Arundel County is designated as a safe environment for those suffering from heroin/opioid addiction. Substance can ask for help 24 hours a day and are offered recovery services.

However, the rate of fatal overdoses continues to increase, driven by the introduction of fentanyl into the community. Fentanyl-related deaths in the county have increased significantly since 2013 and surpassed heroin related deaths through currently reported data for 2017. Year to date 2018 there have been 149 fatal overdoses as opposed to 2017, a 13.7 percent increase. As with other county issues, geography plays a part. The majority of overdoses occur in North County and Annapolis. Several participants pointed to Glen Burnie as the number one area for opioids. As one provider noted:

> I would like to see more suboxone providers in Glen Burnie because we know that this is a heroin saturated zip code and there are very few docs that prescribe suboxone.

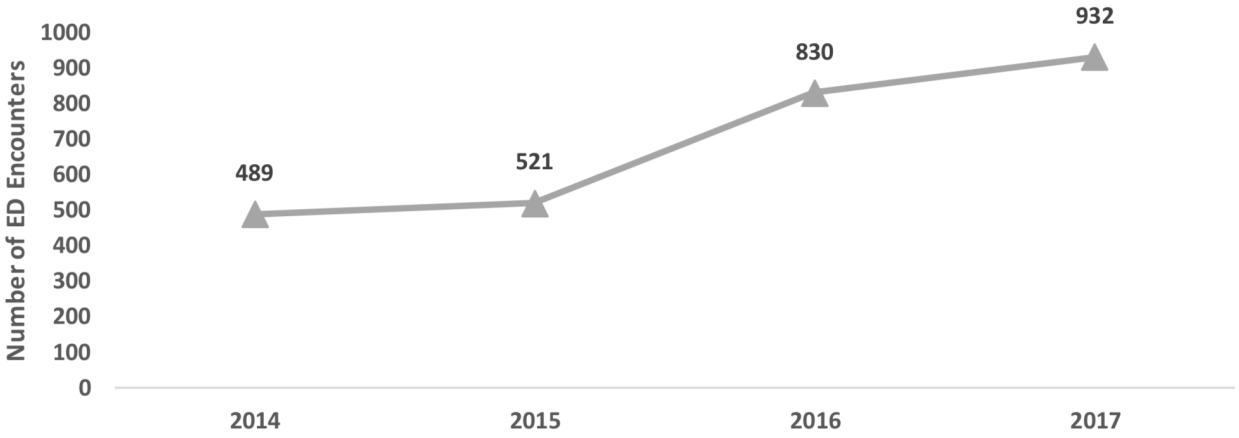
Figure 19: Opioid Overdoses January to October 2018 in Anne Arundel County



Anne Arundel County Police Department, 2018

Opioid related overdoses are also causing issues for hospital emergency departments. The rate of emergency department opioid overdose encounters for Anne Arundel County residents has risen 91 percent since 2014 from 489 to 932 (Figure 20.) The percentages are uneven for the two county hospitals. UMBWMC accounted for 45 percent of the hospital encounters for opioid related diagnoses in 2018, year to date, whereas AAMC accounted for 19 percent.

Figure 20: ED Encounters for Opioid-Related Overdose in Maryland Hospitals, Anne Arundel County Residents (2014-2017)



Anne Arundel County Department of Health, 2018

Secondary Victims of the Opioid Crisis

The current opioid crisis has many victims. The number of newborns assessed positive for substances in their systems, including methadone, has risen 144 percent since 2014 from 74 to 181 (Department of Social Services, 2018.) Grandparents and great grandparents are raising children with little governmental help. Many are on fixed incomes and have health and other issues to contend with. As one participant pointed out:

> We need support for these grandparents. I have an 85 year old who is a retired nurse raising a second grader. It's actually her great grandchild. She came to a meeting with a notebook like I had, trying to keep track of the systems and how to navigate them.

According to all participants, the children of opioid victims are traumatized and ashamed. Several suggested we need narcotics support groups for teen family members. Young children born into homes where heroin is used may be neglected, may have spent periods homeless or living in a tent, as with the case of an 18 month old in Glen Burnie in 2017. There were numerous examples of very young children left alone or strapped into a car seat 24 hours a day. As one provider noted:

> Sometimes we're not seeing these kids 'til kindergarten or coming in to pre-k, but when they were two Dad was a heroin addict and put the kid in the closet.

According to the participants in this needs assessment, teens who have an addicted single mother or father, or who are living with grandparents, are taking care of their siblings, finding places to sleep, selling drugs for rent and visiting food pantries. As one participant commented:

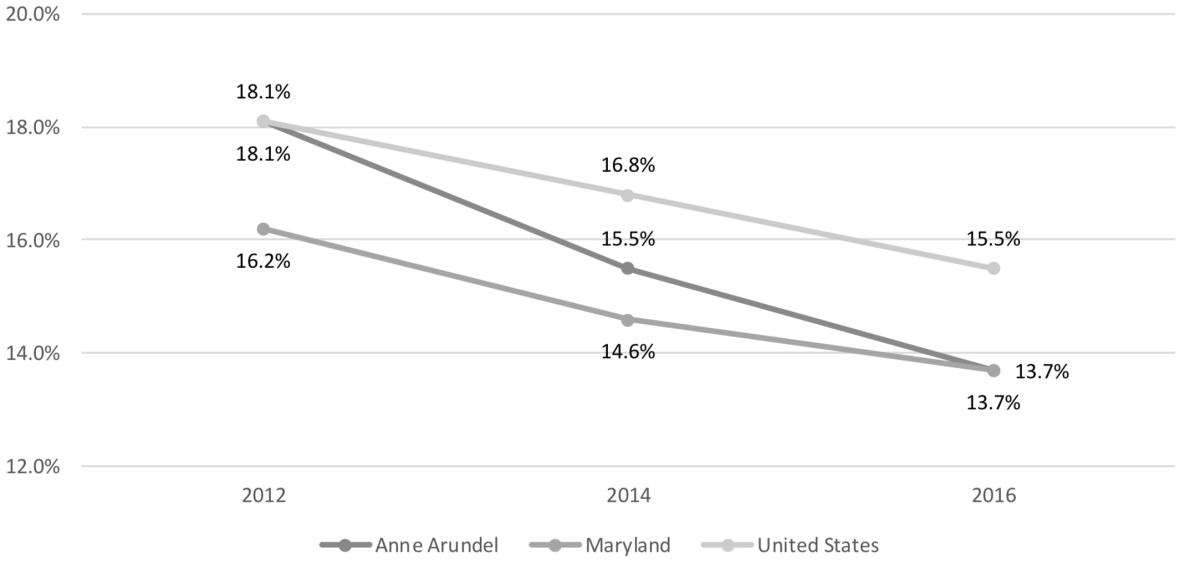
> Like the 17 year old who finds her Mom dead of an overdose in a hotel and goes to school the next day and begs the school for help. This epidemic is not going away…every family is impacted so what are we doing with that? You've got fathers, and mothers, and aunts, and uncles who are dying. What are we doing with that?

Other Substance Use

Tobacco

Smoking is associated with an increased risk of heart disease, stroke, lung and other types of cancers, and chronic lung diseases (Centers for Disease Control, 2018.) The rate of adult tobacco use has continued to drop in the county and is now equal to the state and less than the nation (Figure 21.) According to the 2016 Middle School Risk Behavior Survey, cigarette smoking by Anne Arundel Middle School students is trending significantly downwards. However, many participants commented on the increased use of e-cigarettes and vaping, in and outside of the school gates.

Figure 21: Percent of Adults 18 Years and Older Who are Current Cigarette Smokers: Anne Arundel, Maryland and U.S. (2012-2016)

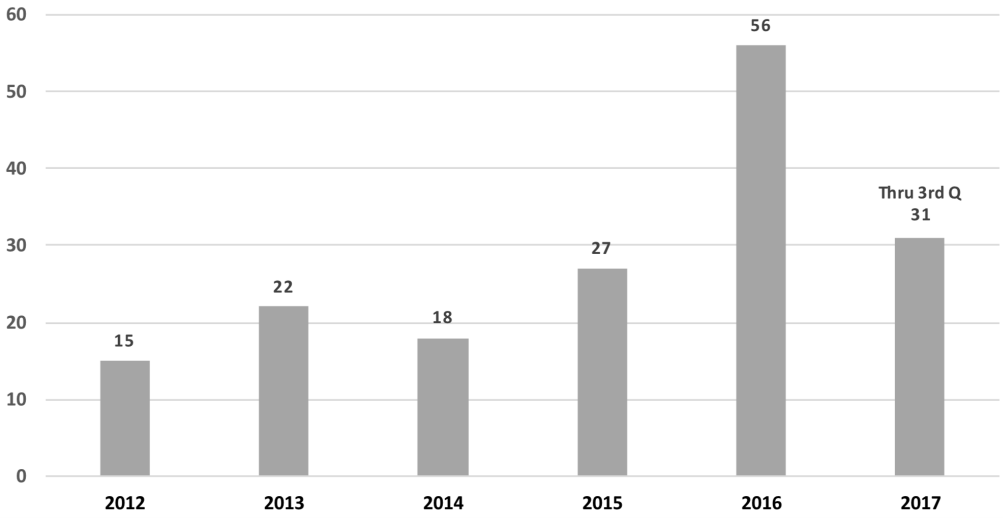


Behavioral Risk Factor Surveillance System (BRFSS), 2012-2016

Alcohol

Alcohol continues to be an acceptable social norm in the county. The number of alcohol related deaths increased by 273 percent between 2012 and 2016, from 15 to 56 deaths. 2017 data is only through the third quarter but continues to follow the trend upwards (Figure 22.) According to the 2016 High School Youth Risk Behavior Survey, the number of students who acknowledged driving a car, or driving within a car with someone who had been using alcohol, has reduced significantly since 2014.

Figure 22: Anne Arundel County Alcohol Intoxication Deaths (2012-2017)

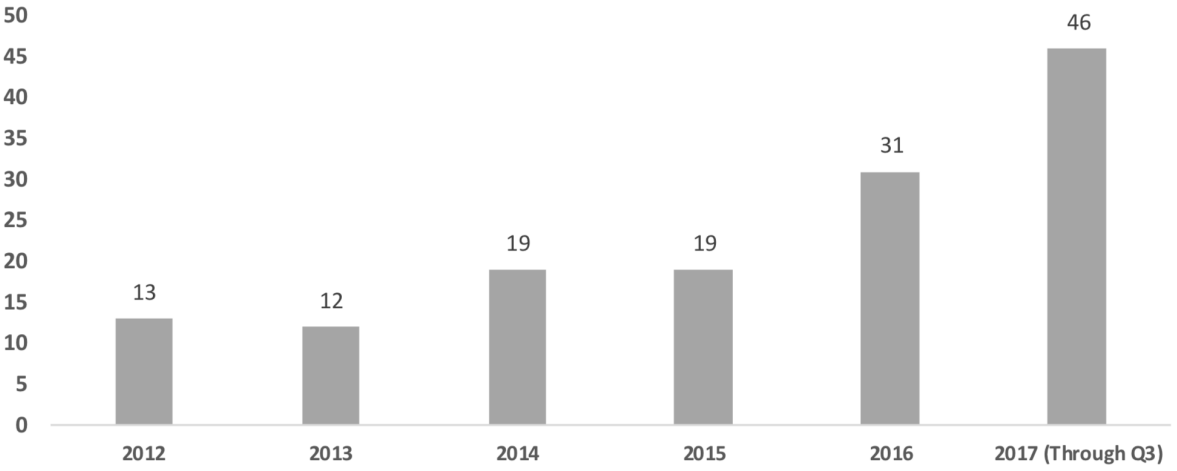


Maryland Department of Health, 2017

Other Drugs

Several participants noted a rise in the use of 'street drugs' such as PCP, crystal meth and cocaine. Anne Arundel County was third in the State in 2017 for cocaine ingestion deaths rising 400 percent between 2012 and 2017, from 13 deaths to 66 deaths (Maryland Department of Health, 2018.) The first quarter of 2018 showed a similar trend with 23 deaths from cocaine use. Many participants noted the use of cannabis in students as young as 11 and the intergenerational use of street drugs.

Figure 23: Cocaine Intoxication Deaths in Anne Arundel County (2012-2017)



Anne Arundel County Department of Health, 2018

Behavioral Health and Seniors

Demand for mental health services has risen more steeply for those age 65 and older than any other demographic (see Table 17 on page 22.) Loneliness and isolation often results in anxiety and depression. As seniors live longer, an increasing number develop dementia or Alzheimer's disease. According to Department of Aging and Disabilities personnel, there are no mental health services for seniors in the county that accept Medicare and very few geriatric psychiatrists. There are very few in-home services that can offer evaluations for those with mental health issues and/or dementia. Those that do exist don't accept Medicaid or Medicare. According to participants, in times of real crisis Medicare eligible seniors may be referred as far away as Georgia. There are many elderly couples in the county who are caring for each other. When one or both become too frail, they are often separated in nursing homes or acute care facilities. Currently there are no facilities that allow seniors to stay together. As one participant noted:

> You've got couples that live into their 90's and one has dementia and one doesn't. We put them in the hospital or in assisted living and separate them which causes increase in loneliness and despair… There's no reason why two people who have been married for 60 years can't be in the same room together.

Substance abuse also occurs in the elderly. According to participants, seniors become addicted to pain medication through pain clinics and prescriptions from primary care providers. They are often prescribed medication for anxiety and depression. There are no substance abuse services through Medicare. As one provider commented:

> We're also seeing quite a bit of benzo addiction and people prescribed Xanax, and unfortunately still the opioid addictions. We have 67 year old heroin addicts right now because of opioid addiction.

Summary

Behavioral health issues are the major concern for participants in this needs assessment. Mental health issues at either end of the age scale (early childhood and seniors) are rising very rapidly. For the senior population, these issues may be co-occurring with senility or dementia. Everyone who participated in this needs assessment acknowledged the enormous efforts made by county agencies and hospitals to manage the opioid/heroin crisis yet the progress is little and slow.

Needs

- More providers of psychiatric, geri-psychiatric, counseling and substance abuse services, especially Spanish speaking services.
- Higher rates of reimbursement to help recruit health and behavioral health providers.
- Residential mental health and substance abuse beds, especially for the adolescent population
- Further support for the Mental Health Agency's very successful Crisis Intervention system and the Safe Stations program
- Increase in mental health and behavioral services for all childhood populations but especially the 0-5 group
- Integration of social and behavioral health services
- Crisis beds for immediate response and to relieve the emergency departments
- School based assessments of mental health and substance abuse
- Support for Seniors with co-occurring mental health issues and dementia

Chapter 3 - The Social Determinants of Health

Many factors determine the state of a person's overall wellness. The social determinants of health include income level (especially for those who live in poverty,) access to healthy food, emotional stability, the cleanliness and safety of the environment and access to health services. Although Anne Arundel County has a high standard of living overall, there are pockets of poverty and health access issues to be found in areas of high density in North County, Annapolis, and in some of the rural areas of South County. Many participants commented on the intractable nature of the pockets of poverty and distress and a multiplication of the negative social determinants of a healthy life for some families. As one primary care provider commented:

> Back pain, headaches, insomnia; all the things that go along with stress. You start digging into the soci-economic factors – there are reasons for those things. They're behind on the rent, they could get evicted, they haven't had money to buy food, and husband lost his job.

The majority of negative social and health indicators continue to polarize in North and South County and Annapolis (Table 21.) In South County, access to health care is very limited and there are few primary care doctors. Owensville Health Center is inaccessible to those residents who live in areas like Deale and have no transportation. Those residents with transportation often travel to Glen Burnie to access primary care.Brooklyn Park (North County) is both a Medically Underserved and a Health Shortage Area and continues to have the highest indicators of need, as does Glen Burnie.

Table 21: Rising Demographic, Socioeconomic, and Health Indicators by ZIP Code, Anne Arundel County (2017)

Rising Demographic, Socioeconomic, and Health Indicators by ZIP Code Anne Arundel County, 2017								
ZIP Code	**Area**	Poverty Percentage	Percent without High School	Percent of Households on Snap	ED Visit Rate per 1,000	Percent Low Birth Weight Infants	Preventable Hospitalization Rate per 1,000	Minority Population
20711	Lothian	11.7%	13.2%	23.4%	389.7	8.4%	6.8	25.6%
20714	North Beach	10.6%	7.5%	8.6%	285.0	8.9%	<11	12.4%
20724	Laurel	3.8%	9.1%	4.2%	234.6	9.3%	2.4	64.6%
20751	Deale	10.8%	8.7%	5.4%	233.1	9.2%	4.6	7.1%
20758	Friendship	7.1%	3.9%	0.0%	562.4	8.8%	<11	7.1%
20765	Galesville	14.7%	20.2%	9.6%	352.8	6.3%	<11	22.5%
20776	Harwood	10.8%	7.6%	8.8%	293.1	4.4%	6.0	15.5%
20794	Jessup	7.9%	20.6%	11.8%	220.4	11.3%	2.9	52.5%
21060	Glen Burnie (East)	**7.9%**	**13.7%**	**12.6%**	**406.5**	**8.0%**	**6.9**	**29.8%**
21061	Glen Burnie (West)	**9.2%**	**13.6%**	**12.8%**	**441.9**	**8.0%**	**5.5**	**45.0%**
21090	Linthicum Heights	7.5%	10.1%	5.1%	270.5	6.9%	5.6	10.8%
21144	Severn	7.9%	8.2%	10.4%	289.2	9.2%	3.5	51.7%
21225	Brooklyn	**27.3%**	**20.1%**	**32.6%**	**858.2**	**9.9%**	**8.9**	**59.4%**
21226	Curtis Bay	16.6%	15.8%	16.8%	509.6	8.7%	6.6	26.9%
21401	Annapolis	7.9%	7.2%	8.9%	364.5	7.7%	5.4	31.5%
21403	Eastport	6.9%	9.8%	6.9%	331.8	7.5%	4.4	37.5%
	Anne Arundel	**6.1%**	**8.1%**	**7.0%**	**340.0**	**7.7%**	**4.6**	**29.7%**

*** Gray = Higher than County Average**

US Census American Community Survey 5 year estimates, 2012-2016; Maryland Health Services Cost Review Outpatient Files, 2017

Hospitalization and Emergency Department Patterns related to Social Determinants

When patterns of hospitalization and Emergency Department visits are examined by ZIP code (Figures 24 and 25) they generally reflect the social determinants illustrated in Table 21 above. ZIP code 21225, which contains Brooklyn Park, has the highest hospitalization and emergency department visit rate of anywhere else in the county.

Figure 24: Hospitalization Rate per 1,000 Population by ZIP Code, Anne Arundel County, 2017

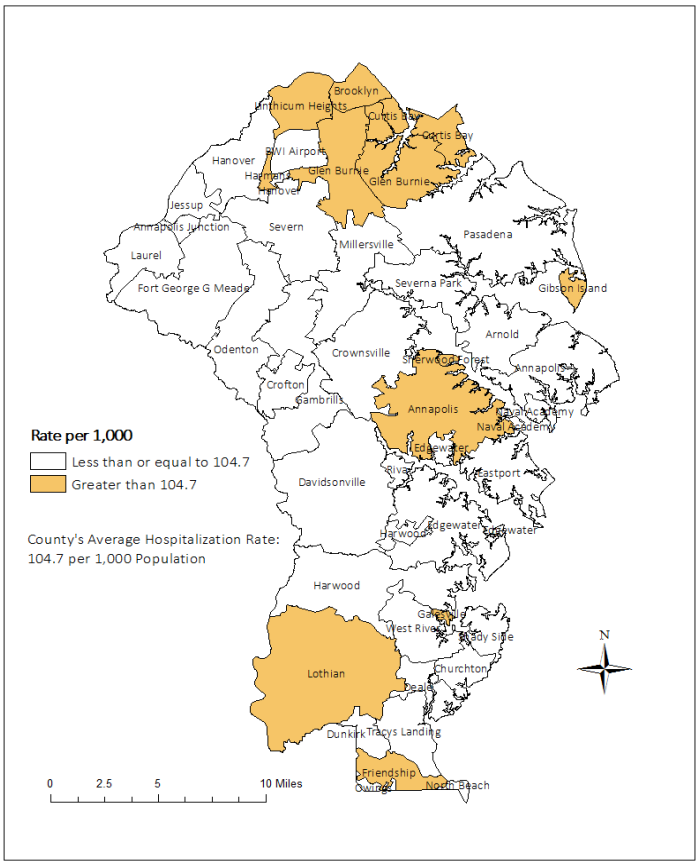
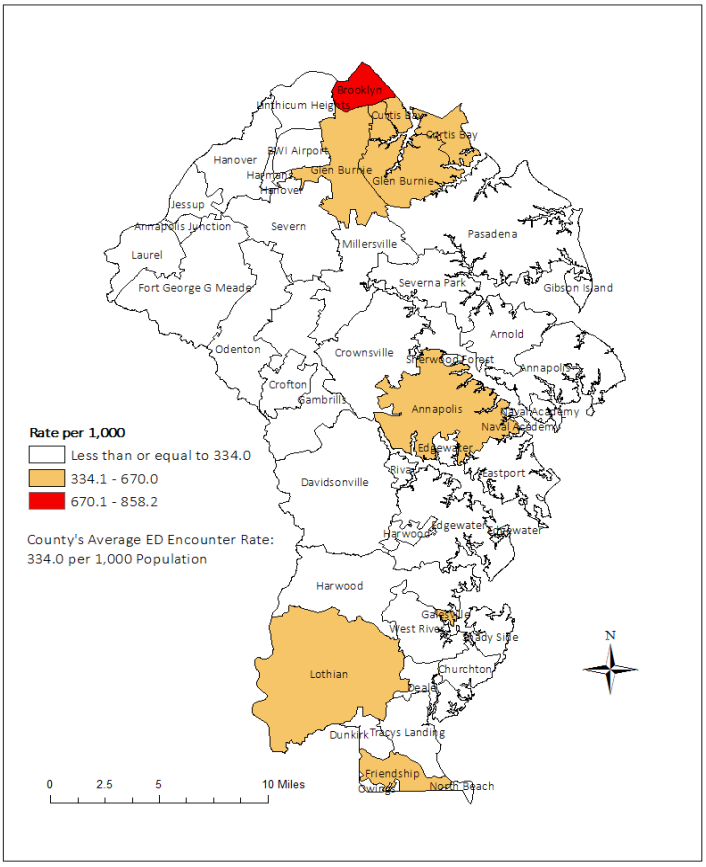


Figure 25: Emergency Department Encounters per 1,000 Population by ZIP Code, Anne Arundel County, 2017



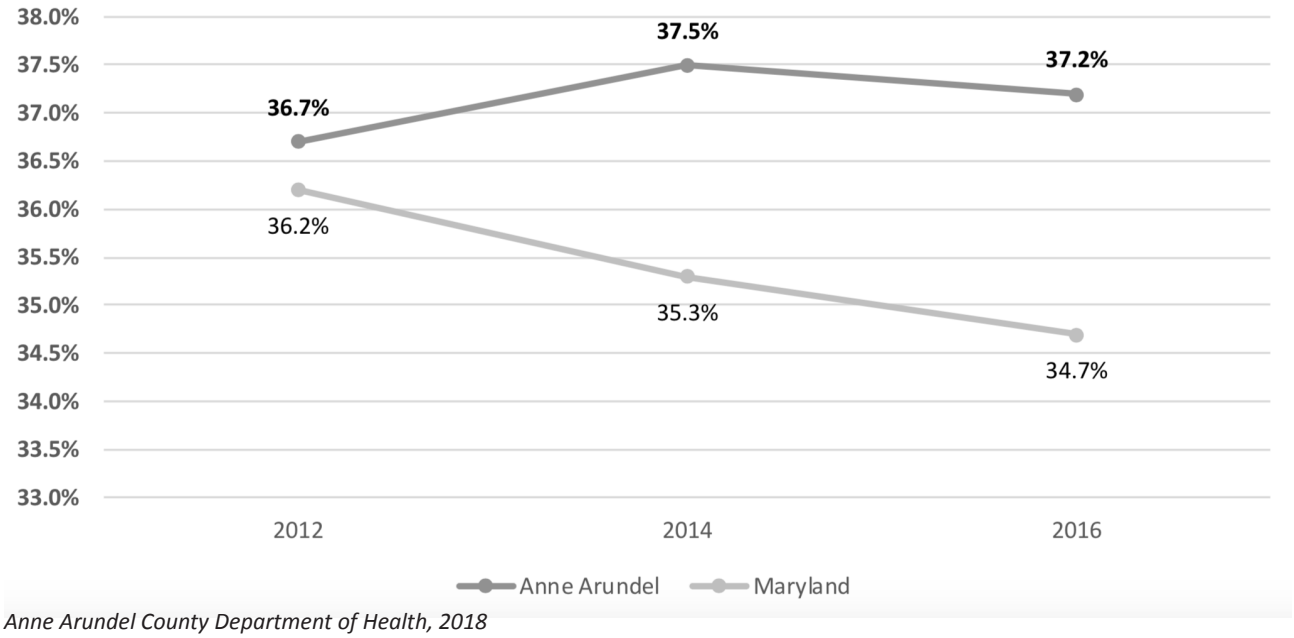
Anne Arundel County Department of Health, 2018

Overweight and Obesity

Overweight and obesity continue to create health issues for county residents. Many factors play a role in weight including low income, lifestyle, surrounding environment, access to healthy food, genetics and certain diseases. Overweight and obesity are determined using weight and height to determine a BMI or "body mass index" measure. Between 2012 and 2016, the percent of overweight adults (Body Mass Index of 25 to 29.9) 18 years and older in Anne Arundel County rose slightly from 36.7 percent to 37.2 percent while the state average fell (figure.) The percent of county residents who are classified as obese (Body Mass Index 30 and over) also rose from 27 to 31 percent, as did the state average.

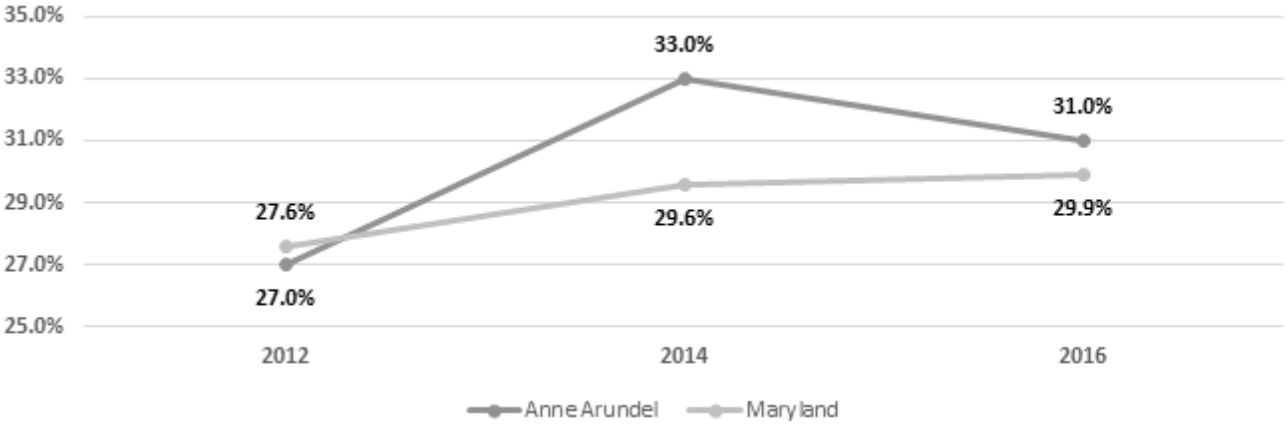
Obesity is prevalent in low income families in the county for a variety of reasons; their neighborhoods often lack full-service grocery stores and farmers' markets, healthy food can be more expensive, there is no transportation to get to a supermarket, there is a greater availability of fast food restaurants selling cheap, filling food, and there are fewer recreational facilities for exercise. The streets may be unsafe and there is little for children to do.

Figure 26: Percent of Adults 18 Years and Older Who Are Overweight (BMI of 25 to 29.9), Anne Arundel County and Maryland (2012-2016)



Anne Arundel County Department of Health, 2018

Figure 27: Percent of Adults 18 Years and Older Who Are Obese (BMI of 30 or More), Anne Arundel County and Maryland (2012-2016)



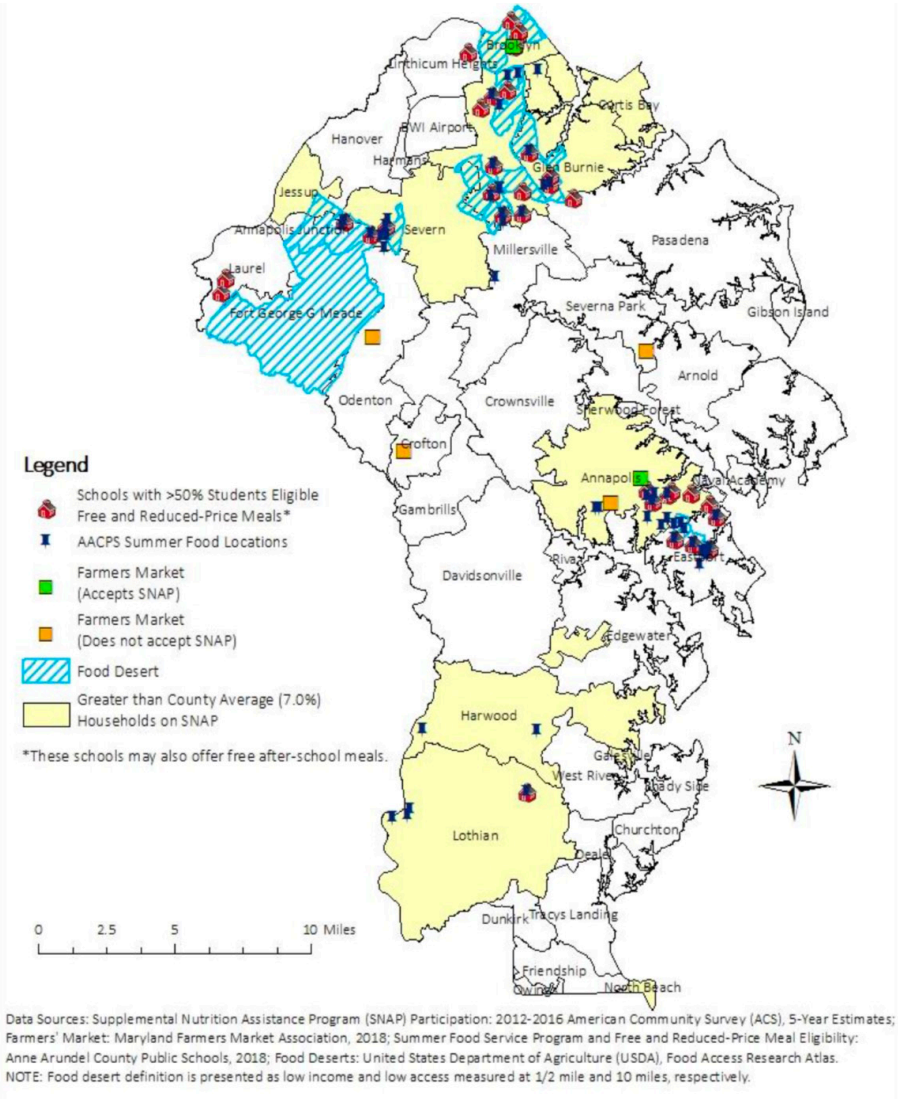
Anne Arundel County Department of Health, 2018

Access to Healthy Food

In 2018, over 13 percent or 74,522 county residents currently reside in a food desert, up from 12 percent in 2015. Food deserts are defined by the United States Department of Agriculture (USDA) as urban neighborhoods and rural towns without ready access to fresh, healthy and affordable food. Several of the County's low income communities are also mapped as food deserts (Figure 28.) They do not have access to healthy food and they have no transportation to get to supermarkets. Unhealthy food is cheap and filling; an important asset for large families managing with few means. As one health provider noted:

> A lot of times they don't have access. They may have medical transportation to get to a doctor, they're not going to have the transportation to get to a grocery store, and then you get to the grocery store and you're on the SNAP program, or whatever it is you're on, and then you go and you look and the apples are 2.99 a pound, right but the ramen noodles are 10 packs for a $1.

Figure 28: Anne Arundel County Food Environment (2018)



Data Sources: Supplemental Nutrition Assistance Program (SNAP) Participation: 2012-2016 American Community Survey (ACS), 5-Year Estimates; Farmers' Market: Maryland Farmers Market Association, 2018; Summer Food Service Program and Free and Reduced-Price Meal Eligibility: Anne Arundel County Public Schools, 2018; Food Deserts: United States Department of Agriculture (USDA), Food Access Research Atlas.
NOTE: Food desert definition is presented as low income and low access measured at 1/2 mile and 10 miles, respectively.

Anne Arundel County Department of Health, 2018

Hungry Children

In several research studies, childhood hunger has been associated with significantly poorer cognitive functioning, decreased school attendance, and diminished academic achievement. Participants in this needs assessment, from school personnel to the faith community, noted that they are seeing more hungry children than ever before. As one school administrator noted:

> They haven't eaten at home and they barely have a sofa to sleep on. There are things happening that they don't get a good night's sleep so when they come and don't do their homework it's really the least of your worries at that time. We have to ask what's happening at home and how can we help?

While there are volunteer back pack programs, church food pantries, and SNAP (food stamps) programs for those eligible, there are many gaps in services, particularly for those children living with grandparents, relatives and friends. As one faith community member noted "these kids are hungry, just hungry. They go to school hungry." The free breakfast and lunch program within the public school system has seen a persistent increase in the number of children registering for and receiving free breakfast and lunch. The number of free breakfasts received by children in the county has risen from 1,666,339 in 2014, to 2,007,167 in 2018, an almost 21 percent increase in four years. An added concern is that breakfasts were served on only 181 days of the year, just over half of the potential days for a child to eat breakfast. The number of free lunches served daily to students has increased from 14,351 in 2014 to 15,216 in 2018; a seven percent increase.

Housing

There is very little affordable housing in the county. As of September, 2018, the median home sale price was $345,000, an increase of 10 percent or $30,000 compared to last year. There has been a decrease of 9 percent in the numbers of houses sold in 2018 versus 2017.

The average rent for a two-bedroom apartment in the county is $1,658 per month. Renters account for 26.4 percent or 52,948 of the 203,336 households in the county. Of those renters, 24,172 or 45 percent are overburdened. Renters are considered overburdened when they pay more than thirty percent of their gross income in rent.

According to the 2016-2020 Consolidated Plan for Anne Arundel County, 66 percent of extremely low income renters and 72 percent (4,645) of extremely low income homeowners are paying more than 50 percent of their income for housing. If an emergency, such as sudden unemployment, seasonal lay-off, unexpected medical event, or other difficulties occurs, these households risk losing their homes and becoming homeless. Single parent families, the elderly, and those with disabilities who are dependent on one paycheck or on a fixed income, are also at risk of homelessness.

There is a decreasing amount of public and subsidized housing in the county. There were 10,278 county families on the waiting list for Housing Choice Vouchers as of 2017 (Table 22.) There are 17,683 families on the waiting list for public housing (Anne Arundel County Housing Commission, 2018.) There are 1,514 families on the Annapolis public housing list. (Housing Authority of the City of Annapolis, 2018.)

Table 22: Anne Arundel County Housing Choice Voucher List (2017)

Anne Arundel County Housing Choice Voucher List 2017			
	# of Families	% of total families	Average Days Waiting
Waiting list total	10,278		966
Extremely low income (<=30% but <=50% AMI)	7,414	72.1%	
Very low income (>50% but 80% AMI)	1,836	17.9%	
Low income (>50% but 80% AMI)	746	7.3%	
Over limit for low income (>80% AMI)	282	2.7%	
Families with Children	9,079	88.3%	
Elderly Families	296	2.9%	
Families with disabilities	498	4.9%	
White	1,442	14.0%	
African American	2,998	29.1%	
Amer. Indian/Alaskan Native	13	0.1%	
Asian	80	0.7%	
Native Hawaiian/Other Pacific Islander	6	0.1%	
Not Assigned	5,749	55.9%	

Housing Commission of Anne Arundel County, 2018

Homelessness

The county served 1,684 homeless individuals in 2017, an increase of 13 percent since 2015 (table 23.) The family homelessness count is only of those families who were served in a shelter program. Many families are doubled up or staying in their cars. Anecdotal estimates suggest family homelessness is far higher in the county due to the lack of affordable housing.

Table 23: Anne Arundel County Homeless Served (2015-2017)

Anne Arundel County Homeless Served 2015-2017			
	2015	2016	2017
Single Adult	1138	1215	1290
Veteran	44	41	37
Youth Under 21	15	19	4
Family	256	274	269
Senior 62+	17	40	43
Chronic	46	82	41
Total Served	1516	1671	1684

Anne Arundel County Department of Social Services, 2018

There are still only three homeless shelters in Anne Arundel County and three rapid rehousing programs. 308 people needing housing services attended the 2018 Anne Arundel County Homeless Resource Day. Of those, only 34 percent were in a shelter or receiving some kind of resident services.

Table 24: Anne Arundel County Homeless Resource Day Attendance Totals 2018

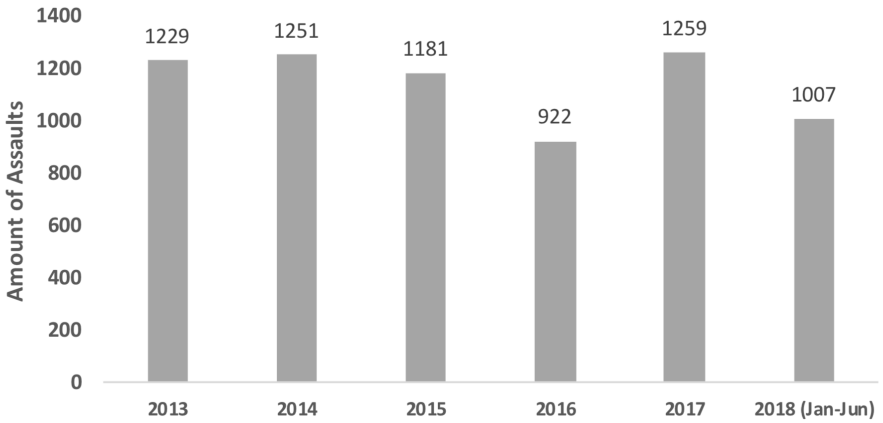
Anne Arundel County Homeless Resource Day Attendance Totals 2018		
Guests	**Numbers**	**Percent**
Attended	307	
Shelters	64	21%
Residential Programs/Halfway Houses	40	13%
Staying with Family	40	13%
Staying with Friends	40	13%
Renting their own apartment	40	13%
Living in a place not meant for habitation	31	10%
Other	52	17%

Anne Arundel County Department of Social Services, 2018

Domestic Violence

The Anne Arundel County Police Department tracks domestic violence by year and police district including physical assaults with hands or fists, guns, and knives. Figure 29 shows all Domestic Violence incidents in the county from 2013 to the first six months of 2018. The data shows an upward trend although there was a dip in numbers for the 2015-2016 year. The statistics for the 2018 year are alarming. The numbers for the six month period are almost as high as for the previous 12 months. These statistics confirm anecdotal data from police, schools and hospital personnel who all reported a notable increase in domestic violence over the same period.

Figure 29: Total Spousal Assaults Per Year (2013 – June 2018)



Anne Arundel County Police Department, 2018

Child Physical and Sexual Abuse

In 2018, the county's Child Advocacy Center investigated 326 sexual abuse cases, of which seven were for sexual assault (Anne Arundel County Department of Social Services, 2018.) Respondents noted a large increase in the number of child on child sexual assaults that are being reported by the school system and other agencies. One commented that:

> Children are looking at pornography on their parent's phones and tablets. It used to be that the child was the victim and the adults the perpetrators but that's not always the case now. Now we have five and six year olds doing inappropriate things. Kids are watching pornography at early ages.

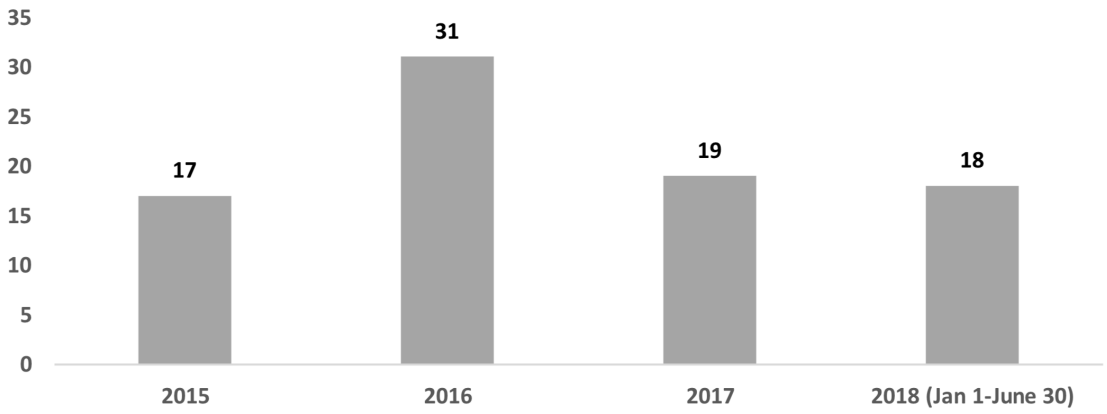
All child sexual assault and sexual abuse cases must go to the police department prior to a hand-off to social services. This process, and the limited number of police specialists, can cause back up of over three months and then there may be up to 100 cases at a time sent to the Department of Social Services. As one provider noted:

> Every report has to go through these guys before it comes to DSS. We're often cold calling three months later.

Sex Trafficking Victims

Anne Arundel County is in the top five jurisdictions in Maryland for sex trafficking. (Rubenstein and Carr, 2017.) The 50-mile radius surrounding BWI airport is becoming known as the third-most-lucrative area in the nation for trafficking in people (Maryland Human Trafficking Taskforce, 2018.) Anne Arundel County Police Department tracks the number of sex trafficking incidents for the county (Figure 30). While the numbers were stable between 2015 and 2017, data for the first 6 months of 2018 are showing an almost 100 percent increase in cases. There are only two Anne Arundel County Police detectives fully dedicated to human trafficking.

Figure 30: Sex Trafficking Victims, Anne Arundel County 2015-2018



Anne Arundel County Police Department, 2018

Transportation

The lack of public transportation continues to be a major issue for the county. Since 2014, the county has developed a transportation division and there have been improvements. There are now five regional transit routes, eight Annapolis routes, four local bus routes and four commuter bus routes. Additionally there are two pilot bus routes in South County. Nonetheless, public transportation continued to be a major concern for all participants in this needs assessment. There are large areas of the county that are underserved or not served at all, including North and West County. Low income residents who have no car or share a car, have major issues getting to work, to college, to the hospital, even to the nearest grocery store. As one provider noted:

> I've got a family who relocated to Severn. She works at Brightview right by Rolling Knolls. It's a three hour commute via MTA; that's what you have to do for connections. What about transportation in West County? You're in Sarah's house but you are from Annapolis and you want to come back, you work here, forget it, you can't.

Sports and Recreation

Many participants in this needs assessment lamented the lack of sports and recreation opportunities for children, youth and adults across the county, especially the removal of middle school sports from the curriculum in public schools. Parents from every race, ethnicity and income level decried the lack of "active things to do" for children and youth. While some communities have a recreation center for youth, many do not. One parent and resident recalled the importance of inter-neighborhood sports:

> When I was young we had our own community sports and associations and we played against the other communities. So there was great investment within those communities for young people; we played against Pumphrey, and Pumphrey played against Freetown, Freetown played against Magothy. Now we have the recreation leagues that are pulling youth out of their communities - it's not community driven.

Participants also noted the importance of sports and the need for more recreation centers in low income neighborhoods where youth struggle with transportation needs as well as the negative outcomes associated with poverty. As one noted:

> We need rec-centers. Only the families who can afford to sign up their kids for sports can engage in them. I tell everyone I'm a product of a community center, a rec-center, I went to summer camp there, I went to Head Start there. It was the catch all.

Social Media as a Public Health Issue

Social media, including the active use of smart phones and tablets, is a major concern for residents and professionals in every area of the county. The constant access to electronic information is impacting every age group and demographic:

Early Childhood

Babies as young as 12 months have been observed in the county holding iPhone and tablets. One early childhood provider described this as "soothing by cell phone." Another commented:

> I hate to blame technology but youngsters at a very early age are being babysat by electronics. Whether it be an iPad or a cell phone. Then we're asking them to sit quietly in a circle and say their ABC's

Many participants commented on the number of parents with their eyes on their own cell phone rather than creating any interaction or eye contact with their children. Several suggested that the ease of electronic access to pornography for very young children is linked to rising child on child sexual abuse within the school system.

Youth

Increases in bullying, suicide and suicidal ideation for youth, have been linked to the constant use of social media 'apps' such as Instagram and Snapchat. As one educator noted:

> Students will turn one another in- 'look what she wrote on-line about me' or 'look what he posted on line' – it's a disruption of the school day.

Youth in low income communities are emulating international gang members, their colors and lifestyles by following their on-line presence. Body language, eye contact and social behavior of every kind is now lessened by the isolation of cell phone use. Video-gaming is replacing outdoor sports and recreation, and it is addictive.

Adults

All participants commented on the increase in the use of social media for adults. Some commented on the isolation it causes and the need to look at every experience through the lens of a photo for Facebook. As one professional said:

> People spend way too much time looking at other people's activity on social feeds – 'how many likes did you get or didn't get? Let's make sure we take some pictures so we can post them.' How about enjoying the event you're going to?

Others linked the use of social media and rapid electronic communication with rising rates of drug use, depression and anxiety. As a faith community member commented:

> People are feeling more and more isolated because you can be surrounded by 500 friends (on social media) but you're in your room by yourself.

Increase in Violence

Many participants commented on the increase in violence within agencies and facilities. Teachers are getting bitten and punched; nursing staff are physically assaulted. Anecdotally there appears to be growing anger at many levels.

Gang Violence

For some youth and young adults in Anne Arundel County, informal gangs (neighborhood crews) or legitimate, international gangs such as Mara Salvatrucha (MS-13,) provide the consistency, safety, and security usually provided by the family. The sense of belonging and purpose has been described, eloquently, by gang members. The Annapolis Collaborative for Change, a cross sector partnership on gun and gang violence, has inventoried at least ten identifiable neighborhood crews in Annapolis alone, and four sects of MS-13 across the county. Neighborhood crews appear to have developed from the rivalries or neighborhood 'beefs' in low income and public housing communities. Thirty years ago these natural turf wars, waged fiercely on a sunny Saturday afternoon, were most often settled with a cross-community get together or cook-out on the same evening. As one ex-resident of a public housing complex noted:

> The neighborhood was like a family – everyone looked after everyone's kids. I grew up with a single parent who warned against ever having a cop knocking on the door. We were all raised as brothers and sisters. Even the drunk on the corner would threaten to tell your Mom if you were up to no good.

In 2018, young people get involved in gangs to belong. They sell drugs to be perceived as successful and entrepreneurial, to buy tennis shoes, and sometimes to buy food or pay rent for the family. It is a local cottage industry described by a community member as "a pyramid scheme and no-one wants to stop the flow." Arguments over drug territory and sales have become entangled with the old neighborhood rivalries. As another resident noted, "there are territories. They are controlling territories so they can do drug transactions."

MS-13, an international criminal gang that originated in Los Angeles, California, in the 1980s, has an organized presence in the county. Members are searching for young recruits. According to one Hispanic resident:

> They are active in schools in Annapolis, Arnold and Glen Burnie. Some elementary school children are very familiar with MS-13. They are second generation – their parents are gang members. Children as young as 13 in Annapolis have been invited in. No-one wants to 'snitch.'

Since the 2015 needs assessment, youth violence has increased in the public school system, both in amount and intensity. As one professional noted:

> What they are being disciplined for is qualitatively different … fights were fights, and now fights involve weapons. Aggression was aggression but now the aggression is more dangerous, more volatile, having more serious repercussions in terms of injuries and the like.

Summary

Low-income youth, families and seniors continue to face access issues. The three big needs; transportation, affordable housing and affordable quality childcare, remain unchanged since 2009. The consequences of expanding social media are negative health and behavioral issues at every level of the community. Increasing aggression and violence in schools, hospitals, and other systems should be a huge concern to county leadership.

Needs

- Access to transportation continues to be a huge issue, especially for low income residents and seniors living in areas of North and South County
- Affordable housing is non-existent in most parts of the county creating stress, and worst of all homelessness, for low income families
- Quality childcare is cost prohibitive for those parents on low-income trying to get into the job market
- Access to recreational and social opportunities for low-income youth within their own communities
- Acknowledgement and education about the negative impact of social media on health and behavioral health
- Access to healthy food for low income families

Chapter 4 – Service Delivery Issues

Many of the issues and needs raised by participants in this needs assessment originate in the processes used to deliver health and behavioral health care. Care is often delivered in silos of specialization. Many agencies may be involved in the wellness of each individual yet there are barriers to communication between those agencies.

Emergency Departments – the new "Church Door"

Emergency Departments (ED) provide a significant source of medical and social care in Anne Arundel County. The two county hospital emergency departments at AAMC and UMBWMC have become the 'catch all' for somatic, behavioral health and social issues. As one provider noted 'we are the new church door' for many of the socio-economic issues in the county. The Emergency Department is a trusted venue and one of the main "front doors" not just for primary care but for difficult societal issues.

Table 25: ED Encounters by Age, Sex, and Race/Ethnicity (2013 and 2017)

ED Encounters by Age, Sex, and Race/Ethnicity, 2013 and 2017				
	2013 Number	**2013 Rate per 1,000**	**2017 Number**	**Rate per 1,000**
Total Encounters	186,124	334.9	189,819	334.0
Age				
0 to 18 Years	39,455	312.0	40,301	283.6
19 to 39 Years	68,342	415.9	64,700	417.0
40 to 64 Years	58,087	301.9	57,566	294.4
65 Years and Over	20,240	279.0	27,251	357.8
Sex				
Male			84,147	304.0
Female			105,656	373.5
Race/Ethnicity				
White, NH	98,617	250.3	103,908	260.1
Black, NH	48,507	554.0	59,167	667.3
Asian, NH	1,454	71.7	2,066	101.0
Hispanic (Any Race)	8,552	223.0	13,110	329.5

Anne Arundel County Department of Health, 2018

The overall numbers of county Emergency Department encounters increased by only 2 percent between 2013 and 2017. However, when the numbers are disaggregated by race/ethnicity and age, the percentage increases are startling. Visits increased by 34 percent for those over 65 years of age, 22 percent for Blacks, and 48 percent for Hispanics.

Service Delivery Issues in the Emergency Department

When parents and/or caregivers of the elderly lack the ability or the dollars to care for an aging family member, the Emergency Department may be the only option to achieve some respite. Seniors may have been admitted to hospital but now require 24 hour care in an assisted living setting. When family members are unable to care for their relative, or are absent or non-existent, some entity or professional has to become the guardian for that person. Some elderly people in the county have become homeless, with no caretaker, and with medical issues. Seniors may be admitted to the hospital from the Emergency Department only because there is no place to be discharged to. One provider told the story of a senior with a tracheotomy who was homeless. She was admitted to the Emergency Department because there was nowhere else to house her. As one provider noted:

> We're seeing a lot more respite care. We're seeing a lot more care management cases where a person may be in the Emergency Department for weeks on end. We've seen guardianship cases when patients are in the hospital for months, taking up a bed for no reason when there is no medical indication that they need to be here, but they need to be somewhere safe.

Hospital and Emergency Department employees may apply for guardianship of the patient so that decisions can be made about their living arrangements and future care, although the process to obtain guardianship through the court system can take months. As one provider noted:

> That's the other thing that's dramatically increased is that hospitals are initiating the guardianship process more and more. We have a very close relationship with the court system here but that's even straining due to the rate at which we are having to do this.

Hospitals have no financial streams to pay for patients who have nowhere else to go, so the stay becomes "uncompensated care." For the person who is retained in the hospital the outlook is poor. Visitation is limited and contact with the outside world is almost non-existent. As one provider noted:

> There are times they walk down to the gift shop once a week if they have good behavior…I take them out for field trips in the parking lot, it's awful.

Developmentally/Intellectually Disabled Youth and Adults

There are over 68,000 developmentally disabled adults in Anne Arundel County, many of whom are low income (Anne Arundel County Community Development Services, 2018.) Persons with Developmental Disabilities may have Deafness/Severe Hearing Impairment, Orthopedic Impairment, Autism Spectrum Disorder, Behavioral Problems, Blindness/Severe Visual Impairment, Cerebral Palsy, Epilepsy/Seizure Disorder, Head Injury, Mental Disorder, intellectual disability, Speech/Language Impairment, and other Neurological Impairment (Maryland Department of Developmental Disabilities, 2018.)

The Centers for Disease Control and Prevention (2018) estimates that Autism Spectrum Disorder (ASD) affects one in 59 US children. Boys are four times more likely to be identified with ASD than girls; one in 38 boys and one in 152 girls. The overall rate in Maryland is one in 50 children: one in 31 boys and one in 139 girls. On average, medical expenditures for children and adolescents with ASD were 4.1 to 6.2 times greater than for those without ASD. In addition to medical costs, intensive behavioral interventions for children with ASD cost $40,000 to $60,000 per child, per year.

Developmentally disabled youth and adults, some with co-occurring mental health issues, arrive in the Emergency Department when parents are exhausted and have run out of options for their care. Providers estimate that at any given time Emergency Departments may have six to eight developmentally disabled patients who actually need case management rather than emergency health care. The parents may be exhausted especially now they are dealing with a young adult rather than a child. Sometimes the caregiver parent has become isolated from other family members. As a provider commented:

> Mom (more often than not,) or whoever the parent is, has been isolated from the rest of their family (they come to the Emergency Department, ill themselves but with their adult child.) Either one of them may not have family, so here's a sick patient with an adult child, what do I do with this adult child? So, in that case we admit both of them.

The Developmental Disabilities Agency (DDA) has increased services for youth and adults but the services are hard to access, especially given the length of time it takes to fill out, and process the individual applications for assistance.

Communication Issues

Most hospital providers noted the improvement in communication since the institution of care alerts within the CRISP (Chesapeake Regional Information System for Patients) electronic system in the hospitals. The alerts allow personnel to share information related to patients. Entry and discharge for Emergency Departments, hospitals and other systems were highlighted as still problematic, especially for high risk patients. Often several specialists and outside agencies may be working with one patient and yet there is not one person in a coordinating role for all of the services and professionals. As one provider noted:

> We have high risk programs that contract with the county and with the Coordinating Center for community care management. We're bumping into each other a little bit. So instead of having seven people from seven different programs call a patient, I would like to be able to work on some place or person who knew everyone who was working with a patient.

The hospital system expects primary care to be the gatekeeper when patients are discharged but some providers commented that there is a gap in communication between the two. Hospital staff may not hear any information about a discharged patient until they are readmitted.

Required Speed of Service Delivery

A payment overhaul for Maryland Hospitals began in 2014. Each hospital has a global budget that is regulated by the state that incentives efficient care and the reduction of "potentially avoidable utilization" through improvement in quality, safety and population health management. A particular emphasis has been placed on reducing preventable hospital admissions through improved care management and post-acute medical and non-medical supports.

Although many innovative payment models and pay-for-performance models are being introduced in the non-hospital, regulated outpatient setting, traditional fee for service models are prevalent. This model, combined with decreasing reimbursement rates for many services, encourages providers to see more patients, which can reduce the time they have available for individual patients. As one provider commented:

> I feel like we're pushed to see patients so quickly and to turn them around and when, sometimes I'll be driving home and I'm like I hope they are alright, I hope they're alright, yeah I've got them out in 102 minutes, did I do everything I needed to do?

Impact of Social Media ("Don't confuse your google search with my medical degree.")

Many professionals commented on the amount of medical information readily available to patients through the Internet, advertisements on television and other social media. Patients (and their families and friends) may arrive having diagnosed themselves and expecting a certain level of care, medication and/or admission to the hospital. One provider noted:

> It's consumer driven medicine. 'I looked this up on WebMD, you should be doing xyz.'

Summary

Some of the social issues in the community, including the increase in behavioral issues, and the lack of options for the growing group of seniors and Developmentally Disabled adults and older youth, are negatively impacting waiting room times, hospital beds available, and speed of patient care for hospitals. At the same time, the Maryland hospital payment system incentivizes the medical community to decrease hospital admissions. This appears to be a lose/lose proposition for patients and professionals, especially because it adds a level of anxiety and haste to services.

Needs

- Information sharing and coordination among hospitals, primary care and human services agencies who are following up with discharged patients.
- Low cost assisted living and nursing homes for the uninsured and those with no end of life plan.
- One patient navigator/coordinator for high risk patients inside and outside of the hospital setting.
- One stop shops for health, behavioral health and social services, especially for the aging and disabled populations.

References

Administration on Aging Administration for Community Living. (2018). *Aging and Disability in America.* Retrieved from https://acl.gov/aging-and-disability-in-america

American Lung Association. (2018). *State of the Air, 2018.* Retrieved from https://www.lung.org/our-initiatives/healthy-air/sota/

Anne Arundel County Department of Health. (2018). *Emergency Department Encounters, 2013-2017.*

Anne Arundel County Department of Health. (2018). *Report Card of Community Health Indicators (May 2018).* Retrieved from https://www.aahealth.org/statistics-reports/

Anne Arundel Department of Health. (2018). *Trends in Youth Suicide 2012-2016.* Retrieved from https://www.aahealth.org/trends-in-youth-suicide-in-anne-arundel-county-2012-2016/

Anne Arundel County Department of Health. (2018). *Water Quality Problem Areas Based On Existing Conditions.* Retrieved from https://www.aahealth.org/water-quality-problem-areas/

Anne Arundel County Department of Health. (2016). *Water Quality Report*. Retrieved from https://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Documents/CCR2017/Anne_Arundel/0020017-Glen-Burnie-Broadneck.pdf

Anne Arundel County Department of Public Works. (2018). *WPRP Restoration Project Goals.* Retrieved from https://www.aacounty.org/departments/public-works/wprp/WPRP_Goals

Anne Arundel Economic Development Corporation. (2018). *Anne Arundel County Snapshot.* Retrieved from https://www.aaedc.org/business/county-profile/

Anne Arundel County Department of Health (2018.) *Rising Demographic, Socio-Economic and Health Indicators by Zip Code.*

Anne Arundel County Department of Planning and Zoning. (2016). *Anne Arundel County Consolidated Plan, 2016-2020*. Retrieved from https://acdsinc.org/wp-content/uploads/2016/04/Full-Consolidated-Plan.pdf

Anne Arundel County Department of Public Works (2017.) *A Land of Rivers.* Retrieved from https://www.aacounty.org/departments/public-works/wprp/annual-reports/WPRPFY2017webSingle.pdf

Anne Arundel County Housing Commission. (2018). *2018 Agency Plan Update*. Retrieved from http://hcaac.com/wp1/about-4/agency-plan/

Anne Arundel County Mental Health Agency. (2018). *Individuals Served in the Public Mental Health System.*

Anne Arundel County Police Department. (2018). *Emergency Evaluations for Juveniles.* Retrieved from https://www.aahealth.org/trends-in-youth-suicide-in-anne-arundel-county-2012-2016/

Anne Arundel County Transportation Commission. (2017). *Anne Arundel County Transportation Commission End of Year Report, 2017.* Retrieved from https://www.aacounty.org/boards-and-commissions/transportation-commission/forms-and-publications/AA%20County%20TC%202017%20End%20of%20Year%20Annual%20Report.pdf

Arundel Community Development Services. (2018). *The Home Program*. Retrieved from https://www.hud.gov/sites/documents/19790_ANNEARUNDELMD.PDF

Centers for Disease Control (2018.) *Autism Spectrum Disorder, Data and Statistics.* Retrieved from https://www.cdc.gov/ncbddd/autism/data.html

Chesapeake Bay Foundation (2017.) *State of the Bay Report*. Retrieved from http://www.cbf.org/document-library/cbf-reports/2016-state-of-the-bay-report.pdf

Housing Authority of the City of Annapolis. (2018). *Housing Authority of the City of Annapolis Annual and Five Year Plan 2015-2019.* Retrieved from https://www.hacamd.org/ban-list/annual-and-five-year-plan-draft/viewdocument.html

Jacobson, G; Griffin, K; Smith, S; and Neuman, R. (2017). *Income and Assets of Medicare Beneficiaries, 2016-2035.* Retrieved from https://www.kff.org/medicare/issue-brief/income-and-assets-of-medicare-beneficiaries-2016-2035/

Loughan A. and Perna R. (2014). *Neuropsychological Profiles and Subsequent Diagnoses of Children With Early Life Insults: Do Caregiver Reports Suggest Deficits?* Retrieved from https://www.tandfonline.com/doi/abs/10.1080/21622965.2012.712824

Maryland Health Services Cost Review Outpatient Files, 2017

Maryland Department of Health. (2017). *Infant Mortality Report 2017.* Retrieved from https://health.maryland.gov/vsa/Documents/Reports%20and%20Data/Infant%20Mortality/Infant_Mortality_Report_2017_20180919.pdf

Maryland Department of Health. (2017). *Unintentional Drug- and Alcohol-Related Intoxication Deaths in Maryland Annual Report 2017*. Retrieved from https://bha.health.maryland.gov/OVERDOSE_PREVENTION/Documents/Drug_Intox_Report_2017.pdf

Maryland Department of Human Resources. (2017). *Maryland Child Welfare Data 2017.* Retrieved from https://dhr.maryland.gov/documents/Data%20and%20Reports/SSA/Monthly%20Child%20Welfare%20Data/SFY%202017/2017-02-%20Child%20Welfare%20Trends%20report%20.pdf

Maryland Human Trafficking Taskforce. (2018). *Trafficking in Maryland*. Retrieved from http://www.mdhumantrafficking.org/maryland/

Maryland Network Against Domestic Violence. (2018). *Get the Facts*. Retrieved from http://mnadv.org/resources/get-the-facts/

Maryland Network Against Domestic Violence. (2017). *Annual Report 2016-2017*. Retrieved from https://mnadv.org/_mnadvWeb/wp-content/uploads/2017/11/2017-MNADV-Annual-Report.pdf

Maryland State Department of Education. (2017). *Youth Risk Behavior Survey – Anne Arundel County High School Data*. Retrieved from https://phpa.health.maryland.gov/ccdpc/Reports/Pages/YRBS2016.aspx

Rubenstein A. and Carr, N. (2017, January). Child Sex Trafficking Victims Initiative. *Child Sex Trafficking in Maryland: January 2017*.

U.S. Census Bureau. (2017). *American Community Survey Estimates (2012-2016).* Retrieved from https://www.census.gov/acs/www/data/data-tables-and-tools/

United States Department of Agriculture. (2018). *Food Access.* Retrieved from https://www.ers.usda.gov/topics/food-choices-health/food-access/