

2022-2024 BROOME COUNTY HEALTH ASSESSMENT UPDATE



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United Health Services | John Carrigg, President & CEO

Lourdes Hospital | Kathryn Connerton, President & CEO

Appreciation | Belongingness | Inclusivity | Diversity | Equity

ACKNOWLEDGEMENTS

On behalf of the residents of Broome County, we are pleased to present the
Broome County Community Health Assessment Update 2022-2024

We hope that it serves to improve the health and well-being of all residents of Broome County.

With gratitude to the following individuals for their service on and contributions to the Broome County Community Health Assessment 2022-2024 Steering Committee:

Addiction Center of Broome County – Carmela Pirich
American Heart Association – Brittney Taylor
Ascension Lourdes Hospital – Deborah Blakeney, Susan Bretscher, Bernard Bush, Lisa Donovan
Wayne Mitteer, Robin Kinslow-Evans
Binghamton Housing Authority – Jean Westcott, Tami Robinson
Binghamton University – Leon Cosler, Vipul A. Lugade, Yvonne Johnston, Christine Podolak, Dave Hubney
Broome County Council of Churches – Les Aylesworth, Sue Spencer
Broome County Mental Health Department – Megan Wise, Heidi Mikeska, Maria Fabrizi, Kimberly Saunders
Broome County Office for Aging – Mary Whitcomb, Rita Fluharty, MaryJane Lawrence
Broome County Planning Department – Stephanie Brewer
Broome Tioga BOCES – Rebecca Stone, Julie Raway
Broome Tioga NAACP – Nicole Sirju-Johnson
Broome County Urban League – Jennifer Lesko
Broome County YMCA – Gareth Sansom
Care Compass Network – Lisa Berard, Emily Pape
Catholic Charities – Tracie Layton
Cornell Cooperative Extension – Beth Roberts, Tara Kenyon
Cornerstone Family Healthcare – Kelly Wildey
Excellus Blue Cross Blue Shield – Melissa Klinko, Amy Houghton
Family Enrichment Network – Jennifer Perney
Food Bank of the Southern Tier – Natasha Thompson, Theresa Krause
Greater Good Grocery Store – Kinya Middleton
Guthrie – Joshua Stout
Helio Health – Erica Robinson
Mothers and Babies Perinatal Network – Christy Finch
Rural Health Network of SCNY – Nick Cecconi, Pam Guth, Mary Maruscak, Mark Bordeua, Emma Nalin, Erin Summerly
North of Main (NoMa) – Brandy Brown
SEPP – John Bernard
Southern Tier Independence Center – Chad Eldred, Susan Ruff
STAP – John Barry
Tioga County Health Department – Lisa McCafferty, Kylie Holochak
Truth Pharm – Alexis Pleus
United Health Services Hospitals – Shoba Agneshwar, Anne DePugh, Patricia Williams, Dr. Julia Hunter, Cara Fraser, Megan D’Lintrono
United Way – Paula Perna, Lindsey Mott, Laura Lacasse
Volunteers improving neighborhood environments (VINES) – Amelia LoDolce

With grateful acknowledgement to the Broome County Health Department:

Mary McFadden, Director of Public Health
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Broome County Elected Officials

Community Outreach Event Partners

and to the New York State Public Health Corps:
Graduate Fellows-**Julie Very, Margaret Reynolds, Amy Fassold, Jason Zheng**

*For their substantive contributions to the preparation of this report
and without whom this submission would not have been possible.*

This report was submitted by the Broome County Community Health Assessment Coordinator, Yvonne Johnston, DrPH, MPH, MS, RN, FNP.

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Our Mission:

“Broome County Health Department serves our residents by promoting and protecting public health through education and prevention”



Our Vision:

“Optimal health and equity where we live, learn, work, and play.”

BROOME COUNTY
COMMUNITY HEALTH ASSESSMENT (CHA)
COMMUNITY HEALTH IMPROVEMENT PLAN (CHIP)
2022-2024 UPDATE

County covered:	Broome County
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Participating Hospitals:	<i>Lourdes Hospital, Inc.</i> 169 Riverside Drive, Binghamton, NY 13905 Phone: 607-798-5111 Web: www.lourdes.com <i>United Health Services Hospitals, Inc.</i> <ul style="list-style-type: none">• <i>UHS Wilson Medical Center</i> 33-57 Harrison Street, Johnson City, NY 13790 Phone: 607-763-6000• <i>UHS Binghamton General Hospital</i> 10-42 Mitchell Avenue, Binghamton, NY 13903 Phone: 607-762-2200• <i>UHS Medical Group</i> 40 Arch Street, Johnson City, NY 13790 Phone: 607-763-6293 Web: http://www.uhs.net/
Coalition/entity completing assessment and plan:	Broome County Community Health Assessment Steering Committee



EXECUTIVE SUMMARY

The Community Health Assessment is a process for examining the health of a community. Importantly, this assessment serves as a baseline for evaluating progress toward the New York State's Prevention Agenda 2024 goals. These goals are designed to improve the health of all New Yorkers. This assessment also marks our progress toward Healthy People 2030 objectives. While completion of a community health assessment is required of local health departments and hospitals, there are many benefits to doing so.

The Broome County 2019-2024 Community Health Assessment is unprecedented in the fact that it has incorporated an unparalleled array of community voices, the institutional knowledge and experience of dedicated long-standing community partners, population-based health and evidence-based interventions, organic local level data, and a *health in all policies* approach. The recent evolution of changes in the health system landscape allowed Broome County to incorporate contemporary initiatives that focus more on social determinants of health and the priority populations impacted by them. These new initiatives and resources that have shaped the 2019-2024 Broome County Health Assessment/Improvement Plan include Broome County's Age Friendly Initiative, the Broome County Opioid Awareness Council, the Delivery System Reform Incentive Program - Care Compass Network, the Population Health Improvement Program, and Healthconnections, the local regional health information organization.

The 2022-2024 Community Health Assessment update provided an opportunity to reconvene the Broome County CHA Steering Committee and re-engage the community at large to ensure Broome County's health priorities are aligned with our community's needs following the upheaval of the COVID-19 pandemic.

As the lead agency for this multi-tiered collaborative process, the Broome County Health Department provided guidance, leadership, and direction working diligently with our local hospital systems, community-based organizations, education institutions, business sector, faith-based communities, and elected officials to conduct the assessment as prescribed and design a unified action plan that incorporates our community's most significant health priorities. The 2022-2024 update plan continues to emphasize the social determinants of health, incorporates evidence-based interventions with specific actions/roles by community partners, sustainable resources, and a focus on our community's most disparate populations.

The original local public health priorities were identified in an iterative process by the Steering Committee beginning in April 2019 at the CHA Symposium event and formalized at the November 2019 CHA Steering Committee meeting. At their May 2019 meeting, the CHA Steering Committee discussed data presented at the Symposium and considered data collected during the Symposium using the Focus Area Ranking Tool as well as analysis of breakout session themes. The CHA Steering Committee recognized and valued the need to align selected CHA priority areas with other initiatives (e.g., DSRIP) and with hospital Community Service Plans (CSPs). The group spoke at length about how the social determinants of health play into the top-ranking focus areas, and current Broome County initiatives to address those issues.

Most of the data used to determine 2022-2024 efforts and continuing work on some existing priorities came from a broad set of data sources including:

State and Federal: New York State Prevention Agenda Dashboard <https://health.ny.gov/preventionagendadashboard>; New York State Community Health Indicator Reports Dashboard <https://www.health.ny.gov/chirsdashboard>; New York State Opioid Data Dashboard <https://www.health.ny.gov/opioiddashboard>; New York State Asthma Dashboard <https://health.ny.gov/asthmadashboard>; New York State Maternal and Child Health Dashboard <https://www.health.ny.gov/mchdashboard>; New York State Leading Causes of Death Data Application; New York State Leading Causes of Death (ny.gov); County Health Indicators by Race and Ethnicity <https://health.ny.gov/statistics/community/minority/county/>; New York State Behavioral Risk Factor Surveillance System; Behavioral Risk Factor Surveillance System (BRFSS) Health Indicators by County and Region | State of New York (ny.gov).

Foundations and Community Organizations: Robert Wood Johnson Foundation County Health Rankings, Rural Broome Counts Needs Assessment, NYS Population Health Improvement Project (PHIP) Community Dashboard (HealthConnections), Care Compass Network (DSRIP).

Local: To garner input from the broader community at the local level a community survey was created. 222 surveys were completed through 20 community events held across the county where 1,947 were collected online. Community Health Surveys were issued electronically via the Broome County website and through social media of all community partners, along with printed copies, as requested to community partners/gatekeeper representing health disparities. The extensive data used in this process were compiled into appended documents to this report and are intended to serve as a reference for those seeking detailed information about our community. In order to gain community participation, the health department provided raffles and other incentives to bolster response. In total, we collected 2,219 survey results which further confirmed our priorities.

2022 – 2024 Community Health Assessment Survey Update – Double Click the Icon to Open



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The following New York State Prevention Agenda 2019-2024 priority areas, goals and focus areas have been confirmed through the 2022-2024 community health assessment process.

Priority Area #1: Prevent Chronic Disease

Focus Area 1: Healthy Eating and Food Security

Goal #1: Increase access to healthy and affordable foods and beverages

Goal #2: Increase skills and knowledge to support healthy food and beverage choices

Goal #3: Increase food security

Focus Area 2: Chronic Disease Preventative Care and Management

Goal #1: Increase cancer screening rates for breast, cervical, and colorectal cancer

Goal #2: Increase early detection of cardiovascular disease, diabetes, prediabetes, and obesity

Goal #3: Promote evidenced-based care to prevent and manage chronic diseases including asthma, arthritis, cardiovascular disease, diabetes and prediabetes and obesity

Goal #4: In the community setting, improve self-management skills for individuals with chronic diseases, including asthma, arthritis, cardiovascular disease, diabetes and prediabetes, and obesity

Priority Area #2: Promote Well-Being and Prevent Mental & Substance Use Disorders

Focus Area 1: Mental and Substance Use Disorders Prevention

Goal #1: Prevent opioid and other substance misuse and deaths

Goal #2: Prevent and address adverse childhood experiences (ACES)

Goal #3: Reduce the prevalence of major depressive disorders

Goal #4: Prevent suicides

Priority Area #3: Prevent Communicable Diseases

Focus Area 1: Vaccine Preventable Diseases

Goal #1: Improve vaccination rates

Focus Area 2: Decrease morbidity of COVID-19

Goal #1: Reduce cases of COVID-19

Focus Area 3: Detection of COVID-19

Goal #1: Increase active surveillance and early detection of COVID-19.

Several activities supported development of the combined Community Health Improvement Plan (CHIP) /Community Service Plans (CSPs). Once the Steering Committee determined the priority areas on which to focus, the NYSDOH template was populated with information solicited from members of the Steering Committee and included identification of intervention strategies to be used, potential activities or action items, key stakeholders, roles, resources available and possible metrics to use for measuring process and outcomes. Steering committee members were asked to consider several elements while selecting the interventions used for the CHIP. Some of the elements included the evidence basis, current resources supporting potential interventions, and the ability to implement, evaluate and sustain the interventions. The draft document was distributed prior to Steering Committee meeting and discussed. The plan was refined over the course of several communications with members and final draft version of the CHIP was unanimously approved by the Steering Committee in December 2019. This CHIP will serve as the basis for ongoing Steering Committee meetings during which it will likely undergo further refinement. As the CHIP is implemented and evaluated, specific actions/interventions may be modified and new ones added in a continuous and dynamic plan, do, check, act (PDCA) cycle.

The Steering Committee will continue to meet monthly to assess progress to date and adapt the CHIP as circumstances direct. On a quarterly basis, community partners will complete a performance monitoring tool that tracks all CHIP related activities and process measures as well as incremental gains made on outcome objectives. Meetings will focus on successes and setbacks encountered as stakeholders implement the CHIP and will serve as a forum for brainstorming and networking to ensure success of or make modifications to the plan based on changing circumstances or emergent issues. The Steering committee will analyze the functionality, responsiveness, and capacity of the community-health systems-government partnership to address public health needs. New members will be welcomed at any time to contribute to process. As part of ongoing analysis of performance, the Steering Committee will seek additional representation from sector specific community organizations and priority population representatives to assist with evaluating impact of CHIP.

In closing, it is important that we reflect on the magnitude of this assessment process and importance of producing an action plan that will undoubtedly shape the health outcomes of our community over the next several years. The undertaking of work from our community partners; including Binghamton University's Graduate Students, and support of our health department and hospitals' leadership fostered a comprehensive, in-depth investigation into the health status of those who live here in Broome County. It is hoped that this information will help to inform policy, systems and environmental changes that will affect all levels of the health impact pyramid, while serving as a resource for academics and clinicians, and assisting individuals to focus on the health of their community and finding ways to improve it.

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SECTION ONE – POPULATIONS AT RISK

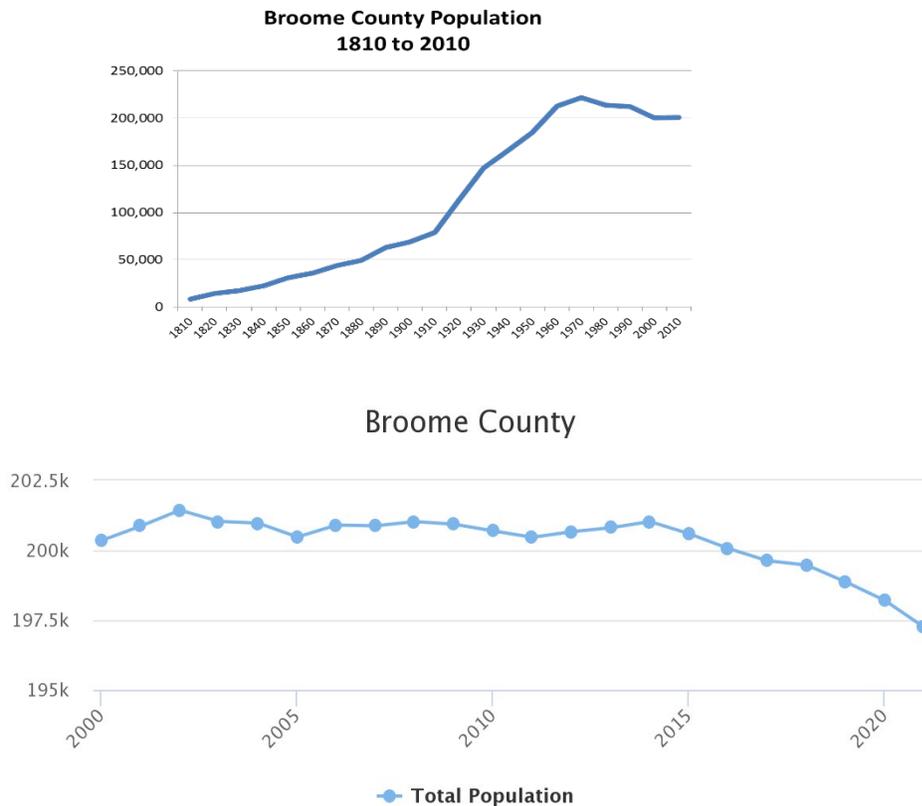
A. Demographic and Health Status Information

Population

Broome County is in the Southern Tier of New York State (NYS), which encompasses nine counties along the Pennsylvania border and is one of three counties in the central New York region.

The census measured population of Broome County in 2020 was 198,683. The county covers a land area of 705.77 square miles yielding a population density of 284.2 persons per square mile. The county is comprised of 16 towns, 7 villages, and 1 city. Three towns (Chenango, Union, and Vestal), two villages (Johnson City and Endicott), and one city (Binghamton) have populations greater than 10,000 (Figure 3). The largest concentration of residents is in the southwest section of the county, which includes the City of Binghamton and the towns of Vestal and Union (Figure 4). Broome County ranks 19th out of 62 counties in population size. State population maps appear in Appendix B1-B3.

Figure 1. Broome County Population, 1810–2010



Data source: U.S. Census Bureau

Made through Cornell Program on Applied Demographics

The population of Broome County grew steadily from 1810 to 1970, peaking at 221,815 persons in 1970 (Figure 1). This growth was

attributable to manufacturing opportunities offered by such businesses as Endicott-Johnson Shoe Company, International Business Machines (IBM), and Link Flight Simulation, among many others. Since

1970, Broome County has experienced a net out-migration due to economic forces resulting in a reversal of this trend (Table 1 and Figure 2).

Population projection estimates suggest that this decline is likely to continue through 2050 with a net population loss of approximately 5,000 persons over this period (Cornell University, Program on Applied Demographics [PAD] Projections, 2019). The population changes are not evenly distributed across municipalities. Between 2000 and 2018, the towns of Maine and Triangle experienced a net outmigration that exceeded 10% while the towns of Barker and Lisle experienced net population increases more than 15% and 5% respectively (Figure 5). Between 2010 and 2015, Conklin, City of Binghamton and Nanticoke experienced the largest population losses (2.7%, 2.8%, and 3.4% respectively).¹ Both Conklin and Nanticoke have a high percentage of their populations located within the 1% and 0.2% flood boundaries (Conklin, 62.2% and 70.7% respectively; Nanticoke, 62.4% for both).² Flooding from severe storms particularly in September of 2004 and June 2006 may account for at least some of these population losses during the previous intercensal period, and population impacts from hurricane Irene and tropical storm Lee in 2011 and hurricane Sandy in 2012 may account for some of these losses during the current intercensal period.

Table 1. Population Estimates, Broome County, NY, 2000–2018

Year (as of July 1)	Population Estimate	Population Change	Percent Change (from Previous Year)
2000	200,299	—	—
2001	199,958	341	-0.170
2002	199,670	288	-0.144
2003	198,326	1,344	-0.673
2004	197,453	873	-0.440
2005	196,127	1,326	-0.672
2006	195,942	185	-0.094
2007	195,477	465	-0.237
2008	195,018	459	-0.235
2009	194,630	388	-0.199
2010	200,272	5,642	+2.899
2011	199,031	1,241	-0.620
2012	198,060	971	-0.488
2013	197,911	149	-0.075
2014	197,251	660	-0.333
2015	195,794	1,457	-0.739
2016	194,345	1,449	-0.740
2017	192,959	1,386	-0.713
2018	191,659	1,300	-0.674

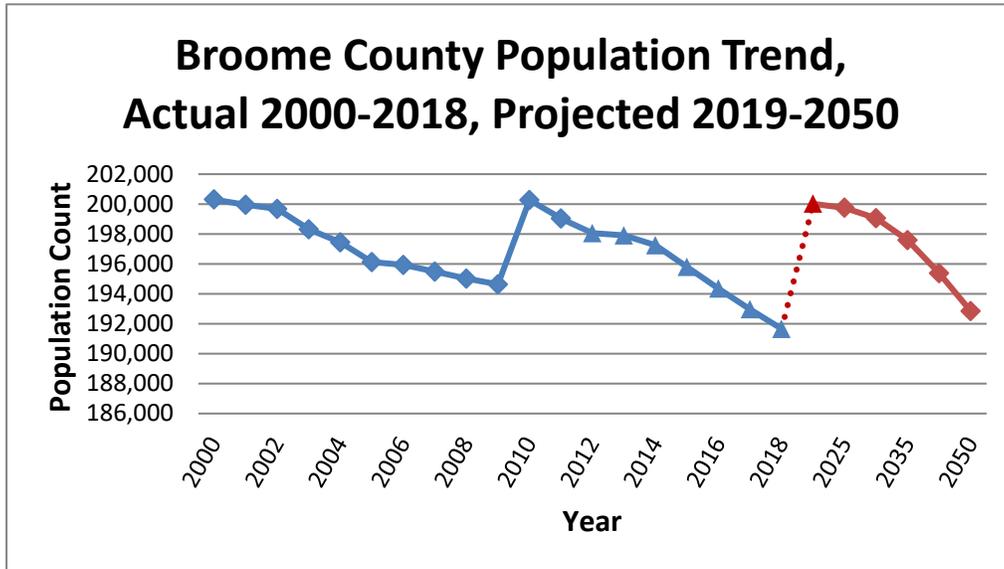
¹ Cornell Program on Applied Demographics. (2017). Broome County Profile 2017: A collection of recent demographic, social and economic data. Retrieved from <https://pad.human.cornell.edu/profiles/Broome.pdf>

² Broome County Hazard Mitigation Plan. (2013). *DMA 2000 Hazard Mitigation Plan Update – Broome County, New York*. Retrieved from http://gobroomecounty.com/files/planning/_pdf/Hazard%20Mitigation/Final%20Draft%20For%20Approval/Section%205_4_1%20b%20Flood%20February%202013%20low%20res.pdf

2019	190,488	1171	-0.611
2020	198,683	8195	4.302
2021	198,591	NA	NA

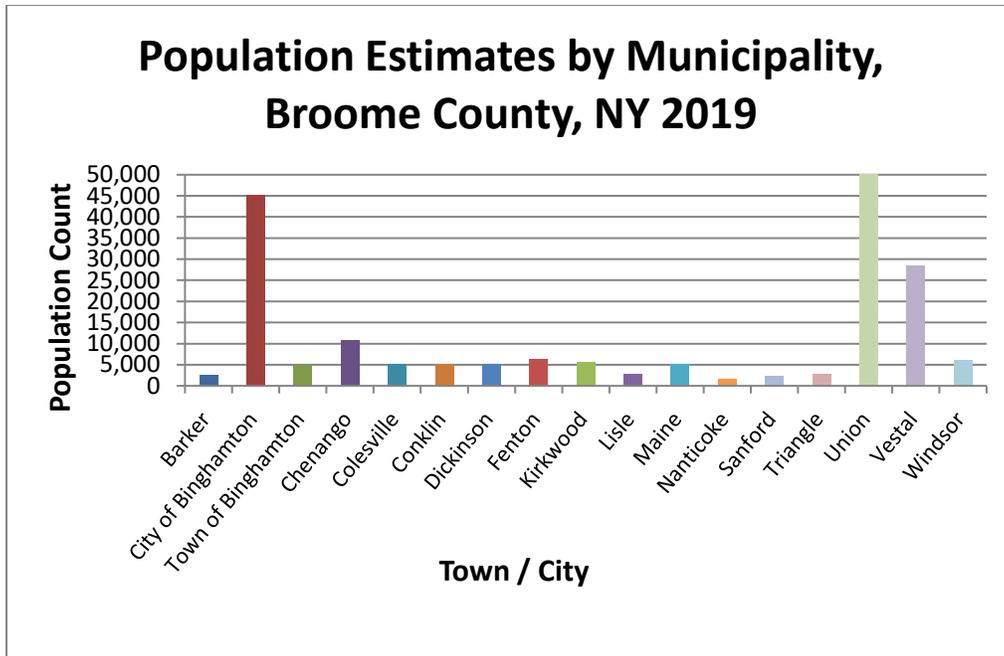
SOURCE: US Census Bureau, Population Estimates Program, 2000-2020

Figure 2. Population Trend, Broome County, NY, Actual 2000–2018, Projected 2019-2050



SOURCE: US Census Bureau, Population Estimates Program, 2000–2012; Cornell University, Program on Applied Demographics Projections, 2013

Figure 3. Population Estimates by Municipality, Broome County, NY, 2019



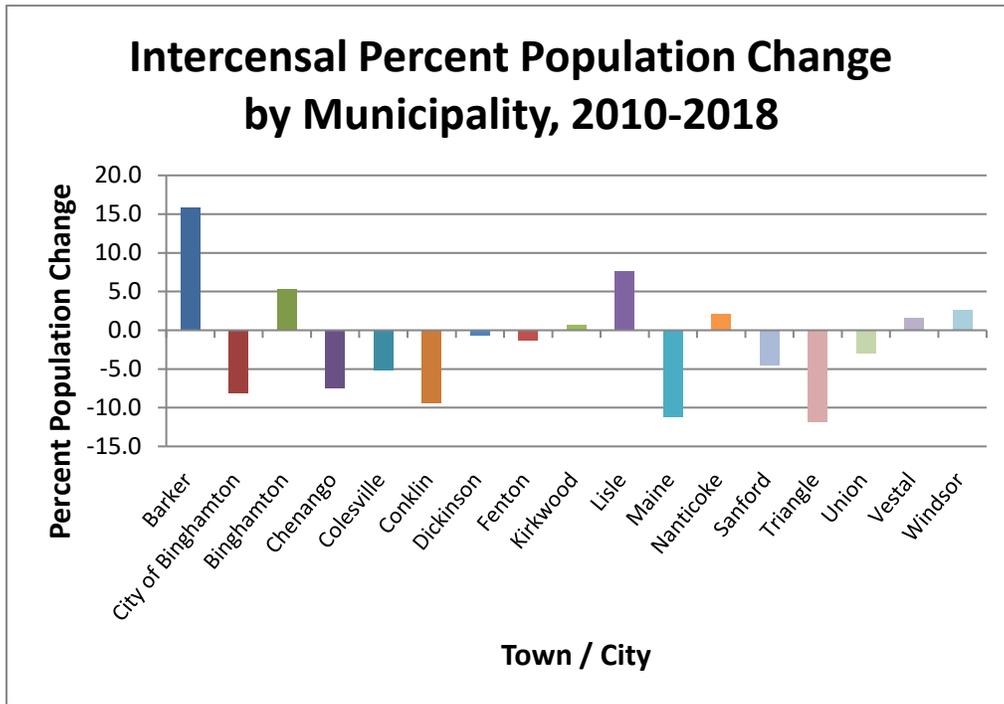
Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, 2019

Figure 4. Population Map of Broome County, NY (persons per square mile), Broome County, NY, 2019



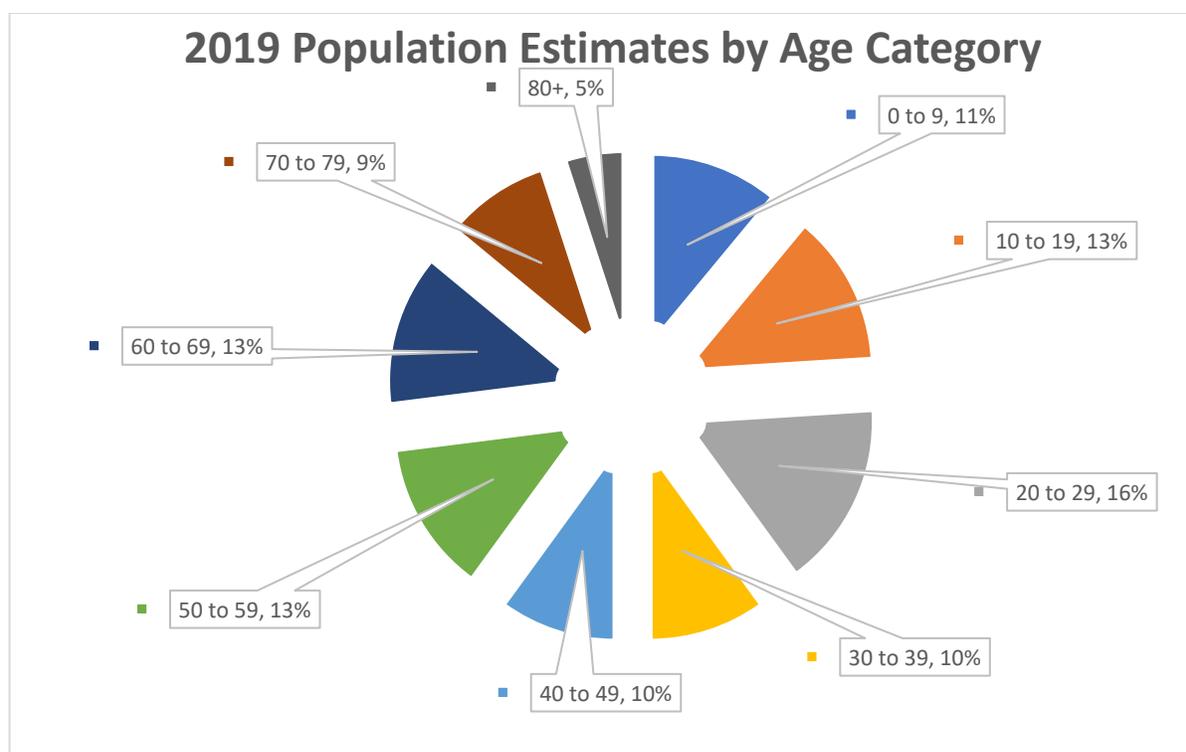
SOURCE: Social Explorer, American Community Survey Data 2019

Figure 5. Intercensal Percent Population Change by Municipality, 2010-2018



SOURCE: US Census Bureau Intercensal Population Estimates, 2010-2018

Figure 6. Population Estimates by Age Category, Broome County, NY, 2019



SOURCE: US Census Bureau, American Community Survey, 2019

Age and Gender

Population estimates by gender for Broome County (2017) appear in Appendix B5. Specific age groups by gender (2017) appear in Appendix B4. The median age in Broome County is 39.0 years for males, 41.5 for females, and 40 overall, ranking it in the third quartile for NYS. In comparison, the median age is 39.2 years in NYS and 38.5 years in the US. Children under 18 years of age comprise 19.3% of the population; and adults age 65 and older, 19.5% (Figure 6), yielding a child dependency ratio³ of 31.6, an old age dependency ratio⁴ of 32.5, and an age dependency ratio⁵ of 64.1. These figures are 33.5, 28.4, and 61.9 for NYS. Maps from the Census 2019 showing counties by age concentrations appear in Appendix B6 and B7, and graphically depicts the lower concentration of youth and higher concentration of elderly relative to the rest of the state. Thus, Broome County experiences a greater burden of care for their elderly than NYS or the US.

For the estimated 2019 population, 49.5% are male and 50.5% are female. The population pyramid in Figure 7 depicts 5-year age groups or cohorts for both males (left side) and females (right side). Up to age 20, males outnumber females, but after age 62 women comprise the larger proportion of the total population. The sex ratio⁶ is 107.7 in the three youngest cohorts (ages 0 to 14) as compared to 62.1 in

³ The child dependency ratio = $[(\text{the number of people age } <18) \div (\text{the number of people age } 18-64)] \times 100$. This ratio reflects the burden of care for children on the working population.

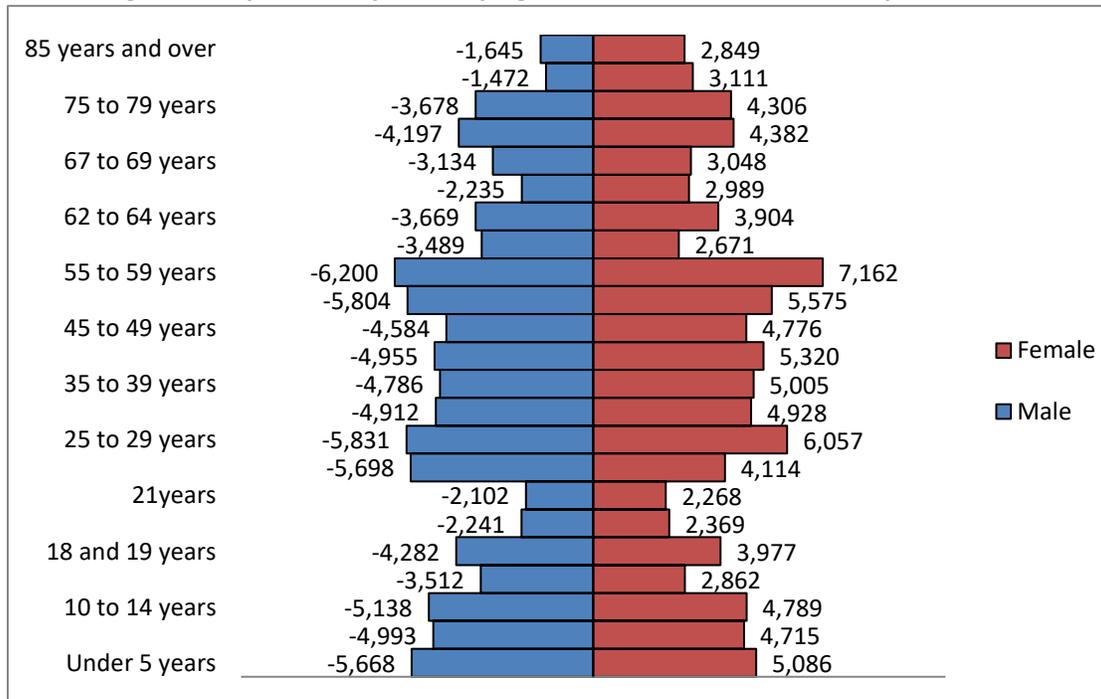
⁴ The old age dependency ratio = $[(\text{the number of people age } 65+) \div (\text{the number of people age } 18-64)] \times 100$. This ratio reflects the burden of care for elders on the working population.

⁵ The dependency ratio = $[(\text{the number of people age } <18 + \text{the number of people age } 65+) \div (\text{the number of people age } 18-64)] \times 100$. This number reflects the care burden for the economically dependent members of society on the working population.

⁶ The sex ratio = $[(\text{the number males}) \div (\text{the number of females})] \times 100$

the three oldest cohorts (75 and older), which reflects the higher mortality rates among older men. Because women tend to have less economic security than men, widows who live alone may require more services or assistance to remain in their home. The “bulge” in the young adult population is likely attributable to college attendance at Broome Community College and Binghamton University, and the narrowing in the 30–39 age category suggests that graduates subsequently seek job opportunities outside Broome County. The outmigration of young adults and an aging population are responsible for the higher observed old age dependency ratio, which indicates the burden of care on working families to support an aging population.

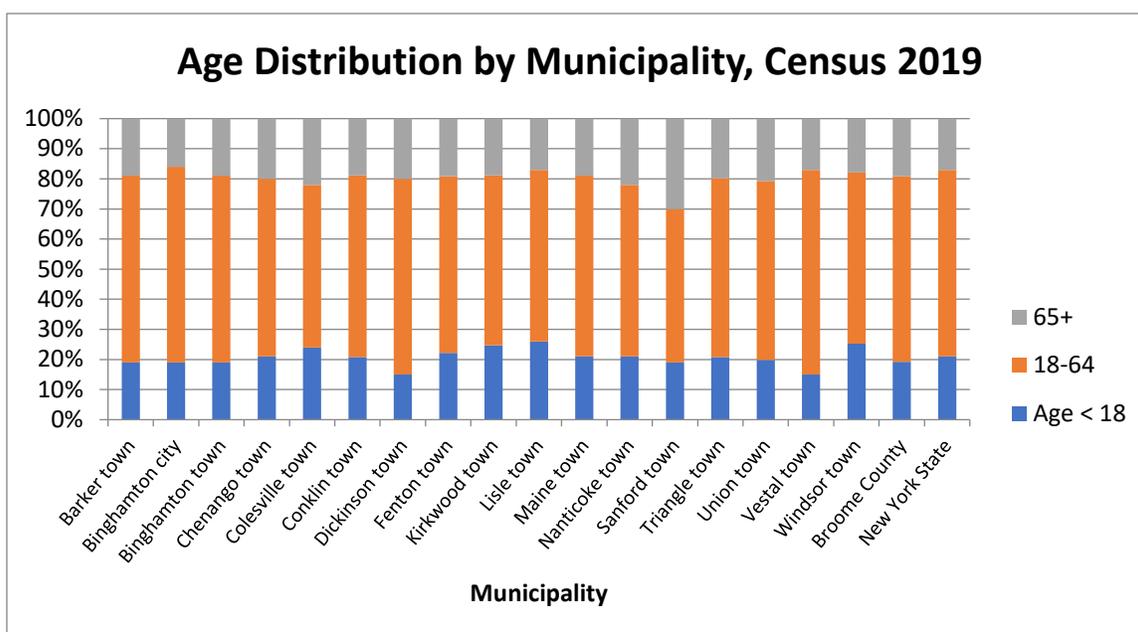
Figure 7. Population Pyramid by Age and Gender, Broome County, NY, 2019



SOURCE: U.S. Census Bureau (2019). *Sex by Age American Community Survey 1-year estimates*. Retrieved from <<https://censusreporter.org>>

Figure 8 provides data for age distribution of populations across municipalities (see also Appendix B8). Municipalities with the largest percentage of population 65 years of age or older are the towns of Sanford (30%), Colesville (22%), and Nanticoke (22%). Municipalities with the largest proportion of population under the age of 18 years are the towns of Lisle (26%), Kirkwood (25%), and Colesville (24%). In this figure, each bar represents 100% of the population for each municipality. The different color lengths are sectioned based on the relative percentages of the age groups within each municipality. The age dependency ratios are graphically represented by the length of the top and bottom sections in relation to the middle section of each bar. Towns with the highest dependency ratios are Sanford, Nanticoke, and Kirkwood; and towns with the lowest dependency ratio are Barker, Colesville, and Vestal.

Figure 8. Age Distribution by Municipality, Broome County, NYS, Census 2019



SOURCE: US Census Bureau, 2019

Race and Ethnicity

The majority of Broome County’s population is white and non-Hispanic (Table 2, see also Appendices B9 & B10). Population estimates indicate that the proportions of Black and Asian residents have increased between 2000 and 2017. For Black non-Hispanics, the population has increased from 3.3% to 5.8% and for Asian non-Hispanics from 2.8% to 4.2%. The proportion of Hispanics or Latinos, regardless of race, has also increased from 2.0% in 2000 to an estimated 4.0% in 2017. Population trends for Black non-Hispanics, Asians, and Hispanics indicate a continuous near linear increase. (Appendices B11-B13).

Rural areas of Broome County show less diversity than urban areas (Figure 9 and Appendix B14); and in all areas of Broome County, the proportion of non-white population is well-below NYS and US averages (Table 2). The municipalities with the highest percentage of Blacks include the City of Binghamton (11.2%), the town of Union (6.3%) and the town of Dickinson (5.1%). The municipalities with the largest concentration of Asians are Vestal (13.2%) and the City of Binghamton (4.6%). The largest concentrations of Hispanics are in the City of Binghamton (7.1%) and the towns of Kirkwood (7.0%) and Vestal (4.7%).

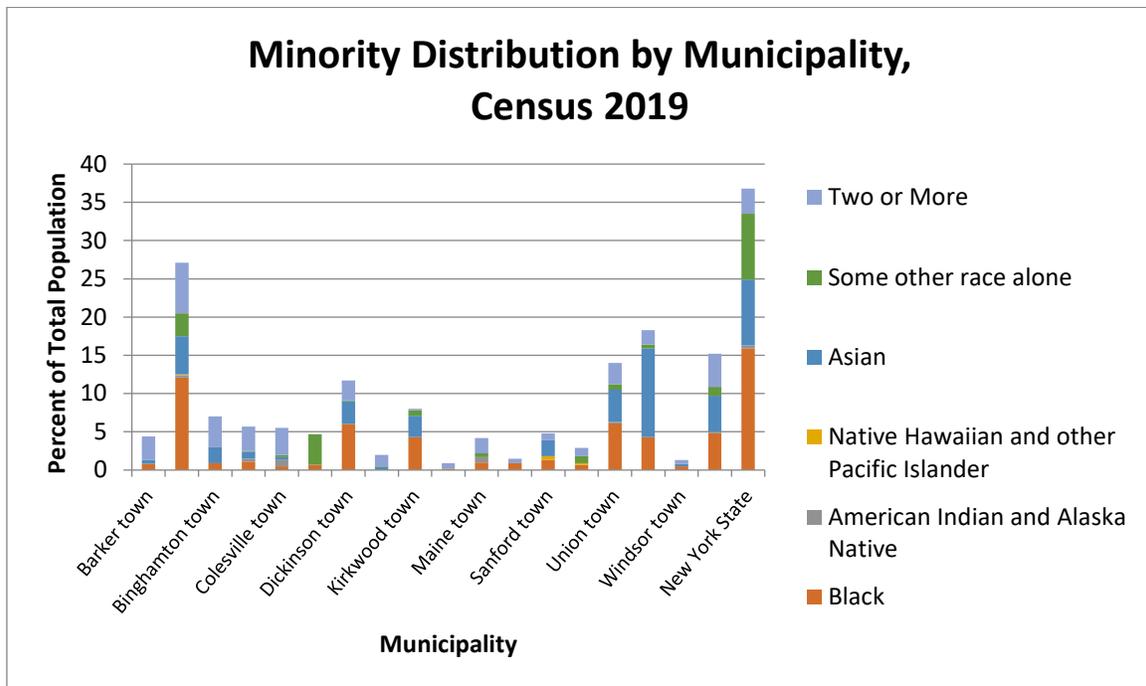
Table 2. Population Estimates by Race / Ethnicity Category, Broome County, NY, 2021 (2012, 2017)

Race / Ethnicity Category	Broome County				NYS		US	
	2021 Census	Percent	2017 Estimate	Percent	2012 %	2017 %	2012 %	2017 %
One race	185,521	97.8	196,124	97.2	97.3	95.9	97.1	96.9
White	161,537	84.9	168,776	86.1	65.2	63.8	73.9	73.0
Black or African American	13,033	4.8	11,279	5.8	15.6	15.7	12.6	12.7

American Indian or Alaska Native	225	0.2	451	0.2	0.4	0.4	0.8	0.8
Asian	9,129	4.7	8,321	4.2	7.7	8.3	5.0	5.4
Native Hawaiian or Other Pacific Islander	0	0	71	.01	-	0.01	0.2	0.2
Other race	1,597	1.2	197	1.0	-	8.7	3.7	4.8
Two or more races	11,719	4.3	5,480	2.8	2.7	3.0	2.9	3.1
Not Hispanic or Latino	187,764	96.4	188,305	96.0	81.8	81.1	83.1	82.4
Hispanic or Latino	9,476	3.6	7,819	4.0	18.2	18.9	16.9	17.9
TOTAL	197,240	100.0	196,124	100.0	100.0	100.0	100.0	100.0

SOURCE: US Census Bureau, Census 2021, Race American Community Survey 1 year estimates

Figure 9. Minority Distribution by Municipality, Broome County, NYS, Census 2019



SOURCE: US Census Bureau, 2019

Income and Poverty Level

2022 Federal Poverty Guidelines Chart (Effective Jan. 12, 2022)

We have included multiple percentages in the Federal Poverty Level chart below, as there are several programs, including Medicaid, that use a percentage of the FPL as the income criteria for program participation.

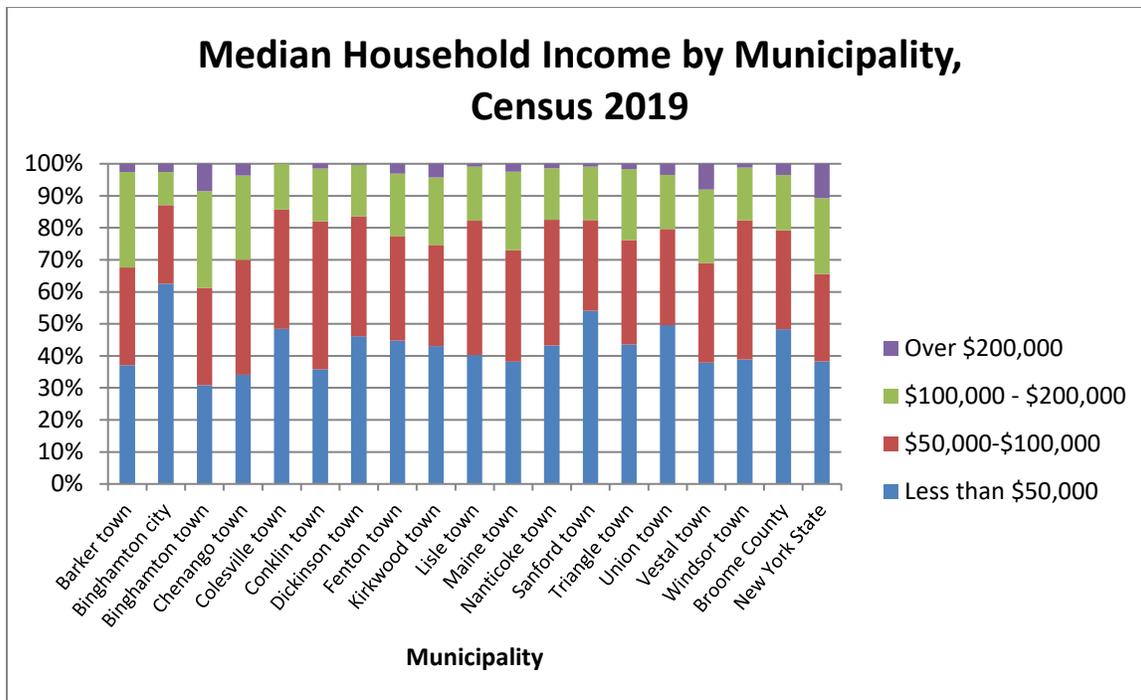
48 Contiguous States

# of Persons In Household	2022 Federal Poverty Level for the 48 Contiguous States (Annual Income)						
	100%	133%	138%	150%	200%	300%	400%
1	\$13,590	\$18,075	\$18,754	\$20,385	\$27,180	\$40,770	\$54,360
2	\$18,310	\$24,352	\$25,268	\$27,465	\$36,620	\$54,930	\$73,240
3	\$23,030	\$30,630	\$31,781	\$34,545	\$46,060	\$69,090	\$92,120
4	\$27,750	\$36,908	\$38,295	\$41,625	\$55,500	\$83,250	\$111,000
5	\$32,470	\$43,185	\$44,809	\$48,705	\$64,940	\$97,410	\$129,880
6	\$37,190	\$49,463	\$51,322	\$55,785	\$74,380	\$111,570	\$148,760
7	\$41,910	\$55,740	\$57,836	\$62,865	\$83,820	\$125,730	\$167,640
8	\$46,630	\$62,018	\$64,349	\$69,945	\$93,260	\$139,890	\$186,520

Add \$4,720 for each person in household over 8 persons

In Broome County in 2021, the median household income was \$55,591, which is lower than both NYS (\$74,314) and the US (\$65,712). These figures are based on one-year estimates in 2021 inflation-adjusted dollars. Median income for nonfamily households is 36.4% of that for married families. The median earnings for an individual were \$28,689. Female earnings were 73% that of males. In addition, there is a positive association between earnings and educational attainment. On average, each increase in education level yields a 30% increase in earnings. Data tables and maps for income appear in Appendices B15-B22.

Figure 10. Median Household Income by Municipality, Broome County, NYS, Census 2017



SOURCE: US Census Bureau, Census 2019

There were 34,003 individuals below poverty level in Broome County, which represents 18.8% of the population for whom poverty status was determined (Table 3). For the period 2013-2017, the proportion of individuals below poverty was higher in Broome County (18.8%) than in NYS (13%) or the US (12.3%) and relates to the lower income levels observed for both individuals and households.

Detailed analyses of poverty level and demographic/social characteristics are provided for individuals and for families (Appendices B23-B33). The age group with the highest percentage below poverty level is children under 18 years of age (23.0%). The proportion of individuals below poverty level is 3.2 times higher for Blacks/African Americans and 2.7 times higher for Asians as well as 3.0 times higher for Hispanics (any race) than for whites (non-Hispanic). The percent below poverty level decreases with greater educational attainment; and over 34% of individuals who have less than a high school education are below poverty level. More than 20% of individuals who worked part-time year-round were below poverty level and 25.0% of individuals who did not work were below poverty level.

The differences in poverty level among type of household are particularly striking (Appendix B24). Families in which the head of household is female with no husband present have poverty rates that are more than seven times higher than married-couple families (e.g., 32.0% vs. 4.5%). These differences are compounded by significant racial and ethnic disparities. Over 61% percent of families receiving Supplemental Security Income and/or cash public assistance were below poverty level, and the poverty level was more than 64 % for families with 3 or more children in which the head of household was female with no husband present.

Municipalities with the highest percentage of individuals or families below poverty level included the City of Binghamton (33.3%) and the towns of Colesville (16.6%), Kirkwood (13.9%), Union (13.4%), Lisle

(13.4%), Vestal (13.4%), and Fenton (13.0%) indicating that both rural and urban areas appear to experience higher levels of poverty than suburban areas (Appendix B32 & B33).

In relation to indicators of poverty for children and youth, rates in Broome County are higher than NYS. In 2017, there were 8,571 children under the age of 18 who were living below poverty level (23 per 100) and 8,272 received free or reduced-price school lunch in public schools (54.3 per 100). Between 2012 and 2017, slight decreases were observed across all poverty indicators for Broome County as well as NYS and the US (Table 3). Poverty in childhood is associated with a wide range of social, educational, and health-related problems, and this indicator offers an important leverage point for primary prevention.

Table 3. Poverty Indicators for Children and Youth, Broome County, New York State, US 2012 & 2017

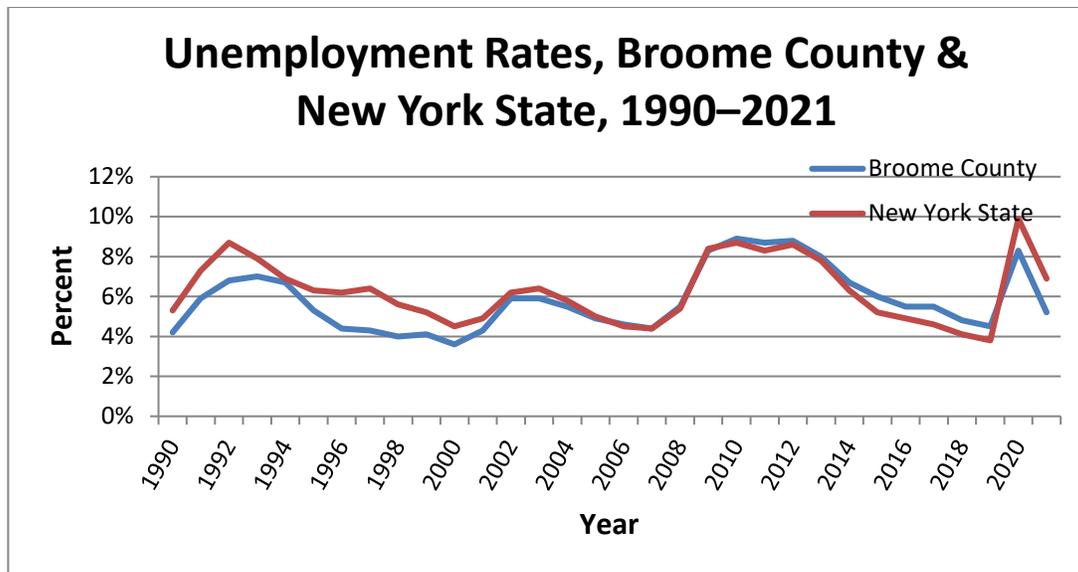
	Broome 2012 (%)	Broome 2017 (%)	NYS 2012 (%)	NYS 2017 (%)	US 2012 (%)	US 2017 (%)
Children living below poverty (age < 18 years)	25.5	23.0	22.8	21.3	22.6	20.3
Households receiving food stamp/SNAP benefits (past 12 months)	17.0	16.0	15.5	15.2	13.6	12.6
Families receiving public assistance	39.6	38.1	36.5	33.2	32.7	28.0
Households receiving Supplemental Security Income	7.0	5.6	6.6	6.9	5.4	6.7

SOURCE: US Census Bureau, American Community Survey, 2013-2017 (5-year estimates)

Employment

For the period 2013-2017, the three-year unemployment rate for Broome County was 9.1%. Young adults had the highest unemployment rates, with 15.9% of 16–19 year olds and 12.3% of 20–24 year-olds unemployed. Unemployment rates for Black/African American, Asian, and Hispanic (any race) individuals were 16.7%, 8.1%, and 11.1% respectively. The rates for Black/African American and Hispanic individuals were 2-3 times higher than for White individuals (6.3%). More than 26% of the population 16 years of age or over and who were below the poverty level were unemployed. Of those who reported any type of disability, 15.3% were unemployed. Trends in employment are indicators of economic vitality. The economic conditions in NYS have resulted in similar fluctuations in unemployment for both Broome County and NYS (see Figure 11).

Figure 11. Unemployment Rates for Broome County and New York State, 1990–2021

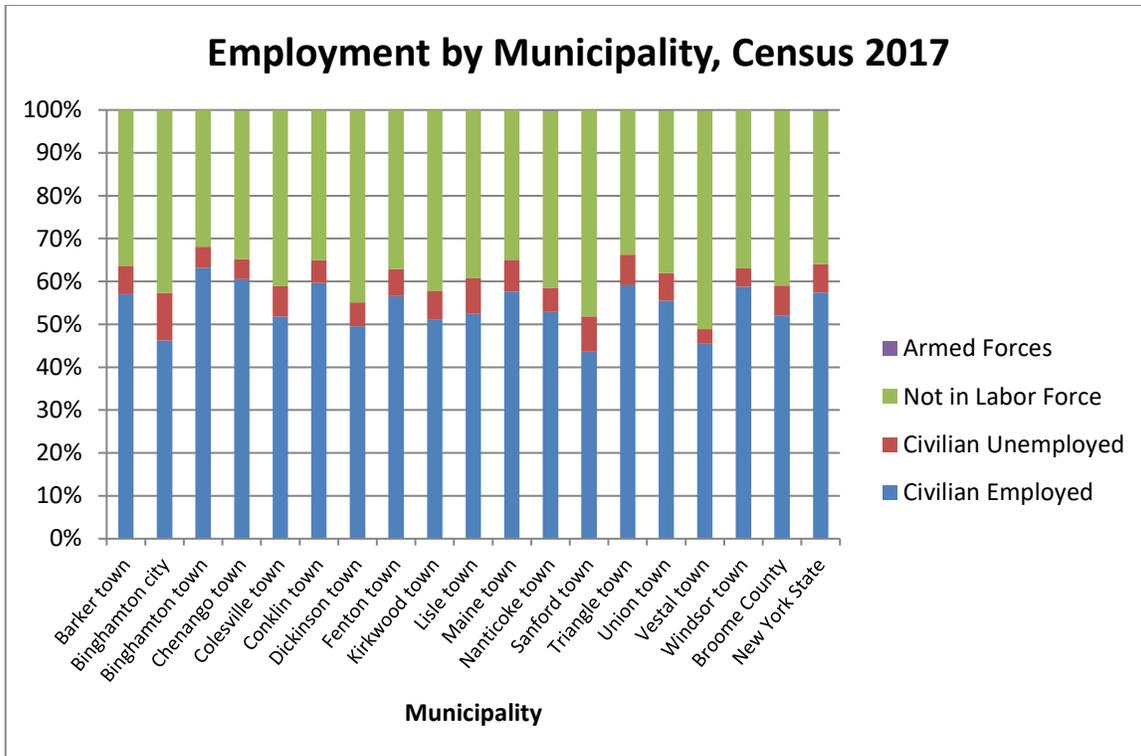


SOURCE: New York State Department of Labor, 1990-2021

County-specific information for employment status also appears in Appendices B34-B41. For the period 2013-2017, the three-year employment rate for Broome County was 54.1%. Employment rates were lowest for the eldest and youngest populations and highest for the 55--64 age group (76.3.0%). Rates of employment were higher for whites (54.8%) than for Blacks/African-Americans (49.8%), Asians (42.8%), or Hispanics (47.4%). For those below poverty level, employment rates were 32.0% and for those with any type of disability 31.1%. Because insurance status is generally linked to employment, lower rates of employment are associated with lack of access to health care and health care coverage, which in turn are related to higher morbidity and mortality rates.

Municipalities with the highest employment among the population age 16 years and over were the towns of Kirkwood (63.9%), Barker (63.7%) and Windsor (62.6%). The highest unemployment among municipalities included the towns of Sanford (11.8%), Nanticoke (6.1%), Lisle (7.1%), and Colesville (6.4%), as well as the city of Binghamton (5.4%). Labor force refers to the number of people available for work—both those who are employed and those who are unemployed, but looking for work. Individuals who are not in the labor force include those who are going to school or are retired, those whose family responsibilities keep them from working, and those who have given up trying to find a job. Municipalities with the largest proportion of the population age 16 and over who are not in the labor force were the towns of Dickinson (50.5%), Vestal (51.9%), and Sanford (50.3%) in addition to the city of Binghamton (44.9 %). These data are presented in Figure 12 below.

Figure 12. Employment by Municipality, Broome County, NYS, Census 2017



SOURCE: US Census Bureau, Census 2017

Education

Comparisons of three-year estimates for educational attainment appear in Table 4 and the data are shown in Figure 13. Among individuals 25 years of age and over, the percent population with less than a ninth-grade education is lower for Broome County (2.9%) than for NYS (6.5%) or the US (5.4%). The percent population who are high school graduates or who have an associate degree is higher than state and national averages. These data indicate a somewhat more educated public. Although the percent population enrolled in college or graduate school is higher in Broome County than in NYS or the US, a lower percentage of the adult population who reside in the county have earned a bachelor’s degree or higher. These data suggest that college graduates who earn their degree in Broome County may migrate out of the local area.

Educational attainment by municipality is presented in Figure 13 and corresponding data appear in Appendix B46. The municipalities with the highest proportion of population who have less than a high school education are the townships of Colesville (16.9%) and Lisle (12.6%), and the City of Binghamton (14.9%). These municipalities represent both inner city (urban) and rural areas. The municipalities with the highest percent population having a bachelor’s degree or better are the towns of Vestal (44.1%) and Chenango (33.3%). These suburban areas are located near two major educational institutions: Broome Community College and Binghamton University, which may account for the more educated population in proximity.

School enrollment data are presented in Table 5. In Broome County, the percent of children enrolled in preschool is lower than both state and national averages (4.9% vs. 6.0% respectively) whereas the percent population enrolled in college or graduate school is higher for Broome County than either the state or the nation (40.9% vs. 31.0% and 28.0% respectively). Data for school enrollment by municipality is presented in Figure 15 and these data appear in Appendix B46. Municipalities with the highest proportion of the student population enrolled in college located in the town of Vestal (72.3%) and the city of Binghamton (44.8%). The annual dropout rate for Broome County for the 2016-2017 school year was 2.9%, which was higher than the 2.1% for NYS, and the percent of high school graduates intending to enroll in college was 88.4% compared to 84.0% for NYS. Appendices B42-B47 contain relevant education information.

Table 4. Educational Attainment for Broome County, New York State, and United States, 2021

Educational Attainment	Broome County		NYS	US
	Population Estimate	Percent (%)	Percent (%)	Percent (%)
Population 25 years and over	133,043	N/A	N/A	N/A
Less than 9th grade	2,375	1.8	5.9	4.8
9th to 12th grade, no diploma	6,518	4.9	6.1	5.9
High school graduate (includes equivalency)	38,595	29.0	24.4	26.3
Some college, no degree	25,461	19.1	14.9	19.3
Associate's degree	18,600	14.0	8.9	8.8
Bachelor's degree	21,510	16.2	22.2	21.2
Graduate or professional degree	19,984	15.0	17.7	13.8
High school graduate or higher	124,150	93.3	88.0	89.4
Bachelor's degree or higher	41,494	31.2	39.9	35.0

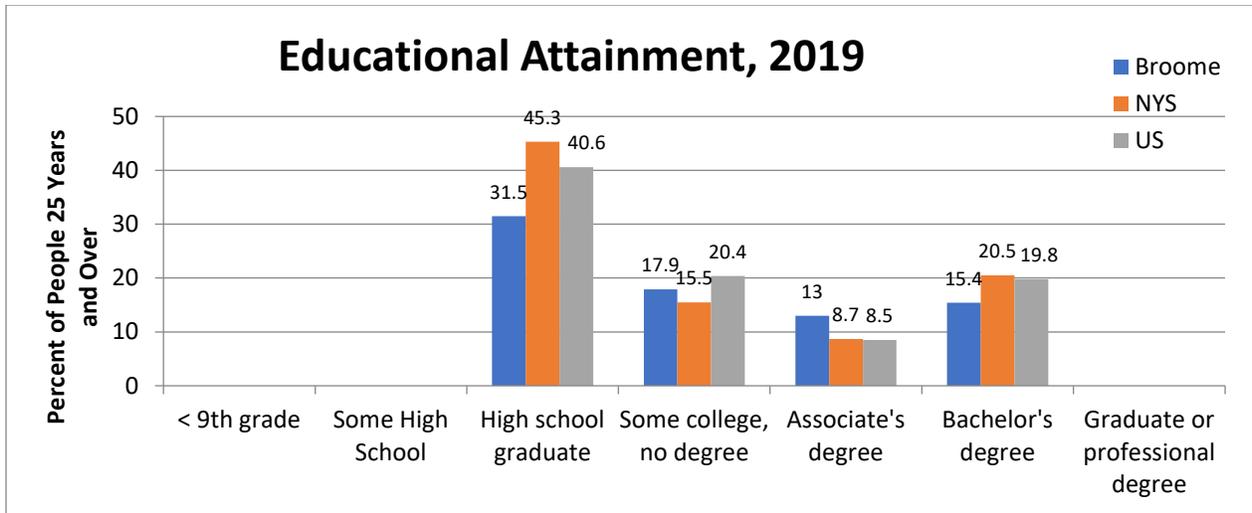
SOURCE: US Census Bureau, American Community Survey, 2021

Table 5. School Enrollment for Broome County, New York State, and United States, 2013-2017

School Enrollment	Broome County		NYS	US
	Population Estimate	Percent (%)	Percent (%)	Percent (%)
Population 3 years and over enrolled in school	53,058	N/A	N/A	N/A
Nursery school, preschool	2,612	4.9	6.0	6.2
Kindergarten	2,136	4.0	5.1	4.8
Elementary school (grades 1–8)	17,093	32.2	40.2	37.9
High school (grades 9–12)	9,530	18.0	20.8	20.4
College or graduate school	21,687	40.9	28.0	31.0

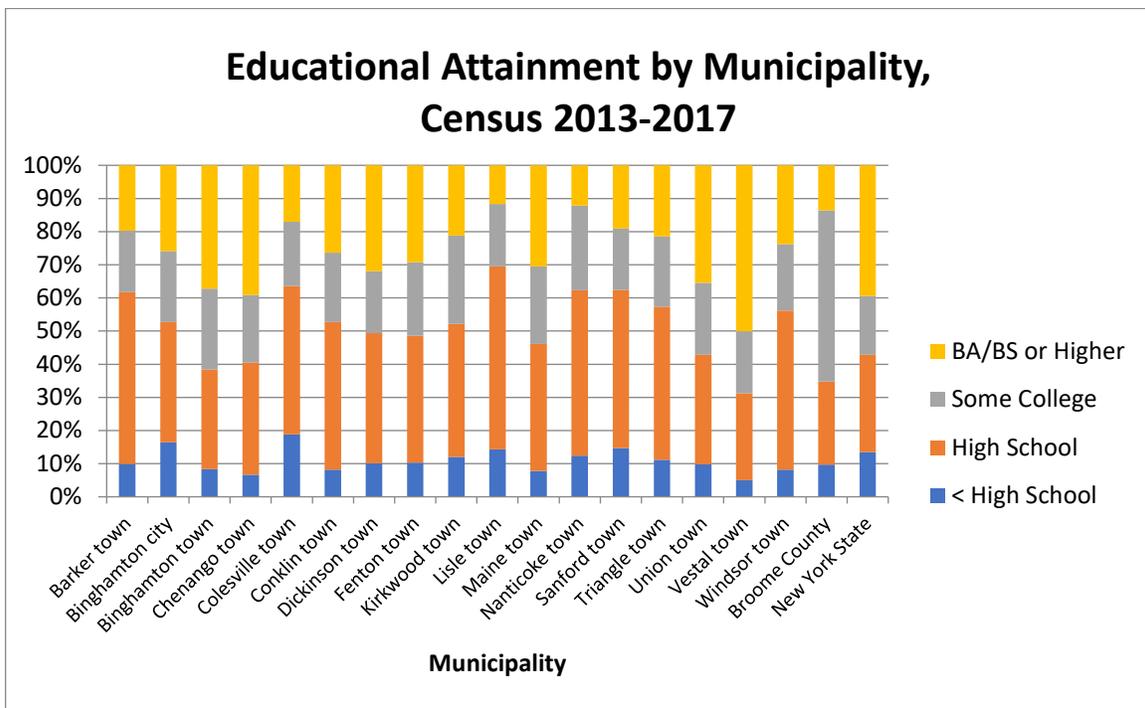
SOURCE: US Census Bureau, American Community Survey, 2013-2017

Figure 13. Educational Attainment, 2019



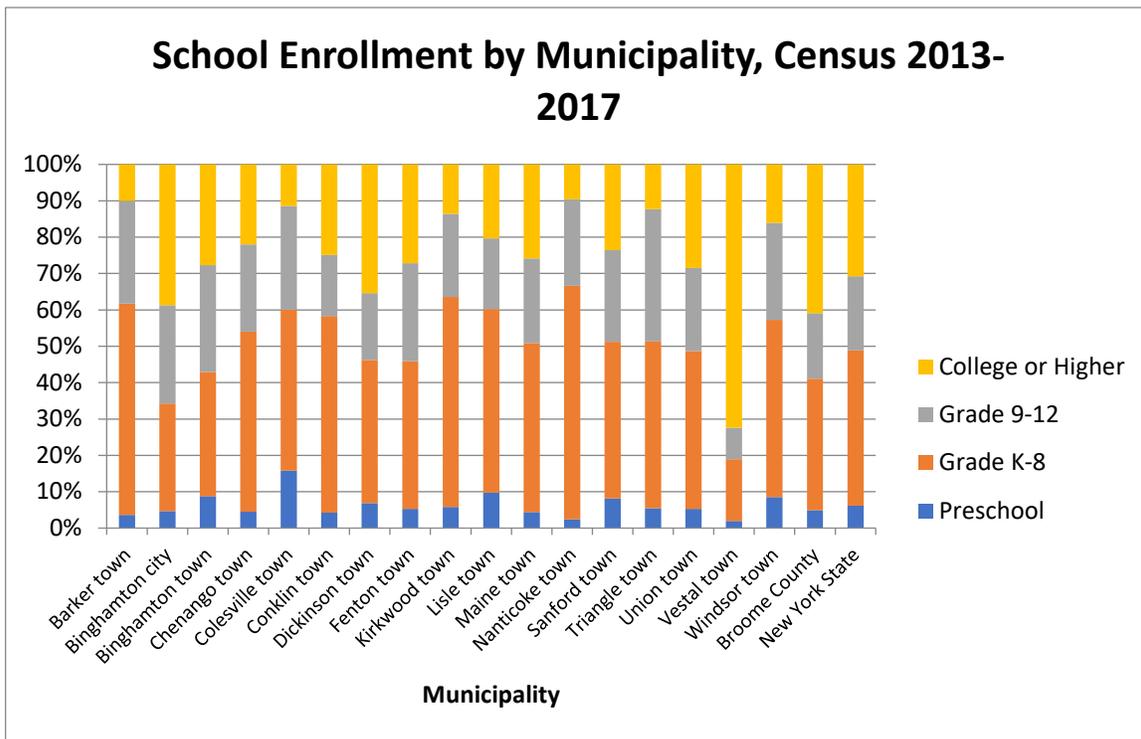
SOURCE: US Census Bureau, American Community Survey, 2019

Figure 14. Educational Attainment by Municipality, Broome County, NYS, Census 2013-2017



SOURCE: US Census Bureau, Census 2013-2017

Figure 15. School Enrollment by Municipality, Broome County, NYS, Census 2013-2017



SOURCE: US Census Bureau, Census 2013-2017

Housing

Housing information can be found in Appendices B48. In 2019, Broome County had an estimated 90,946 housing units and an 86.4% occupancy rate. Most of the housing in Broome County (55.2%) was built before 1960 and only 10.9% of homes are newer (built since 1990). Of the total number of housing units, most are single-unit (62.9%), 32.2% are multi-unit and 4.9% are mobile homes. Of the occupied housing units, 65.2% are owner-occupied and 34.8% are renter-occupied. The median value of an owner-occupied home for 2019 was \$117,000, which is 60% of the national median value (\$217,500) and only 63% of the median value of a home in NYS (\$313,700). Over 62.8% of occupied housing units use gas for heating, 11.7% use kerosene or fuel oil, 13.2% use electricity, 6.7% use propane, and 3.6% heat their homes with wood. Monthly owner costs for housing units with a mortgage were \$1,185 for those units without a mortgage, \$495, and for renters, \$776. Almost 20% of housing units with a mortgage had owner costs that were 26.0% or more of the household income, and this figure was only 12.8% for housing units without a mortgage. In contrast, 54.1% of renters spent 30% or more of the household income on rent. For transportation, 12.4% did not have access to a private vehicle while 50.8% had two or more vehicles.

Marital Status

Information about marital status can be found in Appendix B49. In Broome County, 45.4% of the male population over age 15 are currently married, 40.0% were never married, 9.8% are divorced, 2.8% are widowed, and 2.0% are separated (3-year estimates for 2013-2017). Among females over the age of 15, 41.7% are currently married, 33.6% were never married, 12.4% are divorced, 10.1% are widowed, and 2.2% are separated. In comparison to Whites, Blacks/African-Americans are more likely to be never married or separated and less likely to be currently married. Asians are more likely to be never married and less likely to be divorced or separated than Whites. Hispanics (any race) are more likely to be never married and less likely to be divorced than White, Non-Hispanics. Foreign born citizens have lower rates of divorce and separation than native citizens, which may relate to a traditional value placed on marriage by first generation immigrants. Females are more likely to be widowed than males (10.1% compared to 2.8%).

Households and Families

Household and family data are provided in Appendix B50. For the period 2013-2017, the total number of households in Broome County was estimated to be 78,821 and the average household size was 2.36 persons. Most households were comprised of families, both married-couple households (42.8%) and single head of household (16.5%, comprised of 11.5% female and 5.0% male). The remaining nonfamily households consisted of a person living alone (34.1%) or a person living with other non-related individuals (9%). Of those householders who live alone, 43% are over the age 65. These demographics represent an important consideration when planning for the delivery of care, particularly in relation to chronic disease management.

Grandparents

Information about grandparents is located in Appendix B52. An estimated 2,672 grandparents lived with their own grandchildren under the age of 18. Of these grandparents, 68.6% had primary responsibility for care of the children. Of those grandparents who were responsible for the care of their own grandchildren under the age of 18, 59.3% were female, 88% were between the ages of 30 and 59 years, 66.1% were married, 36.3% had some disability, 9.8% spoke a language other than English, 5.2% did not speak English very well, and 27.3% were below poverty level. In 20.1% of cases, no parent was present.

Language & Nativity

Although fairly homogenous in its racial make-up, Broome County has become more diverse, owing to its use as a resettlement site for Asian/Pacific Islander, Middle Eastern, African, and Eastern European refugees. Despite this influx, only 7.1% of people living in Broome County were foreign-born, less than half of the national average (14.3%) and nearly one-fourth of the NYS average (24.7%). Broome County has relatively higher rates of non-English speaking residents than many other rural upstate New York

counties. For the period 2013-2017, an estimated 9.5% of individuals five years of age or older spoke a language other than English in the home including Indo-European language (4.2%), Asian/Pacific Islander Language (2.6%), and Spanish (2.2%). Not surprisingly, individuals who speak a language other than English in the home are more likely to be foreign-born. Notably, these individuals are more likely to be below poverty level than those who are English-only speaking. Comparisons of educational attainment reveal an interesting dichotomy. Compared to those who speak English only, those who speak a language other than English in the home are more likely to have less than a high school education or to have a bachelor's degree or higher. Information about language and nativity can be found in Appendices B53 and B54.

Disability

For the period 2013-2017, an estimated 15.4% of individuals age 5 or more residing in Broome County had some type of disability; 9.3% had one disability and 8.7% had two or more disabilities. Males with disabilities outnumbered females by 2:1 in the 5 to 17 age category, which is likely associated with high risk behaviors and traumatic injuries that are more prevalent in this age group. In contrast, females outnumbered males by a factor of 1.3 in the 65 and over age group, which likely relates to the longevity of women and increased risk for disability that comes with age. Almost 35% of the total population age 65 and older reported some type of disability. Among those individuals over the age of 5 years for whom poverty status was determined, the proportion of those with any disability was 25% for Broome County, 11.3% for NYS, and 13.6% in the US. In Broome County, 25.6% percent of individuals with a disability have incomes below poverty level. This figure increases to almost 40% if the person has an employment disability (determined by asking individuals if they have a physical, mental, or emotional condition lasting 6 months or more that caused difficulty in working at a job or business). Information about disabilities is located in Appendices B55-B58.

Veteran Status

Ten percent of the civilian population aged 18 or older in Broome County has veteran status (Appendix B59). The majority of these individuals were veterans of the Vietnam War (34.9%), Korean War (12.7%), or Gulf War '90-01 (12.0%). Over 21% were from two recent Gulf War periods. Most veterans are white (95.6%), male (94.2%), and age 55 or older (76%). Compared to non-veterans, they are less than half as likely to be below poverty level (6.9% vs. 16.4%), but nearly twice as likely to have a disability (29.5% vs. 17.1%).

Commuting

Of the workers in Broome County age 16 or over, an estimated 88.8% used a privately-owned car, truck, or van to get to work. Of these commuters, only 8.4% carpooled and 80.4% drove alone. Alternative modes of transportation reported include: public transportation (excluding taxicab), 3.9%; walked to get to work, 4.0%; bicycle, 0.1%; and taxicab, motorcycle, or other, 1.0%. Over 4% of workers age 16 or older worked at home. 16.7% reported travel time as a half-hour or more and the mean travel time to

work was just over 18 minutes. The vast majority work in NYS (98.5%) and most worked in Broome County (88.6%). Because travel occurs predominantly by privately owned vehicle, those who live in rural areas, who are on fixed incomes, or who must travel distances may have difficulty accessing services in urban areas. Information about commuting is located in Appendices B60.

A summary of the US Census Bureau demographic data from the American Community Survey 2013–2017 is presented in Appendix B62.

The next section provides epidemiologic data for select areas of public health concern. In each section, applicable *Healthy People 2020* objectives are listed followed by analyses of data making comparisons between Broome County and NYS as well as Upstate NY. Where possible, trend data are also examined with data presented in chart format in the appendices.

To determine quartile rankings, rates among NYS counties are sorted in ascending or descending order and subsequently divided into four equal groups so that each quartile represents one-fourth of the data. The first quartile includes the top 25% of the data and the fourth quartile includes the bottom 25%. For rates of disease, the data are sorted in ascending order. For screenings or health behaviors, the data are sorted in descending order. In both cases, the first quartile or top 25% represents the best performance on that indicator. Maps of NYS with quartile rankings are provided in the appendices.

Achievement toward relevant *Healthy People 2020* objectives are explored. The *Prevention Agenda* indicators for tracking NYS public health priorities are presented in Appendix B162. Data come from a variety of sources compiled by the New York State Department of Health (NYSDOH) including the Prevention Quality Indicators (disparities in ambulatory care sensitive conditions), the Community Health Indicator Reports (CHIRS), and the County Health Indicators by Race/Ethnicity (CHIRE). The county's performance on specific indicators in relation to both state and national priorities is discussed in relevant sections that follow.

In 2012, NYSDOH developed the CHIRS which consolidated the Community Health Assessment Indicators (CHAI) and others within this new reporting system. The CHIRS provides data for over 300 health indicators at the county, regional, and state levels. In addition, data and maps are available that provide quartile rankings for counties within the state. Finally, the CHIRS offers access to information about trends over time (table and graphic form) with single- and three-year averages at the county-level as compared to Upstate New York. Numerous data sources are used in compiling these reporting systems including: vital statistics; hospitalization and emergency department data from the Statewide Planning and Research Cooperative (SPARCS); specific disease registries such as for cancer, AIDS/HIV, and sexually transmitted diseases; program-based data such as Student Weight Status Category Reporting System (SWSCR), Behavioral Risk Factor Surveillance System (BRFSS), Women's Infants, and Children (WIC) program, and Childhood Lead Prevention Program among others. The CHIRE contains a subset of these health indicators stratified by race/ethnicity in order to assist communities in addressing disparities among minority subgroups. The CHIRE data are located in Appendix B61 and are discussed in further detail in the Social Determinants of Health section. Citations for all data sources in this community health assessment are noted at the bottom of each data table or chart.

New York State (NYS) is composed of a total of 62 counties. Upstate New York (Upstate NY) refers to the 57 counties outside of the New York City metro area and thus excludes the Bronx, Kings, New York, Queens, and Richmond Counties.

Natality

Data related to family planning and natality can be found in Appendix B63 along with additional charts and maps in Appendices B64-B93.

The birth rate for Broome County was 10.2 live births per 1,000 women with almost no change in this rate for the past 5 years. This rate is somewhat lower than Upstate NY (10.6) and NYS (13.5). For the period 2014-2016, Broome County's fertility rate (i.e., births per 1,000 female population age 15-44) was 53.4 per 1,000. In comparison, the fertility rate was 58.5 per 1,000 for NYS and 57.2 per 1,000 for Upstate NY. Broome County's fertility rate was significantly lower. For Broome County, the teen fertility rate was: 0.6 per 1,000 for females age 10-14 years, 20.3 per 1,000 for females age 15-17 years, 26.9 for females age 15-19 years, and 32.8 for females age 18-19 years. The fertility rate among females age 15-17 years was significantly higher for Broome County than for Upstate NY and significantly lower among females age 18-19 years. The fertility rates among females age 15-19 years and 18-19 years were significantly lower for Broome County than for NYS as a whole. Broome County was in the second quartile for the overall fertility rate, in the third quartile for fertility rate among females age 10-14 and 15-17, in the second quartile for fertility rate among females age 15-19 years, and in the first quartile for fertility rate among females age 18-19 years. Over the last few years, teen fertility rates have trended slightly downward across all age groups.

For the 2014-2016 period, the pregnancy rate for females age 15-44 in Broome County was 75.2 pregnancies per 1,000 females compared to 83.8 for NYS (significantly lower) and 72.8 for upstate NY. This rate has increased slightly over the past five years. Age-specific rates were significantly lower for Broome County than for NYS among females aged 10-14, 15-17, 18-19, and 15-19. Although Broome County ranked in the fourth quartile for teen pregnancy among 15-17 year-olds and was significantly higher than all other Upstate NY counties, it was below the *Healthy People 2020* objective of 36.2 per 1,000. Trend data indicate that the three-year average pregnancy rate for 10-14 year-olds has declined slightly from 1.1 to 0.6 between 2006 and 2016. The three-year average for pregnancy rate among 15-19 year-old females in Broome County has similarly decreased slightly from 45.8 in 2005 to 26.9 in 2016. There is considerable heterogeneity within the county in relation to pregnancy rates with the highest rates in the city of Binghamton (zip codes 13901, 13903, 13904, 13905), Johnson City (zip code 13790), and Deposit (zip code 13754). Though pregnancy rates are generally lower than the state, fertility rate and trend data suggest close monitoring of and continued public health efforts in the area of teenage pregnancy.

Morbidity

Disease morbidity relates to the prevalence or occurrence of injury or illness in a population. Prevalence is calculated as a proportion and is defined as the number of individuals with a defined disease or condition divided by the total population at a given point in time. Prevalence measures are useful for assessing the public health impact of a specific disease within a community and for projecting the medical care needs of affected individuals. Incidence refers to the number of new cases that develop in a given period of time divided by the total population at risk. This figure provides an estimate of the probability or risk that an individual will develop a disease and is useful for examining antecedent exposures.

Detailed information is provided in each basic service area section that follows. A summary table of selected morbidity indicators is provided in Table 6 below. These indicators were selected as they represent areas in which Broome County underperformed relative to the state and provide

opportunities for improvement. Comparisons of Broome County data were made to NYS and Upstate NY, and a check mark (✓) appears in the column where the morbidity indicator for Broome County is significantly higher than NYS or Upstate NY. An additional column is provided to indicate morbidity indicators that are in the fourth quartile for the state (poorest performance), for which a check mark (✓) appears in this column. The table includes both crude and age-adjusted rates. The former indicates the actual rate of disease in the population, and the latter is useful for state-level comparisons given the age differences between populations.

Table 6. Selected Morbidity Indicators, Broome County, 2017-2019

Morbidity Indicator	Number of Cases (3 years)	Rate	> NYS excluding NYC	> NYS	4 th Quartile NYS
CHILD HEALTH					
Pneumonia hospitalization (age 0–4 years, per 10,000)	103	33.8	20.3	25.2	Q4
Gastroenteritis hospitalization (age 0–4 years, per 10,000)	30	9.9	7.5	10.4	Q4
Otitis media hospitalization (age 0–4 years, per 10,000)	12	3.9	1.5	1.8	N/A
Incidence rate among children <72 months of age with confirmed blood lead level ≥10 mcg/dL (rate per 1,000 children screened)	66	8.0	6.6	3.8	Q1&2
ORAL HEALTH					
Dental caries experience (percent of 3 rd grade children) [2009-2011 data]	N/A	56.7	45.4	N/A	Q4
Untreated dental caries (percent of 3 rd grade children) [2009-2011]	N/A	42.3	24.0	N/A	Q4
Caries outpatient emergency department visits (age 3-5 years, rate per 10,000) [2017-2019]	242	129.5	152.1	134.5	Q1&2

Morbidity Indicator	Number of Cases (3 years)	Rate	> NYS excluding NYC	> NYS	4 th Quartile NYS
COMMUNICABLE DISEASES					
Pneumonia/flu hospitalization (age 65+ years, rate per 10,000)	1,369	125.0	95.2	85.5	Q4
Chlamydia case rate – males ages 15-44 years (rate per 100,000)	662	574.6	721.7	1,175.1	Q3
Chlamydia case rate – females ages 15-44 years (rate per 100,000)	1,296	1,165.2	1,455.2	1,741.1	Q1&2
Meningococcal incidence (rate per 100,000)	6	1.0*	0.1	0.1	N/A
OCCUPATIONAL					
Asbestosis hospitalization aged 15 years and older (rate per 10,000)	13	2.7	8.1	5.7	Q1&2

INJURY					
Self-Inflicted injury hospitalization ⁺ (age-adjusted rate per 10,000)	387	6.7	4.4	3.7	Q4
Unintentional injury hospitalization ⁺ (age-adjusted rate per 10,000)	5,326	92.2	80.5	72.4	Q4
Age 25-64 years	1,693	61.9	51.1	48.1	Q4
Age 65 years and older	3,316	302.8	275.1	249.9	Q4
Fall-related hospitalization ⁺ (age adjusted rate per 10,000)	3,288	56.9	47.6	42.2	Q4
Poisoning hospitalization ⁺ (age-adjusted rate per 10,000)	530	9.2	7.6	8.0	Q4
ALCOHOL & OTHER DRUGS					
Alcohol-related motor vehicle injuries & deaths	145	25.1	34.7	28.9	Q1&2
Newborns with neonatal withdrawal symptoms and/or affected by maternal use of drugs of addiction (any diagnosis), crude rate per 1,000 newborn discharges	33	23.0	14.0	9.0	Q3

SOURCE: New York State Community Health Indicators Reports, 2017-2019

⁺ Age-adjusted hospitalization rate reported

* Rate unstable, fewer than 10 events in numerator

Broome County was lower than or similar to NYS and Upstate NY for most hospitalization rates with several noteworthy exceptions. Pneumonia hospitalizations in children age 0–4 were significantly higher than both statewide rates and ranked in the fourth quartile. Pneumonia/flu hospitalizations among adults age 65 and older were slightly higher in Broome County than in Upstate NY (Appendices D37 & D38). Hospitalization rates for children age 0-4 were slightly higher than both statewide and upstate ranks for both gastroenteritis and otitis media. Child and adolescent health indicators are located in Appendix B172 with trend data and maps in Appendices B173-B189.

Several categories for injury-related hospitalizations were identified as significant areas of need, including self-inflicted injury, unintentional injury (overall, age 25-64, and 65+), falls, and poisoning. In all categories, the rates observed in Broome County were higher than NYS and Upstate NY. In addition, Broome County ranked in the first quartile for self-inflicted injury hospitalizations, unintentional injury hospitalizations among adults aged 65 and older, and fall-related hospitalizations. Injury mortality and morbidity indicators can be found in Appendix C102 with additional tables, charts, and maps in Appendices C103-C143. An occupational hazard, asbestosis hospitalizations were higher in Broome County than in NYS and Upstate NY. Occupational health indicators are located in Appendix C12 and in Appendices C13-C25.

The incidence of high blood lead levels among children under the age of 6 years was significantly higher in Broome County than in Upstate NY as a whole. Blood lead levels and lead screening appear in Appendices C24 and C25 and are discussed further in the lead poisoning section that follows. Dental caries among third grade children was significantly higher in Broome County than for NYS and the percent of third grade children with untreated dental caries was significantly higher in Broome County than Upstate NY. The number of emergency department visits for dental caries was higher in Broome County than in NYS but lower than Upstate NY. Oral health indicators can be found in Appendix D273 with additional information contained in Appendices D274-D290. Oral health is discussed further in the

Dental Health Services section. Broome County ranked in the fourth quartile for blood lead levels, dental caries experience, and untreated dental caries, as well as in the highest quartile for emergency department visits for dental caries.

Alcohol-related motor vehicle injuries and deaths were significantly higher in Broome County than NYS; however, they were lower than Upstate NY (see Appendices C102 & C142-C143). Finally, the newborn drug-related discharge rate in Broome County was significantly higher than the statewide average, and Broome County ranked in the fourth quartile for this indicator (see Appendices C26 & C90).

The prevalence rates for asthma, diabetes, hypertension, cardiovascular disease, and overweight/obesity are listed in Table 7. Broome County was higher than NYS and Upstate NY on most of these measures.

Table 7. Selected Chronic Disease Indicators, Broome County, 2018

Morbidity Indicator	Prevalence (%)
CHRONIC DISEASE	
Asthma (age adjusted, adult) (2018)	15.9
Diabetes (age adjusted, adult) (2018)	8.9
High blood pressure (age adjusted adult) (2016)	34.0
Cardiovascular disease (age adjusted, adult) [heart attack, coronary heart disease, stroke] (2018)	9.2

SOURCE: New York State Community Health Indicators Reports, 2020

Table 7 (cont). Selected Chronic Disease Indicators, Broome County

Morbidity Indicator	Prevalence (%)
OVERWEIGHT & OBESITY	
Obesity (age adjusted adult) (2018)	33.0
Overweight not obese (school-age children) (2017-2019)	16.3
Elementary students (2017-2019)	15.6
Middle & high school students (2017-2019)	17.4
Obesity (school-age children) (2017-2019)	17.9
Elementary students (2017-2019)	16.7
Middle & high school students (2017-2019)	20.2
Overweight or Obese (school-age children) (2017-2019)	34.2
Elementary students (2017-2019)	32.4
Middle & high school students (2017-2019)	37.6
Pregnant women in WIC who were pre-pregnancy ...	
Overweight not obese (2012)	22.3
Obese (2012)	33.5
Children in WIC (age 2-4 years) (2015-2017)	
Obese	14.2

SOURCE: New York State Community Health Indicators Reports, 2020

The incidence rate for all cancers was higher in Broome County (667.8/100,000 people) than NYS (580.7/100,000 people) between 2015 and 2017. However, incidence rates for specific cancers were not significantly higher than NYS or Upstate NY. Table 8 lists incidence rates cancer diagnoses. The cancers with the greatest number of newly diagnosed individuals were female breast (189.0), prostate (145.1), and lung and bronchial (91.2).

Table 8. Cancer Incidence (descending order), Broome County, 2015-2019

Cancer Incidence (rates per 100,000)	3 year average (2016-2018)	Crude Rate (2017)	Age-Adjusted Rate (2017)
ALL CANCERS	688.8	688.8	520.3
Female breast	187.5	187.5	146.4
Prostate	169.8	169.8	122.0
Lung & bronchus	87.5	87.5	62.3
Colon & rectum	50.0	50.0	37.4
Oral cavity & pharynx	18.5	18.5	14.2
Ovary	21.7	21.7	17.8
Cervix / uteri	8.2	8.2	8.3
Melanoma	Data not available	Data not available	Data not available
LATE STAGE			
Female breast	50.3	50.3	43.2

Prostate	50.5	50.5	36.4
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SOURCE: New York State Department of Health Community Health Indicator Reports, Cancer Registry Data as of November 2020

Table 9 rank orders condition-specific hospitalizations. For the period 2014-2016, the conditions with the highest crude hospitalization rate are (descending order): diabetes (any diagnosis), cardiovascular disease, diseases of the heart, pneumonia, unintentional injury, falls, coronary heart disease, cerebrovascular disease, chronic lower respiratory disease, congestive heart failure, and heart attack. Public health interventions directed toward reducing the incidence of breast, lung, and colorectal cancers as well as hospitalizations related to diabetes, cardiovascular disease (all forms), unintentional injuries, and falls are likely to have the greatest public health impact on overall disease morbidity for residents of Broome County. The disproportionate ratios by race are evident in Table 10 in particular for diabetes and asthma among Blacks as compared to Whites. Additional information related to hospitalizations and emergency department visits can be found in Appendices B94-B133.

Table 9. Hospitalization Rates (descending order), Broome County, 2017-2019

Condition-Specific Hospitalization (rate per 10,000)	Number of Cases (3 years)	Crude Rate	Age-Adjusted Rate
Hypertension (any diagnosis)	25,939	557.0	--
Diabetes (any diagnosis)	16,346	283.0	218.1
Cardiovascular Disease	10,022	--	126.3
Diseases of the Heart	6,789	117.5	84.5
Pneumonia/flu (age 65+)	1,369	125.0	--
Unintentional Injury	1,802	92.3	72.0
Fall-related	3,288	56.9	39.6
Coronary Heart Disease	2,193	38.0	27.8
Cerebrovascular	1,821	31.5	23.0
Chronic Lower Respiratory Disease	1,799	31.1	25.4
Congestive Heart Failure	--	--	--
Heart Attack	1,536	26.6	19.4
Diabetes (primary diagnosis)	1,321	22.9	20.9
Hypertension (age 18+)	292	6.3	--
Traumatic Brain Injury	628	10.9	8.2
Asthma (age 0–17 years)	149	13.3	--
Asthma	352	6.1	7.0
Cirrhosis	301	5.2	4.7

SOURCE: New York State, Community Health Indicators Reports, data as of November 2021

Table 10. Hospitalization Rates by Race, Broome County, NY, 2017-2019

Condition-Specific Hospitalization (rate per 10,000)	White	Black	Total	Ratio
Diabetes (any diagnosis)	201.8	477.3	218.1	2.0
Diseases of the Heart	81.5	126.2	84.5	1.3
Congestive Heart Failure	43.4	45.0	41.2	1.7
Coronary Heart Disease	26.7	39.4	27.8	1.1
Cerebrovascular	21.9	40.6	23.0	1.1
Diabetes (primary diagnosis)	18.0	66.1	20.9	2.7
Asthma (Age 0-17 years)	11.5	25.2	13.3	1.6

Asthma	6.0	19.0	7.0	2.2
Diabetes Short-term Complications	6.1	27.7	7.6	3.7

SOURCE: NYSDOH, Broome County Health Indicators by Race Ethnicity, 2017-2019

Prevention Quality Indicators for Adults and Children

The Prevention Quality Indicators (PQI) were developed by the Centers for Disease Control and Prevention for use in assessing the quality of outpatient care. This set of measures includes conditions for which appropriate outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease. These indicators are measured as rates of admission to the hospital for the condition in a given population and can be used to evaluate the overall quality of primary and preventive care. Thus, the Hospital Inpatient PQIs, as a set of population-based measures among NYS adults, identify “ambulatory care sensitive conditions” and are available for four areas: acute admissions, circulatory admissions, diabetes admissions, and respiratory admissions.

A similar set of population-based measures were developed for examining ambulatory sensitive conditions among children. The NYS Hospital Inpatient Prevention Quality Indicators for Pediatric Discharges (PDIs) include: acute discharges for gastroenteritis and urinary tract infections, short-term complications from diabetes (diabetic ketoacidosis), and asthma. Both the Urinary Tract Infection and Gastroenteritis PDIs include admissions for patients aged 3 months through 17 years. The Asthma PDI includes admissions for patients aged 2 through 17 years. Eligible admissions for the Diabetes Short-term Complications PDI includes admissions for patients aged 6 through 17 years.

Rates for the NYS PQIs and NYS PDIs are calculated using acute care, hospital discharge data from the Statewide Planning and Research Cooperative System (SPARCS) inpatient data for counts in the numerator and Claritas population information for the denominator. Datasets provide observed and expected rates as well as differences in rates by resident county. The Observed Rate is the number of discharges divided by the population then multiplied by 100,000. The Expected Rate is the number of discharges adjusted by age group, gender and race/ethnicity divided by the population then multiplied by 100,000. The Difference in Rates is the Observed Rate minus the Expected Rate. The PDI database also includes risk-adjustment, calculated as the Observed PDI Rate divided by the Expected PDI Rate and multiplied by the statewide PDI rate. Data are available for years 2009-2016 and include composite rates as indicated in the table below:

COMPOSITE RATE	PQI Conditions	PDI Conditions
	Bacterial Pneumonia	Gastroenteritis
Acute	Dehydration	Urinary Tract Infection
	Urinary Tract Infection	
	Angina	
Circulatory	Heart Failure	
	Hypertension	
Diabetes	Diabetes Short-Term Complications	Diabetes Short-Term Complications

	Diabetes Long-Term Complications	
	Lower-Extremity Amputations	
	Uncontrolled Diabetes	
Respiratory	Asthma in Younger Adults	Asthma
	COPD or Asthma in Older Adults	
	Circulatory Discharges	Diabetes Discharges
Chronic Disease	Diabetes Discharges	Respiratory Discharges
	Respiratory Discharges	
Overall	All PQI Discharges	All PDI Discharges

PQI data tables and charts are located in Appendices B100-B118 and PDI information in Appendices B119-B133. Limitations for interpretation of estimated rates are noted as follows:

- **Outmigration for healthcare services:** Broome County borders Pennsylvania and some individuals who live in Broome County seek services outside the local area. Previous examination of this concern revealed that approximately 5% of individuals seek care outside Broome County, though no differential bias in relation to the type of care was noted. Thus, the outmigration for healthcare services may attenuate the rates, but only to a small extent and not for any particular type of hospital admission.
- **Version Changes:** There may be modifications of the quality indicator logic incorporated into version changes of the PDI software. Therefore, trends in rates must be interpreted with caution when completing longitudinal analysis across years that utilize different versions of the PDI software.
- **Transition from ICD-9-CM to ICD-10-CM Coding System:** To mitigate the impact of ICD-10 compliance and PDI software version changes, as well as to facilitate trending of the PDI data, a staggered 12-month analysis period was used to represent 2015 PDI data. Therefore, PDI rates calculated for CY 2015 discharges should be treated with caution as they might reflect the change in the coding system and not the trends in PDI rates.
- **Other Sources of Bias:** Missing demographic information and zip codes as well as the stability of rates for categories in which there are small counts can be a source of imprecision and bias in these estimates.

Prevention Quality Indicators for Adult Discharges

Among acute care hospitalizations, the highest volume condition was bacterial pneumonia, followed by urinary tract infection, and then dehydration (Appendix B 100). Trend analysis for bacterial pneumonia reveals a steady decline in the observed rate between 2009 (446.3 hospitalizations per 100,000 population) and 2016 (282.1 hospitalizations per 100,000 population), which is a 36.8% reduction over the eight-year period. In 2016, the adjusted hospitalization rate for Broome County was considerably higher than NYS (199.1 vs. 110.6 per 100,000, rate ratio 1.80). [Appendix B101]

In 2016, the adjusted rate for dehydration in Broome County was 144.7 hospitalizations per 100,000 population, which was appreciably higher than NYS (95.7 per 100,000, rate ratio 1.58). In Broome

County, trends in hospitalizations for dehydration show a U-shaped pattern with rates declining between 2009 and 2013 and then increasing between 2013 and 2016 compared to NYS, which has had a modest and gradual decline for most of the period. [Appendix B102]

In 2016, the adjusted rate for hospitalizations due to urinary tract infections was slightly higher in Broome County than NYS (151.9 vs. 133.7 per 100,000, rate ratio 1.14). Both Broome County and NYS experienced a consistent and slight decline in hospitalizations due to urinary tract infections over the 8-year period. [Appendix B103] For all acute conditions, there was a steady decline in hospitalizations for both Broome County and NYS, though hospitalization rates for Broome County were notably higher than statewide. [Appendix B104]

For hospitalizations due to circulatory conditions, the highest volume condition was heart failure. In 2016, the adjusted hospitalization rate for Broome County was higher than NYS (443.4 vs. 328.9 per 100,000, rate ratio 1.35). Trend analysis for heart failure reveals an increasing trend in the observed rate between 2010 (361.7 hospitalizations per 100,000 population) and 2016 (443.4 hospitalizations per 100,000 population), which is a 22.6% increase over the eight-year period. [Appendix B106] Data charts for hypertension and angina appear in Appendices B105 & B107 respectively, and the circulatory composite in Appendix in B108. Hospitalization rates for both hypertension and angina revealed a declining trend and these declines appear to attenuate the notable increase in heart failure hospitalizations such that the overall circulatory composite was relatively stable over time.

For hospitalizations due to diabetic complications, the highest volume condition was for long-term complications associated with diabetes; data for lower extremity amputation was sparse. In 2016, the adjusted hospitalization rate for diabetes long-term complications in Broome County was lower than NYS (66.9 vs. 79.1 per 100,000, rate ratio 0.85). [Appendix B110] Although the observed hospitalization rates for diabetes long-term complications increased over the period, the adjusted rates showed a modest decline.

The adjusted hospitalization rates for diabetes short-term complications in Broome County were similar to NYS across the period and were relatively stable. [Appendix B109] Although there were fewer cases of lower extremity amputations among patients with diabetes, the rates and trends were similar for Broome County and NYS. [Appendix B11]. The observed hospitalization rate for uncontrolled diabetes in Broome County declined 61.6% between 2009 and 2015 from 26.3 to 10.1 hospitalizations per 100,000 population. Rates for this indicator were similar to NYS rates as was the downward trend over time. However, for both Broome County and NYS, there was a sudden and steep spike in uncontrolled diabetes hospitalizations, and it is not clear if this increase is an artifact of the change in ICD codes or represents a meaningful trend. [Appendix B112]

For hospitalizations due to respiratory conditions, the highest volume condition was chronic obstructive pulmonary disease (COPD) or asthma among older adults. Trend analysis for COPD shows a 20% decrease in the observed rate between 2009 and 2012 (549.3 to 438.9 hospitalizations per 100,000 population), and slightly higher rates over the last three years, with an observed rate of 502.7 per 100,000 population in 2016 (Appendix B115). Adjusted rates for COPD hospitalizations were slightly lower for Broome County than for NYS (432.8 vs. 461.5 per 100,000 population, rate ratio 0.94) in 2016, and both Broome County and NYS showed similar decreasing trends in hospitalization rates for COPD over the 8-year period. Hospitalization rates for asthma in young adults revealed a similar declining trend and the overall respiratory composite rate was relatively stable with mild fluctuations over time.

For all chronic conditions and for the overall composite, there was an absolute reduction in the number of potentially preventable hospitalizations. There were approximately 19 fewer potentially preventable hospitalizations per 100,000 population for chronic conditions (2% decrease between 2009 and 2016), 171 per 100,000 fewer for acute conditions (21.4% decrease between 2009 and 2016), and 190 per 100,000 fewer overall (10.4% decrease between 2009 and 2016). The difference in reductions between chronic and acute hospitalizations likely reflects the more challenging nature of preventing exacerbations associated with chronic health conditions.

Prevention Quality Indicators for Pediatric Discharges (PDI)

For pediatric hospitalizations due to acute conditions in 2016, the observed rates for Broome County were slightly higher for gastroenteritis (34 per 100,000 population) than for urinary tract infections (29 per 100,000 population). [Appendix B119] Trend analysis for gastroenteritis showed a decline in hospitalization rates over the 8-year period. [Appendix B120] In Broome County, there was a 61% reduction in the observed rate for gastroenteritis (the rate decreased from 87.3 in 2009 to 34.1 per 100,000 in 2016). The hospitalization rates for urinary tract infection showed greater variability in the trend line (Appendix B122). Still, there was a 34% reduction in rates between 2009 and 2016 (from 43.6 to 28.8 per 100,000 population). The adjusted rates for gastroenteritis were similar between Broome County and NYS and they shared a similar downward trend. The adjusted rates for urinary tract infections were similar between Broome County and NYS, though the trend was less discernable. When adjusting for risk, however, NYS rates were flat as compared to Broome County, which showed a pronounced decline (Appendix B123).

For pediatric hospitalizations due to diabetes short-term complications in 2016, the observed rate for potentially preventable hospitalizations in Broome County was 22.9 per 100,000 population (Appendix B126). The adjusted hospitalization rates for Broome County were similar to NYS and trend analysis revealed similar stable/flat rates over the 8-year period between 2009 and 2016.

For pediatric hospitalizations due to asthma in 2016, the observed rate for potentially preventable hospitalizations in Broome County was 60.7 per 100,000 population (Appendix B128). In 2016, the adjusted hospitalization rates for Broome County were considerably lower for Broome County than for NYS (141.3 vs. 208.5 per 100,000 population respectively, rate ratio 0.49). Trend analysis revealed similar stable rates between 2009 and 2016, though Broome County rates were appreciably lower throughout the entire 8-year period.

The acute composite for PDIs includes hospitalizations for gastroenteritis and urinary tract infections. Although there was variability in the observed hospitalization rates, a downward trend was observable for Broome County over the 2009-2016 period (Appendix B124). In 2016, the adjusted hospitalization rate for the acute composite was just slightly lower in Broome County than in NYS (50.8 vs. 57.2 per 100,000 population, rate ratio 0.88). In Broome County, the observed hospitalization rate for acute conditions was 58.8 per 100,000 population in 2009 and 34.3 per 100,000 population in 2016 (a rate difference of 89.7 fewer hospitalizations per 100,000, rate ratio 0.58).

The chronic composite for PDIs includes hospitalizations for both diabetes short-term complications and asthma. Similar to acute conditions, there was notable variability in the observed hospitalization rates for the chronic composite in Broome County, though a trend was less discernable (Appendix B130). In 2016, the adjusted hospitalization rates for the chronic composite was appreciably lower in Broome

County than for NYS (117.1 vs. 164.6 per 100,000 population, rate ratio 0.71). In Broome County, the observed hospitalization rate for chronic conditions was 154.4 per 100,000 in 2009 and 64.7 per 100,000 population in 2016 (a rate difference of 24.5 fewer hospitalizations per 100,000, rate ratio 0.42).

The risk adjusted hospitalization rate for the overall composite showed a decreasing trend for both Broome County and NYS between 2009 and 2016. Although the trends were similar, Broome County had consistently lower hospitalizations rates overall than NYS. A spike in hospitalization rates for the overall composite was observable in 2015 and it is not clear if it is an artifact of the change in ICD codes.

Mortality

Mortality relates to the occurrence of death in a population. Mortality rates for various conditions appear in Appendix B136. Additional information is provided in Appendices B137-B161.

The crude mortality rate for Broome County in 2017-2019 was 1,112.7 per 100,000 population. The crude mortality rate was 973.0 per 100,000 population for Upstate NY and 798.8 per 100,000 population for NYS. The crude mortality rate has remained relatively stable over the past 10 years.

The top five leading causes of death in descending order are: heart disease, cancer, chronic lower respiratory diseases (CLRD), cerebrovascular disease and unintentional injuries. For all of these conditions, Broome County experiences a higher mortality rate than Upstate NY and the state as a whole (Table 12). Leading causes of premature death (age 35-64 years) in descending order are: cancer, heart disease, unintentional injury, chronic lower respiratory disease, and diabetes. For nearly all of these causes, Broome County experiences a higher mortality rate than Upstate NY and the state as a whole.

Table 12. Leading Causes of Death, Broome County, Upstate New York, New York State 2019**

Cause of Death (rate per 100,000 population)	Broome County		NYS	Upstate NY**
	Number	Rate	Rate	Rate
LEADING CAUSES OF DEATH				
Heart Disease	464	151.4	167.1	161.3
Cancer	434	155.5	133.6	143.1
Chronic Lower Respiratory Disease	132	44.1	27.7	33.7
Cerebrovascular Disease	104	33.8	23.9	27.0
Unintentional Injury	87	44.0	33.8	39.6
Alzheimer's Disease	66	19.6	Not available	Not available
Diabetes	58	20.3	18.1	17.3
CAUSES OF PREMATURE DEATH				
Cancer	231	90.5	73.9	77.6
Diseases of the Heart	140	57.0	56.2	53.2
Unintentional Injury	73	42.2	28.5	33.0
Chronic Lower Respiratory Disease	42	15.3	10.0	11.9
Diabetes	26	11.1	9.3	8.5

SOURCE: New York State, Vital Statistics Data as of January 2022

NOTE: * = unstable rate

**=New York State excluding New York City

A summary table of selected mortality indicators is provided in Table 13, below. Comparisons of Broome County data were made to Upstate NY and NYS, and a check mark (✓) appears in the column where the mortality rate for Broome County is significantly higher. An additional column is provided to indicate mortality rates which are in the highest quartile for the state (top 25% of all counties in NYS), for which a check mark (✓) appears in this column. Conditions were not included in this table if the crude mortality rate was significant but the age-adjusted rate was not. The mortality indicators in this table represent opportunities for improvement and public health intervention.

In general, mortality rates have remained relatively stable or slightly declined over the past 16 years (2000–2016). For many conditions, the age-adjusted rates are significantly higher for Broome County than both NYS and Upstate NY including: diabetes and cirrhosis mortality; premature death and pre-transport mortality due to cardiovascular disease; pre-transport mortality for diseases of the heart, coronary heart disease, and cerebrovascular disease; and for infant and neonatal mortality. Rates for these conditions placed Broome County in the fourth quartile relative to the rest of the state. The absolute number of deaths (3-year total) was highest for cardiovascular disease (1,961), diseases of the heart (1,552), all cancers (1,296), and coronary heart disease (1,299).

Thus, there are few areas in which Broome County does not experience a disproportionate share of deaths. Although the AIDS mortality rate in Broome County was in the fourth quartile for the state, it is nonetheless significantly lower than NYS. Mortality rates in Broome County relative to other NYS counties were in the first quartile for: childhood mortality (age 15-19 years), suicide mortality (age 15-19 years), age-adjusted motor vehicle mortality, and alcohol-related motor vehicle injuries and deaths. In all other areas of mortality, Broome County was not significantly different than Upstate NY or NYS.

Table 13. Selected Mortality Indicators, Broome County, 2014-2016

Mortality Indicator	Number of Cases (3 years)	Crude Rate	Age-Adjusted Rate	> Upstate NY	> NYS	4 th Quartile NYS
CANCER (2014-2016)	1,296	2180.7	156.9	✓	✓	
Lung and bronchus	330	40.3	48.7		✓	
Prostate	59	16.6	23.5			
Ovarian	27	5.4	10.9			✓
DIABETES	168	28.5	20.6	✓	✓	✓
CIRRHOISIS	95	16.1	13.4	✓	✓	✓
CARDIOVASCULAR	1,961	332.8	218.8	✓	✓	✓
Premature death (age 35-64)	288	132.4		✓	✓	✓
Pretransport mortality	1,224	207.7		✓	✓	✓
Diseases of the heart	1,552	263.4	173.3	✓	✓	✓
Premature death (age 35-64)	234	107.6		✓	✓	
Pretransport mortality	1,006	179.9		✓	✓	✓
Coronary heart disease	977	165.8	136.2			
Premature death (age 35-64)	150	68.9		✓	✓	
Pretransport mortality	654	111.0		✓	✓	✓
CEREBROVASCULAR DISEASE	243	41.2	27.5	✓	✓	✓
Premature death (age 35-64)	29	13.3		✓	✓	✓
Pretransport mortality	111	18.8		✓	✓	✓
Homicide	13	2.2	2.8			
Unintentional injury	314	53.3	50.2	✓	✓	✓
Alcohol Related Motor Vehicle Injuries and Deaths	273	37.2			✓	
INFANT MORTALITY (per 1,000 births)						
Infant (<1 year)	35	5.8		✓	✓	✓
Neonatal (<28 days)	24	4.0		✓	✓	✓
Post-neonatal (1 month to 1 year)	11	1.8		✓	✓	✓
Perinatal (20 weeks gestation to 28 days of life)	56	9.2		✓	✓	
Chronic Lower Respiratory Diseases (COPD)	351	59.6	40.3	✓	✓	
AIDS	10	1.7	1.4	✓	✓	

SOURCE: New York State Community Health Indicators Reports, 2014-2016

Premature Death and Years of Productive Life Lost

For any given death, the years of productive life lost (YPLL) is the number of years prior to age 75 that the death occurred. Deaths over age 75 neither add to nor subtract from the tally of YPLLs. Thus, the YPLLs for a county as a whole will increase a lot with the death of one child, although those cases are rare. A county's YPLLs will increase only a little with the death of one older adult, but the higher frequency of that occurrence can contribute much to the total YPLLs.

The single year and 3-year averages for YPLL in Broome County as compared to Upstate NY for 2001-2016 appear in Appendix B134. In 2017-2019, the YPPL among Broome County residents was higher than among Upstate NY residents (7,418.7 vs. 6,352 per 100,000 population, rate ratio 0.81) and Broome County ranked in the fourth quartile for this indicator among NYS counties. Between 2001 and 2016, there was an increasing trend in the YPLL among Broome County residents as compared to Upstate NY, whose trend was relatively stable over the same period.

A possible explanation for this increase is that chronically ill individuals (of any age) who are unable to relocate remain in the county whereas healthy young and middle-aged adults can leave the area for jobs or retirement. For the chronically ill who remain, each early death adds to the YPLL for the county. For the healthy who leave, they are not included in either the numerator (if they should have an untimely death) or in the denominator (total population). Thus, high rates of outmigration among younger, healthier residents can result in substantial increases in the YPLL. If similar patterns exist across geographic regions, then the outmigration would likely result in non-differential bias and the relative comparisons between regions should remain valid.

Because YPLLs place greater emphasis on deaths among youths and adolescents, these losses have a greater impact on the metric than deaths from chronic disease among older individuals. Thus, increases in the number of deaths due to violence, suicide, and overdose among adolescents and young adults would contribute to a larger number of YPLLs. Individuals who do not have access to healthcare resources are more likely to die younger, and includes those who are economically disadvantaged, those with a disability, and/or those who reside in neighborhoods where there are higher rates of violent crime and drug abuse. These social determinants have disproportionate impacts on the health of Black and Hispanic residents; those who are Asian tend to experience better health outcomes. Thus, the YPPL among these population sub-groups are higher, and such disparities were evident in YPPL for White Non-Hispanics compared to Black Non-Hispanics and Hispanics in Broome County for the period 2009-2013.

Age-adjusted Years of Potential Life Lost (YPLL, before age 75, rate per 100,000 population), Broome County, Southern Tier, Upstate New York, New York State, 2009-2013

COUNTY SUB-POPULATION	TOTAL PREMATURE DEATHS	YEARS OF POTENTIAL LIFE LOST (rate per 100,000 population)
RACE / ETHNICITY		
White Non-Hispanic	3,369	6,918.7
Black Non-Hispanic	179	10,940.8
Other Non-Hispanic	39	3,383.8
Hispanic	71	7,447.9
TOTAL		7,127.7
Broome County	2,143	7,418.7
Southern Tier	4,451	6,821.4

Upstate New York

New York State

156,257

5,781.9

SOURCE: New York State Department of Health, *Sub-County Health Data Report for County Health Rankings-Related Measures 2017-2019: Broome County*

Basic Service Area: Family Health

Dental Health Education

Information on oral health indicators can be found in appendices (D279-D296). The age-adjusted percentage of adults who have had a dental visit within the last year in Broome County in 2016 was 67.9% compared with NYS (68.4%). Broome County ranked in the third quartile for this indicator. The percentage of Medicaid enrollees with at least one dental visit within the last year and at least one preventive dental visit within the last year for the three-year period 2015-2017 was (33.2%, 28.4% respectively) and compares similarly with NYS for both indicators. Broome County ranks in the first and second quartile for these indicators. There is still limited data available in relation to knowledge about oral health, but from 2007-2009 the age-adjusted incidence of Lip, Oral, and Pharynx Cancer was 16.7 per 100,000 in Broome County compared with NYS (12.9 per 100,000).

The School-Based Health Center Dental Program provides education on brushing, flossing, and nutrition at every dental visit. Oral health status indicators are presented in the Dental Health Services section, and the data for oral health come from screenings performed on third grade children. These data indicate a significant proportion of third grade children experience untreated dental caries, 42.3% in Broome County from 2009-2011. Although a significant proportion of third graders experience untreated dental caries, 80.6% have had at least one dental visit in the last year, and 88.5% have dental insurance. The data support the ongoing and critical need for dental education in order to preserve permanent dentition and maintain oral health. Poor dental health can lead to localized infections of the bone and surrounding structures and has been linked to obesity and other chronic diseases including cardiovascular disease and diabetes.

Primary and Preventive Health Care Services

Data for primary and preventive health care is from the Expanded Behavioral Risk Factor Surveillance System (BRFSS) and can be found in Appendix B164-B170. In Broome County for 2016 the age-adjusted percent of women aged 21-65 who received a Pap smear within the past three years was 82.9%, which was similar to New York State (82.2%). Broome County was in the third and fourth quartiles respectively for the state and well below the *Healthy People 2020* objective of 93%. The percent of women in 2016 aged 50-74 who received a mammogram within the last 2 years was 58.8% in Broome County, and was significantly lower than NYS (71.2%). The percent of women in 2016 aged 50-74 in Broome County who received breast cancer screening was 71.3% compared with 79.7% for New York State, and is slightly below the *Healthy People 2020* objective of 81.8%. Broome County ranked in the first quartile for this

indicator. In 2016, the percentage of adults receiving a colonoscopy in the past 10 years for both age groups 50-64, and 50-75, Broome County (68.5% and 72.9% respectively) was slightly higher than NYS (63.1%, 68.5%).

The percentage of adults who have had their cholesterol checked in the last 5 years was 79.9% for Broome County from 2013-2014, both males and females experienced similar percentages, and those aged 65+ had the highest percentages. Broome County ranked in the second quartile for this indicator. The percent of adults who were diagnosed with high blood pressure in was 34.0% for Broome County for 2016 compared with NYS (28.9%), and Broome County ranked in the fourth quartile for this indicator.

Healthy People 2020 Objectives — Lead Poisoning

EH-8 Reduce blood lead levels in children.

EH-8.1 Eliminate blood lead levels in children. (no applicable measure)

EH-8.2 Reduce the mean blood lead levels in children.
(1.4 µg/dL average blood lead level in children age 1 to 5)

OSH-7. Reduce the proportion of persons who have elevated blood lead concentrations from work exposures.

Target: 20.2 persons per 100,000 employed adults

Lead Poisoning

Information about blood lead levels and lead screening can be found in Appendices C1-C11. The incidence of children < 72 months of age with confirmed blood lead levels ≥ 10 mcg/dL in Broome County was 11.3 per 1,000 children from 2014-2016, which decreased from 18.8 per 1,000 children in 2013. However, this most recent metric for Broome County (11.3) is significantly higher than NYS (4.2 per 1,000), and Broome County ranks in the third quartile for this indicator.

The percent of children born in 2013 with a lead screening by 9 months was 0.4% and was significantly lower than NYS (1.9%) and Upstate NY (1.2%). For this same cohort of children, 58.8% in Broome County had received a lead screening by 18 months compared to NYS (74.8%) and Upstate NY (71.7%), and 38.2% had at least two lead screenings by 36 months, compared to NYS (62.8%) and Upstate NY (55.9%). The percentage of children receiving a lead screening by 18 months and at least two by 36 months is significantly lower in Broome County compared with NYS for both indicators. Broome County ranks in the first quartile in NYS for lead screenings for all age categories (lowest performance) and in the third quartile for incidence of elevated blood lead levels among children under the age of six (higher rate).

Examination of trends shows substantial improvement of rates in lead screening among children (by age 36 months) with rates increasing from 31.7% in 2004 to 54.3% in 2013. However, there has been a decrease in the percentage of children receiving at least one screening by 36 months in recent years, decreasing from 67.1 in 2011 to 54.3 in 2013, and holding steady rates of about 38.0% for those receiving at least two screenings by 36 months. Simultaneously, the incidence of elevated blood lead

levels among children under the age of 6 appears to be declining in most recent years, decreasing from 15.8 per 1,000 in 2015 to 7.9 per 1000 in 2016.

Despite these gains, additional effort in the area of lead screening is needed to prevent lead exposure and identify children with high blood lead levels, especially when comparing Broome County to the state of New York for the percentages of children receiving at least one or two blood lead tests by 36 months.

For employed persons age 16 and older, rates for elevated blood lead levels (≥ 10 mcg/dL) in Broome County were significantly lower from 2014-2016 than both NYS and Upstate NY (5.7 per 100,000 vs. 17.3 and 19.1 respectively). Broome County ranked in the first and second quartile for this indicator and has met the *Healthy People 2020* objective of less than 20.2 per 100,000 employed persons for this indicator (Appendix C12 and C24-C25).

Healthy People 2020 Objectives – Prenatal Care & Infant Mortality

MICH-1 Reduce fetal and infant deaths.

- MICH-1.1** Fetal deaths at ≥ 20 weeks gestation
(5.6 fetal deaths per 1,000 live births & fetal deaths)
- MICH-1.2** Fetal & infant deaths during perinatal period (28 weeks gestation to ≥ 7 days after birth; 5.9 per 1,000 live births & fetal deaths)
- MICH-1.3** Infant deaths (within 1 year)
- MICH-1.4** Neonatal deaths (within the first 28 days of life)
- MICH-1.5** Postneonatal deaths (between 28 days & 1 year)

MICH-3 Reduce child deaths.

- MICH-3.1** Children age 1 to 4 years (25.7 deaths per 100,000 population)
- MICH-3.2** Children age 5 to 9 years (12.3 deaths per 100,000 population)

MICH-4 Reduce adolescent and young adult deaths.

- MICH-4.1** Children age 10 to 14 years (15.2 deaths per 100,000 population)
- MICH-4.2** Children age 15 to 19 years (55.7 deaths per 100,000 population)
- MICH-4.3** Children age 20 to 24 years (88.5 deaths per 100,000 population)

MICH-5 Reduce maternal deaths.

Target: 11.4 maternal deaths per 100,000 live births.

MICH-10 Increase the proportion of pregnant women who receive early and adequate prenatal care.

- MICH-10.1** Care beginning in first trimester of pregnancy (77.9%)
- MICH-10.1** Early and adequate prenatal care (77.6%)

Prenatal Care and Infant Mortality

Maternal and infant health indicators including prenatal care and infant mortality can be found in Appendix C26. Appendices C27-C101 contains additional charts and maps for each indicator. For the period from 2017-2019, the percent of births with early prenatal care (those who began prenatal care in the first trimester) was 70.3% for Broome County, compared with both NYS (76.3%) and Upstate NY (78.8%). Broome County ranked in the first quartile on this indicator and falls below the *Healthy People 2020* objective of 77.9%. The proportion of births with late (in the third trimester) or no prenatal care from 2017 to 2019 was higher in Broome County than for Upstate NY (6.0% vs. 4.3%), but similar to NYS (5.4%), was in the third quartile for the state. Although Broome County appears to outperform NYS, there has been an increasing trend over the past 5 years, which is a concern.

The Kotelchuck Index is one measure used to examine the level of prenatal care and is defined as the percentage of births to women who began care in the first trimester of pregnancy and completed at least 80% of the expected prenatal visits. For Broome County, the percent receiving adequate prenatal care as defined by this index was (79.7%) from 2017 to 2019, and meets the *Healthy People 2020* objective of 77.6%. This percentage in Broome County was higher than both NYS (75.5%) and Upstate NY (78.2%). Broome County ranked in the first/second quartile for this indicator and was above the *Healthy People 2020* objective of 77.6%. The percentage of women in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC Program) with early (first trimester) prenatal care from 2015-2017 was 85.6% for Broome County, and was lower when compared with both NYS (90.7%) and Upstate NY (92.1%). For this low-income group, the *Healthy People 2020* objective is currently being met. Trend data indicate that early prenatal care had declined over a five-year period between 2011 and 2016, and the percentage of births with late or no prenatal care had increased from 3.6% in 2011 to 5.6% in 2016 to 6.0% from 2017-2019. Thus, continued efforts in this area will assist in reaching/maintaining achievement of *Healthy People 2020* objectives.

From 2017-2019, infant (age < 1 year) mortality for Broome County was 5.5 per 1,000 live births compared with NYS and Upstate NY (4.4 and 4.7 respectively). From 2015-2016 the infant (age < 1 year) mortality rate decreased from 6.6 per 1,000 to 5.0 per 1,000 in Broome County. From 2017-2019, Neonatal (age < 28 days) mortality for Broome County was 3.4 per 1,000 live births compared with NYS and Upstate NY (2.9 and 3.1 respectively). Broome County ranked in the third quartile for both infant and neonatal mortality indicators.

From 2017-2019, perinatal mortality for 20 weeks gestation to 28 days of life was 8.1 per 1,000 live births in Broome County compared with NYS (9.3) and Upstate NY (7.8). This rate decreased in Broome County, with 11.1 per 1,000 live births in 2015 to 8.5 per 1,000 live births in 2016 to 8.1 per 1,000 live births in 2019. From 2017-2019, perinatal mortality for 28 weeks gestation to 7 days of life was 3.4 in Broome County, compared with NYS (5.1) and Upstate NY (4.8) The post-neonatal (1 month to 1 year) mortality rate was 2.1 per 1,000 live births in the three-year period from 2017-2019 and was similar to statewide rates (1.5). Broome County ranked in the third quartile for the perinatal and post-neonatal indicators.

The fetal death rate (> 20 weeks gestation) was 4.6 per 1,000 live births over the same three-year period, compared with NYS (6.4) and Upstate NY (4.8). Broome County ranked in the second quartile. Trend data for infant deaths, neonatal deaths, post-neonatal deaths, and spontaneous fetal deaths

appear in Appendix C60-C72. On average, in Broome County fetal and infant death rates have trended slightly downward in recent years, however some of these rates include fewer than 10 events and are considered unstable. Notably, the infant mortality rate has trended downward from 2015-2016 in Broome County.

The maternal mortality rate for Broome County was 16.5 per 100,000 live births, for 2014-2016 (Appendices C73), compared with NYS (20.4) and Upstate NY (17.8). With this rate Broome County is considered higher than the *Healthy People 2020* objective of 11.4 per 100,000 live births, however, there were fewer than 10 events in the numerator, so this rate is considered unstable.

Healthy People 2020 Objectives — Family Planning

FP-5	Reduce the proportion of births occurring within 24 months of a previous birth. Target: 29.8%
FP-8	Reduce pregnancies among adolescent females.
FP-8.1	Age 15 to 17 years (36.2 pregnancies per 1,000)
FP-8.2	Age 18 to 19 years (105.9 pregnancies per 1,000)
MICH-8	Reduce low birth weight (LBW) and very low birth weight (VLBW).
MICH-8.1	Low birth weight (LBW) (7.8%)
MICH-8.2	Very low birth weight (VLBW) (1.4%)
MICH-9	Reduce preterm births.
MICH-9.1	Total preterm births (11.4%)
MICH-9.2	Late preterm or live births at 34 to 36 weeks of gestation (8.1%)
MICH-9.3	Live births at 32 to 33 weeks of gestation (1.4%)
MICH-9.4	Very preterm or live births at less than 32 weeks of gestation (1.8%)

Family Planning

For the 3-year period from 2014-2016, the percentage of births within 24 months of a woman's previous pregnancy was higher in Broome County (35.9%), compared with both NYS and upstate NY (31.2%, and 33.0% respectively). Broome County ranked in the fourth quartile for this indicator. Broome County exceeded the *Healthy People 2020* target of 29.8% for this metric. The percentage of births to teens aged 15–17 was 1.6% and for teens age 15-19 was 5.4%. Although the percentage for the younger age group was similar to NYS, the percentage for teens age 15-19 was higher than both NYS and Upstate NY (3.8% and 4.2% respectively). Broome County ranked in the third quartile for the former and in the second quartile for the latter. The percent of births to women 35 years of age and older was 13.7% for Broome County, appreciably lower than the 22.1% for NYS and 20.2% for Upstate NY. The teen fertility rate per 1,000 females in Broome County has trended downward from 2001 to 2016 for all three age categories 15-17, 15-19, and 18-19 years, decreasing from 16.5% to 8.3%, 27.1% to 13.9%, and 37.2% to 18.8% respectively. These data are located in Appendix B under Family Planning (Appendices B63 and B65-B89).

In Broome County, the three-year total for induced abortions was 2,128. Of these, 253 or 11.9% occurred in the 15–19 age group. The abortion ratio (the number of induced abortions per 1000 live births) was 350.8 for all women. For women aged 15 to 19, the abortion ratio was 778.5, which is more than twice the overall ratio. For all ages, and in particular for the 15–19-year-old age group, the abortion ratio was significantly lower than NYS. However, these metrics were higher than Upstate NY (231.7 and 653.3 respectively). These data are located in Appendix B under Family Planning (Appendices B90-B93).

The percentage of births to women 25 years of age or older who did not have at least a high school education was 7.9% as compared to 12.8% for NYS and 10.1% for Upstate NY. These differences were statistically significant, and Broome County ranked in the first/second quartile for this indicator. The percent of births to out of wedlock mothers was 47.7% for Broome County, which was significantly higher than the 39.3% for NYS and 38.1% for Upstate NY. Broome County ranked in the third quartile for this indicator. The percent of first births was 37.8% for Broome County, and compared similarly to Upstate NY (39.0%) but significantly lower than NYS (41.2%). The percent of births that were multiple births was 3.7% for Broome County, which was similar to Upstate NY and NYS. The Caesarian section rate for Broome County was 34.5% which was also similar to NYS and Upstate NY. Broome County ranked in the third quartile for this indicator. Trend data indicate that the percentage of out-of-wedlock births, the percentage of multiple births, and the percentage of births delivered by Cesarean section have all trended slightly upward or held relatively stable between 2006 and 2016 (Appendices C26-C35, also C58 & C59).

In relation to premature births and low birthweight from 2014-2016, Broome County figures were similar to NYS and Upstate NY for: very low birthweight (<1.5 kg, 1.2%) and very low birthweight among singleton births (0.7%). In Broome County the percentage of low birthweight (<2.5 kg, 7.2%) was slightly lower when compared with NYS (7.9%) and Upstate NY (7.7%). The percentage of low birthweight among singleton births (<2.5 kg) in Broome County (1.3%) was similar to Upstate NY and NYS. Broome County ranked in the first and second quartiles for all categories of low birthweight. The percent of premature (births <32 weeks in gestation) was 1.3% for Broome County, ranking in the first and second quartiles for the state. This percentage was 7.1% for 32 to < 37 weeks gestation and 8.5% overall (<37 weeks gestation). The rates for prematurity were not significantly different than statewide rates. Broome County was lower than both the *Healthy People 2020* objectives for all gestational time points and the *Prevention Agenda 2017* target of 10.2% for preterm births. Trend data for low birthweight reveals that from 2007 to 2016, percentages of low birthweight and very low birthweight in Broome County have trended slightly downward or remained relatively stable over the past years. Information about birthweight can be found in Appendices C74-C81.

The percent of births with a 5-minute APGAR score of less than 6 was 0.7% for Broome County and performed similarly compared with statewide percentages. Broome County ranked in the first/second quartiles for this indicator (Appendices C88 & C89).

In Broome County for 2014, newborns with withdrawal syndrome and/or affected by narcotics via placenta or breast milk was 11.9 per 1,000 delivery hospitalizations/newborn discharges. This rate is significantly higher than NYS (5.9 per 1,000), and Broome County ranked in the third quartile for this indicator (Appendix C90). The number of newborns with withdrawal syndrome and/or affected by narcotics via placenta or breast milk represents a growing concern for Broome County.

Nutrition

The percent of pregnant women participating in the WIC program who have anemia in the third trimester was significantly lower for Broome County (24.3%) than for both NYS (37.7%) and Upstate NY (36.0%) from 2015-2017. Broome County ranked in the first quartile for the state. The prevalence of anemia among low-income pregnant women was more than twice the *Healthy People 2020* objective of 14.5%. From 2010-2012, the percentage of pregnant women in WIC that were pre-pregnancy obese (BMI 30 or higher) was significantly higher in Broome County (34.7%) compared with NYS (26.6%) and Upstate NY (32.0%). From 2015-2017, the percentage of pregnant women in WIC that were pre-pregnancy overweight but not obese (BMI 25 to < 30) was significantly lower in Broome County (23.7%) compared with NYS (27.6%) and Upstate NY (27.3%). Broome County ranked in the first quartile for obesity and in the first quartile for overweight.

For Broome County, from 2017 to 2019 the percentage of infants who were fed any breast milk in the delivery hospital was 83.3%, which was significantly lower than NYS (88.5%) and Upstate NY (84.7%). The percentage of infants who were exclusively breastfed in the hospital was 72.0%, and this figure was higher than both NYS (47.1%) and Upstate NY (49.6%) and the Prevention Agenda 2017 objective of 48.1%. Broome County ranked in the third quartile for any breastfeeding and in the third quartile for exclusively breastfeeding in the hospital. The percentage of WIC mothers who breastfed for at least six months over the three-year period 2015-2017 was 24.7%, and Broome County was significantly lower than both NYS (41.0%) and Upstate NY (31.5%) for this indicator. High performance on these indicators may reflect the baby friendly focus and policy initiatives in Broome County, though more effort is needed in relation to sustaining breast feeding through the first six months after delivery. Information about breastfeeding is located in Appendices (C53-C57).

Injury Prevention

Due to the change in ICD codes, the comparisons between years 2014 and 2016 cannot be made. The rate for 2015 was excluded due to SPARCS data transitioning on October 1, 2015 from ICD-9-CM to ICD-10-CM diagnosis codes. Since ICD-9CM and ICD-10-CM are not comparable, an annual rate for 2015 cannot be calculated, and data for 2016-and-forward should not be compared with data for 2014-and-prior. For 2016-year data, ICD-10-CM codes were used. The data table for injury indicators is located in Appendix C102 with charts and graphs in Appendices C103-C143.

The age-adjusted suicide mortality rate per 100,000 for 2019 was 10.8 in Broome County and was higher than both NYS (8.2) and Upstate NY (10.5). Broome County ranked in the second quartile for this indicator (Appendices C103-C106). The age-adjusted hospitalization rate for self-inflicted injury was significantly higher for Broome County (7.3 per 10,000) than for NYS (3.8 per 10,000) and Upstate NY (4.2 per 10,000). For the 15–19 age category, the hospitalization rate for self-inflicted injury was 14.5 per 10,000 in Broome County, and was significantly higher than both NYS (7.6 per 10,000) and Upstate NY (8.7 per 10,000). Broome County was ranked in the fourth quartile overall and in the 15-19 age group (Appendices C107-C109). The age-adjusted assault-related hospitalization rate in Broome County (2.9 per 10,000) was similar to NYS (3.2 per 10,000) and slightly higher than Upstate NY (2.2 per 10,000). Broome County was ranked in the fourth quartile for this indicator (Appendices C110-C111).

For unintentional injuries, the age-adjusted mortality rate per 100,000 in Broome County from 2014-2016 was 50.2 per 100,000 and was significantly higher than both NYS (30.2 per 100,000) and Upstate NY (41.7 per 100,000). Broome County ranked in the fourth quartile for this indicator. The age-adjusted hospitalization rate for unintentional injuries in Broome County was 72.0 per 10,000, which was significantly higher than NYS and Upstate NY (55.7 and 57.0 respectively) and Broome County was ranked in the fourth quartile for this indicator. The unintentional injury hospitalization rate was highest in the 65 years and older age category (312.6 per 10,000), significantly higher than both NYS (260.9) and Upstate NY (239.3). The unintentional injury hospitalization rate was also high in the 25–64 age group (61.8 per 10,000) and was statistically higher than statewide rates NYS (41.3) and Upstate NY (42.7). The unintentional injury hospitalization rate was lowest in 10-14 age group (12.3 per 10,000) and slightly lower rates were observed for Broome County in the 15-24 age bracket (18.5 per 100,000) compared with 23.1 per 100,000 for both NYS and Upstate NY (Appendices C112-C122).

In Broome County, the age-adjusted hospitalization rate for poisoning was 9.7 per 10,000 from 2017-2019 and was significantly higher than both NYS (7.6) and Upstate NY (7.0). For this indicator, Broome County ranked in the fourth quartile. For traumatic brain injury, the age-adjusted hospitalization rate was 8.2 per 10,000 from 2017-2019 and was similar to the state averages (Appendices C140-C141). Notably, the age-adjusted hospitalization rates for self-inflicted injury have shown a decrease in Broome County from 2012-2014 from 11.6 in 2012 to 8.0 in 2014. Similar trends were observed for unintentional injury hospitalizations among those age 25-64 years as well as 65 and older. Finally, the age-adjusted hospitalization rate for poisoning from 2012-2014 trended downward from 16.2 in 2012 to 10.2 in 2014. Although these rates appear to trend downward between 2012-2016, valid interpretations cannot be made to the change in ICD codes. Despite these limitations in the trend data, the significantly higher rates for the various injury indicators for Broome County when compared to NYS should suggest that efforts be focused on improving mental and emotional health in Broome County.

The age-adjusted hospitalization rate related to falls was slightly higher for Broome County than for the state (36.1 per 10,000 vs 32.2 or NYS and 32.8 for Upstate NY). Broome County ranked in the fourth quartile for this indicator. The rates of fall hospitalizations for age <10 and age 10-15 were lower in Broome County than in NYS. For the three oldest age groups (65–74, 75–84, and 85+ years), the hospitalization rates were higher than NYS, and these differences were significant for those 65-74 and 85+ years of age. Broome County ranked in the first quartile for fall hospitalizations among children age 10-14 years. The county ranked in the fourth quartile for falls hospitalizations for ages 25-64, 65-74, 75-84, and 85+. Trends in fall-related hospitalizations across multiple age groups appear in Appendix C124-C133. In general, no appreciable patterns were observed for younger age groups. In 2016, the percentage of adults who had a fall that resulted in an injury in Broome County was significantly higher (59.3%) when compared with NYS (42.0%). For falls occurring in the past 12 months, females age 65+ experienced a higher percentage of falls when compared with males (32.8% vs. 28.8%). Again, due to the change in ICD codes, assessment of trends in fall hospitalization rates from 2014-2016 cannot be made. However, due to the significant differences between falls resulting in injury in Broome County for 2016 compared with NYS, and other 2016 data showing higher percentages of falls among various age groups, it is apparent that continuing effort is needed to reduce falls among residents of Broome County.

Basic Service Area: Disease Control

Sexually Transmitted Diseases

Information on sexually transmitted diseases (STDs) appears in Appendices D1-D35. For the time period 2017-2019, there were 26 cases of early syphilis (primary, secondary or latent of less than one-year duration) in Broome County, which corresponds to a rate of 6.4 cases per 100,000 population. This rate was significantly lower than for NYS or Upstate NY (34.5 and 11.7 respectively). Because of the small number of cases, the local rate is considered unstable and demonstrates more fluctuation over time (Appendices D14 & D15). This rate is just slightly above the *Healthy People 2020* objective of 1.7 cases per 100,000 population.

For gonorrhea, there was a 3-year total (2017-2019) of 234 cases across all age groups for males (228.3 per 100,000 population) and 198 for females (240.1 per 100,000 population). These indicators were mostly similar to NYS and Upstate NY. For the 15–19 age group specifically, there was a total of 46 cases for a case rate of 215.8 per 100,000 population, which was significantly lower than NYS (401.5 per 100,000) and Upstate NY (246.4 per 100,000). Broome County was in the third quartile for early syphilis and in the fourth quartile for gonorrhea in both genders (age 15-44 years). For gonorrhea among 15–19 year-olds, Broome County ranked in the third quartile. The gonorrhea rate in Broome County is well below the *Healthy People 2020* rate of 251.9 per 100,000 population. Gonorrhea rates had decreased in 2004 and 2005, increased significantly between 2007 and 2014, and appears to have leveled off. (Appendices D16-D21).

For this same time period, there were 700 cases of Chlamydia among males and 1,312 cases among females (age 15-44 years). For males, this equates to a case rate of 574.6 per 100,000 population, which was significantly lower than NYS (1,175.1 per 100,000) but not Upstate NY (721.7 per 100,000). For females, this equates to a case rate of 1,165.2 per 100,000 population, which was also significantly lower than both NYS (1,741.1) and Upstate NY (1,455.2). Among males in the 15–19 age group and 20–24 age group, case rates were appreciably higher (408.3 per 100,000 and 840.8 per 100,000 respectively). For females, the age-specific rates were 2,017.1 per 100,000 for 15–19 year-olds and 1,775.5 per 100,000 for 20–24 year-olds. For both males and females across all age categories, the Chlamydia rate was significantly lower than statewide rates. The Chlamydia rates for males placed Broome County in the third quartile for the 15-44 age group, the first and second quartile for the 15-19 age group, and the first and second quartile for the 20-24 age group. For females, Broome County ranked in the first and second quartile for all age groups among NYS counties. Chlamydia rates have been steadily climbing for males, though at a slower rate for Broome County than for NYS overall and remained relatively stable for females (Appendices D22-D33).

The pelvic inflammatory disease (PID) hospitalization rate for Broome County was suppressed between 2017 and 2019 (see Appendix D34 & D35).

Tuberculosis

The incidence of tuberculosis in Broome County ranked in the third quartile for the state at a rate of 1.2 per 100,000 population (excluding prison inmates) representing only 6 cases for the 3-year period 2017–2019 (see Appendices D36 & D51-D52). The tuberculosis rate in NYS was 3.9 per 100,000, which is clearly much higher than the county. In this area, Broome County ranked in the third quartile. Because of the small number of cases (<20), the rate is considered unstable and demonstrates more fluctuation over time. The incidence of tuberculosis infection met the *Healthy People 2030* objective of 1.4 new case per 100,000 population.

Communicable Diseases

Pertussis

In Broome County, from 2017 to 2019, the incidence of pertussis (whooping cough) was 2.4 per 100,000 with a total of 20 cases (see Appendices D30 & D39-D40). This rate was lower than the rate for NYS (3.8 per 100,000) and significantly lower than Upstate NY (5.0 per 100,000). For pertussis incidence, Broome County ranked in the first and second quartile. Trend data from 2010 to 2019 reveal a spike during 2012 when the incidence rose to 49.3 per 100,000 population. Rates have remained low since 2013. Pertussis is spread through airborne contact with respiratory droplets or discharges. Most fatalities occur in children less than 1 year of age, and even then the case fatality rate is low. Pertussis is a vaccine-preventable disease but protection often only lasts through childhood. A resurgence of disease in adults and adolescents poses a public health threat to infants who have not been vaccinated.

Mumps

In Broome County from 2017 to 2019, there were 2 reported case of mumps for a crude rate of 1.0 per 100,000 (Appendices D36 & D41-D42). The incidence rate was 1.7 per 100,000 for NYS and 1.3 per 100,000 for Upstate NY. The low number of cases results in an unstable rate and meaningful comparisons to statewide rates cannot be made. Although trend data from 2010 to 2019 reveals a small increase in 2017, the incidence of mumps has remained very low for most of this period.

Meningococcal Disease

In Broome County from 2017 to 2019, there were 4 reported cases of meningococcal disease (Appendix D36 & D43-D44). This rate was 1.0 per 100,000 for Broome County as compared to 0.1 per 100,000 for both NYS and Upstate NY. The low number of cases results in an unstable rate and meaningful comparisons to statewide rates cannot be made. Although trend data between 2010 and 2019 show considerable variability, the three-year averages suggest that there has been a general upward trend in incidence between 2010 and 2017.

Haemophilus influenzae

Haemophilus influenzae type b (Hib) causes infections of the blood, pneumonia, and acute bacterial meningitis. Fifteen cases of *Haemophilus influenzae* were diagnosed during 2017 to 2019 in Broome County for an incidence of 1.7 per 100,000 population (Appendices D36 & D45-D46). It is just slightly

higher than the rates observed across NYS (2.0) and Upstate NY (2.3). Immunization against Hib can reduce the incidence of invasive diseases and early childhood meningitis.

Hepatitis A

Hepatitis A is an acute, self-limiting infectious disease caused by the Hepatitis A virus (HAV), which is transmitted by the fecal-oral route via contaminated food or drinking water. This illness is often associated with travel to areas with poor hygiene standards. Infection with the virus confers lifelong immunity and can be prevented by vaccination. From 2017 to 2019, there was only one reported case of Hepatitis A in Broome County with an incidence 0.2 per 100,000 population, while the rate for NYS was 1.3 per 100,000 population and the rate for Upstate NY was 1.4 per 100,000 population. The low number of cases results in an unstable rate. Broome County ranked in the first and second quartile among NYS counties for this metric. Trend data shows the rare instances of cases from 2010-2019. The rate was lower than the *Healthy People 2030* objective for this indicator (0.4 per 100,000 population). (Appendices D36 & D47-D48)

Hepatitis B

Hepatitis B is caused by infection with the Hepatitis B virus (HBV) and transmission results from exposure to infectious blood or body fluids via unprotected sexual contact, blood transfusions, re-use of contaminated needles and syringes, and vertical transmission from mother to child during childbirth. The disease causes an inflammation of the liver that can result in cirrhosis or cancer and potentially death. This infection may be acute or chronic and can be prevented by administering a series of vaccinations. Post-exposure prophylaxis with immunoglobulin is also available. From 2017 to 2019, three cases of Hepatitis B were diagnosed in Broome County (Appendices D36 & D49-D50). Due to the small number of cases, the incidence rate of 0.2 per 100,000 population is unstable and trend data shows considerable variability. Broome County ranked in the first and second quartile with statewide rates just slightly higher. The overall incidence was higher than the *Healthy People 2030* target of 0.1 cases per 100,000 population.

Escherichia coli

Infection with *Escherichia coli* O157:H7, a foodborne illness, can cause severe bloody diarrhea and may result in acute kidney failure from destruction of red blood cells. The young and elderly are particularly susceptible with *E. coli* being the leading cause of kidney failure in children. A major source of infection is undercooked ground beef. From 2017 to 2019, 15 cases of *E. coli* were diagnosed in Broome County (Appendices D36 & D53-D54) yielding an incidence rate of 1.4 per 100,000 population. Broome County ranked in the first and second quartile, and this rate was lower than statewide rates. The incidence of *E. coli* demonstrates considerable variability over time due to the small number of cases with minor outbreaks evident in 2011, 2013, 2014, and 2016.

Salmonella

Salmonella infection may be caused by a number of different species which are pathogenic for both animals and humans causing acute abdominal pain and diarrhea. Salmonellosis is considered a foodborne illness and often goes unrecognized unless a point source outbreak occurs. Transmission can be prevented by avoiding raw or undercooked eggs, poultry, and meat. For 2017–2019, there were 50 cases of Salmonella in Broome County. The incidence of salmonella infection was 9.2 per 100,000, which was significantly lower than NYS (14.0 per 100,000) or Upstate NY (12.9 per 100,000). Trend data suggests that the number of cases for salmonella has been fluctuating with higher rates in 2010, 2012, 2014, and 2018. Broome County ranked in the first and second quartile for this indicator (see Appendices D30 & D48-D49).

Shigellosis

Shigellosis infection also involves a number of different species and causes an acute bacterial diarrhea. Transmission occurs via the fecal-oral route and prevention is directed at isolation during acute illness and through safe food handling and hand hygiene. The incidence of *Shigella* (3-year estimate) in Broome County was 1.4 per 100,000 population with 8 cases reported between 2017-2019. This rate was significantly lower than both NYS (6.3 per 100,000) and Upstate NY (3.4 per 100,000). The small number of cases results in an unstable rate with variability from small fluctuations in the number of cases (Appendices D36 & D57-D58).

Lyme disease

Lyme disease, a tick-borne zoonosis caused by *Borrelia burgdorferi*, is characterized by a distinctive skin lesion and has systemic neurologic, rheumatologic, and cardiac manifestations. Seasonal and geographic patterns are evident with initial infection occurring primarily during summer months in the Northeastern US. The 3-year estimate (2017-2019) of Lyme disease incidence for Broome County was 164.3 per 100,000 resulting from a reported 647 cases (Appendices D36 & D59). This rate was over three times the rate for NYS (44.7 per 100,000) and higher than Upstate NY (70.7 per 100,000). Broome County ranked in the fourth quartile for this indicator.

Pneumonia and Influenza

Comparison of pneumonia and influenza hospitalization rates among those 65 and older were higher for Broome County than for NYS and Upstate NY (125 per 10,000 vs. 85.5 and 95.2 respectively) (Appendices D36-D37). In comparison to other counties in the state, Broome County was in the fourth quartile with a total of 389 hospitalizations for the 2017-2019 period. These data reflect International Classification of Diseases (ICD) codes 480–487.

Immunizations

Information about immunizations for adults is located in Appendices D62-D66. For Broome County in 2018, the percent of adults age 65 and over who received a flu shot in the past year was 43.1% which wasn't significantly different than the 44.8% for NYS or 43.4% for Upstate NY. The percent of adults age 65 and older who have ever received the pneumococcal pneumonia vaccine was 76.0% for Broome County, while the percentage for NYS was 64.0% and the percentage for Upstate NY was 69.4%. While these proportions ranked Broome County in the second and third quartiles respectively, they were well below the *Healthy People 2020* objective of 90% and the *Prevention Agenda 2017* objective of 66.2% for flu immunization among adults age 65 and older.

Chronic Diseases: Cancer

Cancer data are presented in Appendices D67-D151. These data are based on select County Health Assessment Indicators from the NYS Department of Health which are drawn from the NYS Cancer Registry for the years 2016-2018. Early stage cancer is defined as invasive cancers that are limited to the tissue of origin. Small area analyses were available for colorectal, lung, breast and prostate cancers. These analyses calculated the expected incidence as the number of people in a given zip code that would be expected to develop cancer within a 5-year period if the zip code had the same rate of cancer as the state as a whole. Zip codes with small numbers are combined with larger neighboring zip codes.

Each year an estimated 1,229 people are diagnosed with cancer, and it is responsible for 432 deaths per year in Broome County. Incidence and mortality are somewhat higher for males than females. Between 2009 and 2018, overall cancer rates in Broome County remained relatively stable until 2015. For the period 2016-2018, the crude mortality from all cancers was 219.7 per 100,000 population and the age-adjusted mortality was 152.7 per 100,000 population. Although the overall rate is higher than NYS as a whole (175.5 per 100,000), it ranks Broome County in the first and second quartile. The crude rate is higher than the *Healthy People 2030* objective of 122.7 deaths per 100,000 population.

Cancer incidence and mortality by gender are provided in Appendices D68-D70. The greatest burden of disease based on absolute number of cases results from prostate cancer in men with an average 120 cases per year and breast cancer in women, with an average 184 cases per year. An estimated 46 persons are diagnosed each year with colon, rectal, or colorectal cancer and 89 persons with lung cancer. Lung cancer is responsible for an estimated 110 deaths per year; colon, rectal, or colorectal cancer for 38 deaths per year; breast cancer for 28 deaths per year in women and prostate cancer for 20 deaths per year in men.

For the period 2016-2018, the incidence of cancer of the oral cavity and pharynx was 18.5 per 100,000 for Broome County (third quartile) and the age-adjusted mortality rate was 14.2 per 100,000. Incidence rates were higher than NYS (14.1 per 100,000). Early diagnosis occurs in about one-third of cases for both males and females. The age-adjusted mortality was slightly higher than the *Healthy People 2020* objective of 2.3 per 100,000 population. (Appendices D79-D86)

For colorectal cancer in Broome County, the age-adjusted incidence rate was 37.4 per 100,000 (first/second quartile) and the age-adjusted mortality rate was 11.9 per 100,000 (first/second quartile) for the period 2016-2018. The age-adjusted incidence rate for Broome is slightly less than NYS and Upstate (37.6 and 38.1 respectively). Almost half of all colorectal cancers are diagnosed at an early stage for both males and females. For the period 2009-2018, both the incidence and mortality have been relatively stable. Colorectal cancer mortality was lower than the *Healthy People 2020* objective of 14.5 per 100,000 population.

In Broome County, the age-adjusted incidence of cancer of the lung and bronchus was higher than NYS (62.3 vs. 57.6 per 100,000). Broome County was similar to Upstate NY and ranked in the first/second quartile statewide. Only about 15% of lung cancers are diagnosed at an early stage. Lung and bronchial cancer mortality was higher in Broome County (56.9 per 100,000 population) than in NYS (36.9 per 100,000). County rankings within the state placed Broome County in the first/second quartile. Both the incidence and mortality remained level over the period 2016-2018. Broome County is not currently meeting the *Healthy People 2030* objective of reducing the lung cancer death rate to below 45.5 per 100,000 population. The incidence of lung and bronchial cancer among males was 69.6 per 100,000 as compared to 60.7 per 100,000 among females. Gender-specific mortality rates were 46.7 per 100,000 for males and 34.5 per 100,000 for females. (Appendices D99-D106)

Broome County ranked in the first/second quartile for mortality from melanoma, a highly malignant form of skin cancer. The mortality rate for Broome County was 2.9 per 100,000 population compared to the NYS rate of 2.1 per 100,000. In this area, Broome County did meet the *Healthy People 2020* objective of 2.4 per 100,000. Melanoma incidence was significantly higher for males than for females (33.3 vs. 23.6 per 100,000) and three times as high for mortality (3.2 vs. 0.9 per 100,000). Given the small number of deaths (n=14), these rates should be interpreted cautiously. Fortunately, given the aggressive nature of this form of cancer, approximately 83.3% of malignant melanomas are diagnosed at an early stage. (Appendices D95-D98)

The age-adjusted incidence of female breast cancer in Broome County was 146.4 per 100,000 females, which was higher than NYS (133.8) and not significantly different from Upstate NY (139.2). More than two-thirds of these are diagnosed at an early stage. The age-adjusted mortality rate for female breast cancer was 15.5 per 100,000 and was similar to both NYS and Upstate NY. Broome County has almost met the *Healthy People 2030* objective of reducing the female breast cancer death rate to less than 15.3 per 100,000. In Broome County, only 43.2 per 100,000 female breast cancers were diagnosed at a late stage (similar to NYS and Upstate NY), which was also above the incidence set by *Healthy People 2020* of less than 41.0 new cases per 100,000 females. Broome County ranked in the fourth quartile for incidence, in the first/second quartile for mortality and in the third quartile for late stage diagnosis. (Appendices D107-D118)

Broome County ranked in the third and fourth quartile for age-adjusted incidence of cancer of the cervix or uterus (8.3 per 100,000) and age-adjusted mortality (3.4 per 100,000). Compared to NYS, Broome

County experienced a higher mortality rate (NYS' rate is 2.5 per 100,000). No temporal pattern was evident. Though the number of deaths due to this type of cancer was small, making the mortality rate unstable, it was nonetheless below the target rate of 2.2 per 100,000 females set by *Healthy People 2020*. Broome County ranked in the fourth quartile for age-adjusted incidence of ovarian cancer (17.8 per 100,000 females) and for age-adjusted mortality (12.6 per 100,000 females). The incidence for Broome County was higher than both Upstate NY and NYS (11.5 and 11.4 per 100,000). Early stage diagnosis for cervical and uterine cancer is 55.3% and 77.9% respectively. In comparison, prompt diagnosis of ovarian cancer remains elusive with only 15.1% of cases being recognized in its earliest stages. (Appendices D119-D126 for cervical cancer and D127-D134 for ovarian cancer)

The age-adjusted incidence of prostate cancer in Broome County was 122.0 per 100,000 males, and this figure was lower than NYS (129.4) and Upstate NY (131.6). This rate placed the county in the first/second quartile. Prostate cancer has a high rate of early diagnosis at almost 73%. The age adjusted prostate cancer mortality was 24.9 per 100,000 males, which was higher than NYS (18.5 per 100,000) and Upstate NY (18.9 per 100,000), ranking Broome County in the fourth quartile. Diagnosis of prostate cancer at a late stage occurred for 32.3 per 100,000 males, while the rate for NYS is 25.3 per 100,000 and for Upstate NY it is 25.4 per 100,000. Broome County is currently meeting the *Healthy People 2030* objective of reducing the prostate cancer death rate to below 16.9 per 100,000 males. (see Appendices D135-D146)

Information about childhood cancers can be found in Appendices D147-D151. The overall incidence of childhood cancer is lower for Broome County (168.2 per 100,000 children age 0–19) than NYS (214.5 per 100,000) and Upstate NY (209.0 per 100,000). In NYS, the most common cancers in children age 0–4 are leukemias, Neuroblastoma & other peripheral nervous cell tumors, and renal tumors. For children aged 5–9, cancers with the highest incidence are leukemias, non-Hodgkin lymphomas, soft tissue sarcomas, and malignant bone tumors. For children aged 10-14 and 15-19, cancers with the highest incidence are leukemias, lymphomas, soft tissue and osteosarcomas. In addition, for children aged 15–19, gonadal neoplasms are more common than for younger aged children. Cancer is responsible for approximately 30–40 deaths per year in NYS. Across all age groups, childhood cancers with the highest mortality are leukemias and malignant central nervous system tumors. In the 15–19 year-old age group, tumors of the bones and joints also have a relatively high mortality, but in all cases the rate does not exceed 10 deaths per 100,000 children.

Chronic Diseases: Cardiovascular Disease

Data for cardiovascular disease mortality and morbidity appear in Appendices D152-D200 and are based on selected County Health Assessment Indicators for 2017-2019 from the NYS Department of Health. Mortality data are derived from Vital Records and morbidity from the Statewide Planning and Research Cooperative System (SPARCS) both located at the Bureau of Biometrics and Health Data, NYS Department of Health. The category of cardiovascular disease includes International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) codes I00–I99. Disease of the heart include ICD-10 codes for rheumatic heart disease (codes I00–I09), hypertensive heart disease (code I11), hypertensive heart disease and hypertensive renal disease (code I13), ischemic heart

disease, coronary heart disease and disease of pulmonary circulation, pericarditis and endocarditis, and cardiomyopathies (codes I20– I51).

In Broome County, cardiovascular disease is responsible for an average of 654 deaths per year, almost twice as many as for all cancers combined, and is the leading cause of death. Specific data for crude and age-adjusted mortality rates were presented previously and will not be repeated here. Rather, this section will describe in greater detail premature deaths (ages 35–64) and pre-transport mortality as well as hospitalization rates.

The mortality rate for premature death is higher in Broome County than in NYS for all cardiovascular diseases (127.1 vs. 104.2 per 100,000), for diseases of the heart (101.2 vs. 83.9 per 100,000), and for coronary heart disease (64.3 vs. 66.4 per 100,000). These differences are significant for all cardiovascular disease and diseases of the heart, but not for coronary heart disease. Moreover, the mortality rate for premature death was significantly higher in Broome County than Upstate NY in all three categories. Premature death from heart failure is relatively uncommon; and there were only 5 cases in Broome County over the 3-year period from 2017-2019. Since these rates are age specific rates, differences in premature death are not likely accounted for by variability in age distribution of the populations.

In relation to pre-transport mortality, the rates were significantly higher in Broome County than NYS for all cardiovascular diseases (220.5 vs. 163.6 per 100,000) and, for diseases of the heart (177.1 vs. 138.7 per 100,000), but not for coronary heart disease (108.0 vs. 112.4 per 100,000). Because of the large distances required for emergency responders to reach rural county residents, response times in these areas are typically longer. Thus, comparisons against Upstate NY rates may be more appropriate. Even considering similar geography; however, premature death from all cardiovascular disease, diseases of the heart, coronary heart disease, and heart failure are significantly higher in Broome County relative to the rest of the state. Broome County ranked in the third and fourth quartile for nearly all indicators. This finding suggests that there may be reasons, other than rurality that account for the higher pre-transport mortality rates.

Disparities in hospitalizations for cardiovascular disease were previously described. This section will discuss cardiovascular morbidity in relation to the county as a whole. On average in Broome County, there are 3,239 hospitalizations per year related to cardiovascular disease, 2,152 hospitalizations per year for diseases of the heart, 732 hospitalizations per year for coronary heart disease, and 508 hospitalizations per year for heart failure. Age-adjusted hospitalization rates in Broome County are similar or higher than both NYS and Upstate NY for all comparison categories. The age-adjusted hospitalization rate for all cardiovascular disease was 126.3 per 10,000 for Broome County versus 125 for NYS and 122.9 for Upstate NY. For diseases of the heart, the age-adjusted hospitalization rate for Broome County was 84.5 per 10,000 versus 84.2 for NYS and 84 for Upstate NY. For coronary heart disease, the age-adjusted hospitalization rate for Broome County was 27.8 per 10,000 versus 25.2 for NYS and 24.9 for Upstate NY. And finally for heart failure, hospitalization rate (Age 18+) for Broome County was 41.2 per 10,000 versus 31.5 for NYS and 42.0 for Upstate NY. In relation to the county rankings within NYS, Broome County placed in the second and third quartile for many cardiovascular hospitalization rate indicators. Broome County did not meet the *Prevention Agenda 2017* targets in relation to the age-adjusted heart attack hospitalization rate (19.3 vs. 14.0 per 10,000). Hospitalization rates for this disease are considered “ambulatory sensitive” meaning that, with appropriate outpatient

management, hospitalization may be avoidable. *Healthy People 2020* provides only age-specific targets for congestive heart failure and not overall, but comparison indicates that the hospitalization rate for this condition in Broome County would only meet the current objective if all or most of the hospitalizations were among residents age 85 or older. While Broome County outperformed NYS on hospitalization rates and both hospitalization and mortality rates appear to be declining, the number of deaths per year and high mortality rates warrant continued focus on the cardiovascular health of Broome County residents.

Chronic Diseases: Cerebrovascular Disease (Stroke)

Data for cerebrovascular disease mortality and morbidity appear in Appendices D201-D215 and are based on selected County Health Assessment Indicators for 2017 to 2019 from the NYS Department of Health. Mortality data are derived from Vital Records and morbidity from the Statewide Planning and Research Cooperative System (SPARCS) both located at the Bureau of Biometrics and Health Data, NYS Department of Health. The category of cerebrovascular disease includes ICD-10 codes I60–I69.

In Broome County, approximately 81 deaths per year are attributable to cerebrovascular disease and there is an average 598 hospitalizations each year. The age-adjusted mortality rate in Broome County was 31.1 per 100,000 population and was higher than both NYS (24.1 per 100,000) and lower than Upstate NY (27.2 per 100,000). Broome County ranked in the fourth quartile for age-adjusted cerebrovascular mortality and has met the *Healthy People 2030* objective of 33.4 deaths per 100,000. The pre-transport cerebrovascular disease mortality rate for Broome County (22.5 per 100,000) was significantly higher than for NYS (13.2 per 100,000) and similar to Upstate NY (18.0 per 100,000). Broome County ranked in the fourth quartile in the state for this indicator. The age-adjusted hospitalization rate for cerebrovascular disease was 23.0 per 10,000 population in Broome County, which was higher than both NYS (21.3 per 10,000) and Upstate NY (21.3 per 10,000). Broome County ranked in the third quartile for this indicator. The high pre-transport mortality for stroke suggests that a focus on public health interventions directed toward raising awareness of stroke symptoms, early recognition of evolving stroke, and early activation of emergency medical services continue to be critical public health messages.

Chronic Diseases: Diabetes Mellitus

Data for diabetes mortality and morbidity appear in Appendices D216 and D225-D239. These data are based on selected County Health Assessment Indicators for 2017 to 2019 from the NYS Department of Health. Mortality and morbidity data sources have been previously described. The ICD-10 codes for diabetes mellitus mortality include E10 to E14.

In Broome County, there is an average of 56 deaths per year due to diabetes mellitus. The age-adjusted diabetes mortality rate was estimated to be 20.5 per 100,000 population, and this rate was higher than both NYS (17.6 per 100,000) and Upstate NY (16.6 per 100,000). Among NYS counties, Broome County ranked in the third quartile for diabetes. The diabetes mortality was less than the 13.7 deaths per 1,000 population objective set by *Healthy People 2030*.

The average number of hospitalizations per year was 350 for diabetes as a primary (admitting) diagnosis and 4,971 for any diabetes diagnostic code associated with the hospitalization. The age-adjusted hospitalization rate for those with a primary (admitting) diagnosis of diabetes was 20.9 per 10,000 population compared with 18.9 per 10,000 for NYS and 16.5 per 10,000 for Upstate NY. The age-adjusted hospitalization rate for those with any diagnosis of diabetes was 218.1 per 10,000 population for Broome County compared to 214.2 per 10,000 for NYS and 195.6 per 10,000 for Upstate NY. In both of these areas (primary or any diagnosis of diabetes), Broome County was higher than both NYS and Upstate NY for hospitalizations of individuals with diabetes.

Based on the BRFSS conducted by NYS in 2018, the age-adjusted prevalence of diabetes among adults in Broome County was 8.9%, which is somewhat lower than the 10.0% for NYS. In relation to diabetes prevalence, Broome County ranked in the first/second quartile. Based on *Prevention Agenda 2017* indicators, the hospitalization rate for short-term complications of diabetes among 6-17 year-old children was 5.4 per 10,000 for Broome County between 2014-2016 which was higher than NYS (3.2 per 10,000) and higher than the target of 3.06 per 10,000 set by the NYS Department of Health. For short-term complications among adults age 18 or older, the hospitalization rate for short-term complications of diabetes was 7.6 per 10,000 as compared to 6.2 for NYS and the target of 4.86 in the NYS *Prevention Agenda 2017*. While the hospitalization rates for diabetes as a primary diagnosis have been relatively stable over the time period 2010-2019, the trend line for hospitalization rates for diabetes (any diagnosis) has been leveling off.

Chronic Diseases: Cirrhosis

Data for cirrhosis mortality and morbidity appear in Appendices D216-D24 and are based on selected County Health Assessment Indicators for 2014-2016 from the NYS Department of Health. Mortality and morbidity data sources have been previously described. The ICD-10 codes for cirrhosis mortality are K73 and K74.

In Broome County, there were, on average, 32 deaths per year attributable to cirrhosis of the liver. The age-adjusted mortality rate for cirrhosis in Broome County was 12.4 per 100,000 population, which was significantly higher than the 7.0 per 100,000 for NYS and the 7.9 per 100,000 for Upstate NY. Broome County ranked in the fourth quartile for this indicator. In Broome County, cirrhosis of the liver accounted for approximately 92 hospitalizations per year. The age-adjusted cirrhosis hospitalization rate in Broome County was 4.7 per 10,000 population compared to 3.4 per 10,000 for NYS and 3.2 per 10,000 for Upstate NY. Like other hospitalization rates, Broome County was lower than statewide rates though this difference was not statistically significant. Between 2010 and 2019, the mortality and hospitalization rates have been rising consistently with a single lower rate in 2014. Broome County has not met the *Healthy People 2030* target of 8.2 deaths per 100,000 population for this indicator.

Chronic Diseases: Asthma

Data for asthma mortality and morbidity appear in Appendices D240 and D249-D272. These data are based on selected County Health Assessment Indicators for 2014 to 2016 from the NYS Department of Health. Mortality and morbidity data sources have been previously described. The ICD-10 codes for asthma mortality are J45 and J46.

In Broome County, an average of 4 deaths per year were due to asthma. The age-adjusted asthma mortality rate for Broome County at 1.0 per 100,000 population was similar to NYS (1.2 per 100,000) and Upstate NY (0.7 per 100,000), though the Broome County rate is unstable due to fewer than 20 events. Although the mortality is low, the morbidity for this disease is relatively high. The number of hospitalizations for asthma in Broome County was an estimated 217 per year. The age-adjusted asthma hospitalization rate for Broome County was 7.0 per 10,000 population. The asthma hospitalization rate for Broome County was significantly lower than NYS (10.3 per 10,000) but higher than Upstate NY (6.6

per 10,000). Stratification of asthma hospitalizations by age group shows the highest morbidity for the 0–4 age group (24.6 per 10,000) and the 5-14 age group (9.3 per 10,000). Broome County ranked in the fourth quartile for asthma hospitalizations overall as well as across most age groups. They were in the fourth quartile for the asthma hospitalization rate for the 25-44 age group. Moreover, Broome County met all of the age-specific *Healthy People 2020* objectives for asthma hospitalizations. The asthma hospitalization rate of 13.3 per 10,000 for the 0–17 age group also met the *Prevention Agenda 2017* goal of 17.3 per 10,000. Trend data from 2010–2019 shows a steady decrease in hospitalizations for asthma. Based on NYS *Prevention Agenda* indicators, emergency room visits for asthma were 71.2 per 10,000 for children age 0-4 which one-third the rate for NYS and well below the target of 205.7 per 10,000. In addition, Broome County's hospitalization rate for all asthma-related emergency department visits was 54.0 per 10,000 which was almost half the rate for NYS and 40% less than the 75.1 target for the NYS *Prevention Agenda*.

Based on the BRFSS conducted by NYS in 2018, the age-adjusted prevalence of asthma in Broome County was 15.9%, higher than the 10.1% for NYS and 10.8% for Upstate NY. In relation to asthma prevalence, Broome County ranked in the fourth quartile. Like diabetes management, asthma management has been a targeted focus for local community intervention and the success of these efforts is evident in the lower asthma morbidity experienced by residents of Broome County relative to the rest of the state.

Chronic Diseases: Chronic Obstructive Pulmonary Disease

COPD refers to a condition of chronic airway obstruction associated with permanent remodeling of the airway as well as chronic symptoms and possible exacerbations. This condition includes the categories of chronic bronchitis and emphysema. Although many individuals with COPD also experience asthma symptoms, pure asthma is defined by its reversible nature. Thus, the ICD-9 codes for COPD included only chronic bronchitis and emphysema. With the 10th revision of the ICD codes COPD was renamed to CLRD and expanded to include other conditions of the lower respiratory tract such as asthma, status asthmaticus, and tracheitis.

Mortality and morbidity data for chronic lower respiratory disease (CLRD, formerly COPD) appear in Appendix D240-D248 and are based on selected County Health Assessment Indicators for 2017-2019 from the NYS Department of Health. Mortality and morbidity data sources have been previously described. The ICD-10 codes for CLRD mortality include J40 to J47.

CLRD accounted for, on average, about 412 deaths and approximately 1,799 hospitalizations per year in Broome County. The age-adjusted mortality rate for CLRD in Broome County was 46.1 per 100,000 population, which was significantly higher than NYS (28.3 per 100,000) and Upstate NY (33.7 per 100,000). The age-adjusted hospitalization rate for CLRD in Broome County was 25.4 per 10,000, which was lower than NYS (25.8 per 10,000) but not Upstate NY (20.7 per 10,000). Broome County ranked in the third quartile for both CLRD mortality and hospitalization rate. For all three indicators (deaths, hospitalizations, and emergency department visits), Broome County was well below the *Healthy People 2020* objectives. Although the temporal patterns for mortality remained relatively stable from 2001 to

2016, the hospitalization rates for CLRD have increased from a low of 19.6 per 10,000 in 2005 to a high of 23.6 in 2016. Thus, continued efforts for managing chronic lung disease in the community will be needed to maintain this rate below the *Healthy People 2020* objective.

Human Immunodeficiency Virus (HIV) & Acquired Immunodeficiency Syndrome (AIDS)

The newly diagnosed HIV case rate from 2017-2019 (age-adjusted) for Broome County was 5.2 per 100,000 population, which was lower than Upstate NY (5.9 per 100,000) and was half the NYS rate (13.2 per 100,000). The AIDS case rate (age-adjusted) for Broome County was 4.8 per 100,000 population, which was lower than NYS (7.7 per 100,000) but higher than Upstate NY (3.2 per 100,000). Broome County's case rate was in the fourth quartile for HIV and AIDS. Although the age-adjusted AIDS mortality rate was lower in Broome County than in NYS (1.4 vs. 2.6 per 100,000), the age-adjusted rate was higher than the Upstate area (0.9 per 100,000). The HIV case rate was approximately one-half of the target set by the *Prevention Agenda 2017* (14.7 per 100,000). The AIDS case rate was one-third the target set by the *Healthy People 2020* objective of 16.1 new cases per 100,000. The trend chart for the AIDS case rate in Broome County shows that the rate appears to have peaked in 2006 and has been stable ever since. It is uncertain whether this represents normal variability due to small numbers or a reversal of the previous increase between 2003 and 2016. (Appendices D1-D13)

Optional Service Areas

Dental Health Services

The Oral Health Survey of third grade children covers the 3-year period from 2009–2011. Data from this survey showed significant differences between Broome County and Upstate NY (Appendix D273-D279). The percent of third grade children with dental caries experience was 56.7% for Broome County which was significantly higher than the 45.4% for Upstate NY. And, the dental caries experience of third grade children in Broome County exceeds the *Healthy People 2020* target of 49.0% by an appreciable amount. The proportion of third grade children with untreated dental caries was 42.3% for Broome County as compared to 24.0% for Upstate NY, a statistically significant difference. Broome County ranked in the third quartile for percent of third grade children with caries and in the fourth quartile for untreated caries. The prevalence of untreated tooth decay in children in Broome County (42.3%) was considerably higher than the *Prevention Agenda 2017* target of 21.6% and the *Healthy People 2020* Objective of 25.9%.

Although the oral health of children in Broome County is well below the rest of the state, the percent of third grade children with dental sealants was significantly higher in Broome County (64.9%) than in Upstate NY (41.9%). Insurance coverage for dental care was also significantly different with a higher percentage of third grade children having dental insurance in Broome County than in the rest of the state (88.5% vs. 81.8%). In relation to having at least one dental visit in the last year, Broome County was significantly lower than Upstate NY (80.6% vs. 83.4%). Just over half of third grade children in Broome County reported taking fluoride tablets on a regular basis, which was significantly higher than the statewide average (41.9%).

Oral health data related to Medicaid clients in Appendix D273. Additional charts and graphs for Medicaid clients and for outpatient visits can be found in Appendices D280-D290. Among children ages 3 to 5 years, the emergency department visit rate specifically for dental caries was 100.6 per 10,000 children, which was similar to NYS (90 per 10,000) and upstate NY (119.7 per 10,000). For this indicator, Broome County ranked in the fourth quartile for the state. In addition, three-year averages for dental caries emergency department visits among children age 3 to 5 years have increased steadily from 107.1 per 10,000 in 2006 to 182.0 per 10,000.

In the low-income population, 31.8% of Medicaid enrollees in Broome County had at least one dental visit within the last year, 2018-2020; this figure was 48.1% for those between the age of 2 and 20. More than 44.5% of Medicaid enrollees in Broome County had at least one preventive dental visit within the last year. For these three indicators, Broome County was ranked in the third and fourth quartile and preventive care in particular was above the *Healthy People 2020* target of 25.4%. In 2018, the age-adjusted percentage of all adults who had a dentist visit within the past year was 71.4% and was similar to Upstate NY. Broome County ranked in the third quartile for this indicator.

As well, Broome County ranked in the third quartile for oral cancer from 2016-2018, with an age-adjusted incidence of 14.2 per 100,000 and an age-adjusted mortality of 3.5 per 100,000. These rates were similar to both NYS and Upstate NY. In Broome County, the proportion of oral cancers diagnosed at an early stage was 33.3% for females and 31.6% for males, which nears the *Healthy People 2020* target

of 35.8%. While use of dental care services were generally higher and showed improving trends, the dental health of children and adults in Broome County was below statewide averages suggesting that expansion of, or enhancements to, current public health efforts may be needed to reduce morbidities associated with poor oral health.

Optional Other Service Areas / Programs

Medical Examiner

The county does not have a medical examiner. No information is submitted for this section.

Emergency Medical Services

The Emergency Medical Services (EMS) is a department within the county government. Information about EMS can be found in Section 3B under “Access to Care.”

Laboratories

Broome County Health Department does not operate a full-service laboratory, though limited microscopy is performed as part of the clinic services. Therefore, no information is submitted for this section.

B. Behavioral Risk Factors

Leading Health Indicators

- ♦ Access to Health Services
- ♦ Clinical Preventive Services
- ♦ Environmental Quality
- ♦ Injury and Violence
- ♦ Maternal, Infant and Child Health
- ♦ Mental Health
- ♦ Nutrition, Physical Activity, and Obesity
- ♦ Oral Health
- ♦ Tobacco Use
- ♦ Reproductive and Sexual Health
- ♦ Social Determinants
- ♦ Substance Abuse
- ♦ Tobacco

The Leading Health Indicators, selected from the *Healthy People 2020* objectives, are used as measures of population health reflecting the major health concerns in the United States. These indicators are of public health importance because of their ability to influence disease morbidity and mortality. There are a total of 26 indicators that cover 12 topic areas which are listed in the box to the left. These indicators depend to some extent on behavioral factors and access to health care as well as environmental, economic, and social conditions. As sexually transmitted diseases, injury, and immunization have been previously discussed, this section will address physical activity, overweight and obesity, tobacco use, substance abuse, and mental health. Access to Health Care is covered in Section Three.

Data for this section are drawn primarily from the NYS Expanded Behavioral Risk Factor Surveillance System (BRFSS). This national survey is conducted annually

statewide using probability sampling and random digit dialing to permit calculation of point estimates. This telephone-based surveillance system is used to monitor modifiable behaviors and other risk factors contributing to the leading causes of morbidity and mortality in the adult population.

Physical Activity

Data for physical activity comes from the 2013-2017 Expanded Behavioral Risk Factor Surveillance System (BRFSS) for adults. These data are presented in Appendices E24-E31. The *2008 Physical Activity Guidelines* recommend moderately intense physical activity for at least 150 minutes per week, vigorously intense physical activity for 75 minutes per week, or an equivalent combination distributed throughout the week. Moderate intensity is exemplified by brisk walking, and means working hard enough to raise heart rate and break a sweat, yet still being able to carry on a conversation. Vigorous intensity is exemplified by jogging, and causes rapid breathing and a substantial increase in heart rate. This recommendation applies to healthy adults aged 18-65 and is considered a minimum requirement for maintaining health and reducing the risk of chronic disease. Additional health benefits can be gained by increasing aerobic physical activity to 300 minutes per week of moderate intensity, or 150 minutes per week of vigorous intensity, or equivalent combination. Importantly, adults should avoid inactivity and perform muscle strengthening activities for all major muscle groups on 2 or more days per week.

In 2014-2016, 26.4% of Broome County adults reported no leisure-time physical activity which was higher than NYS (23.7%). Stratified analyses indicate that women are almost twice as likely as men to

report no leisure time physical activity (22.7% for females vs. 13% for males). Individuals who are between the ages of 35 and 44 are the most active age group with only 11.2% reporting no leisure-time physical activity. Individuals over the age of 45 are twice as likely to have no leisure-time physical activity. Between 22% and 25% of adults above age 45 report no leisure-time physical activity. In addition, those with lower levels of both education and income are more likely to report no leisure-time physical activity.

For older adults who cannot perform 150 minutes per week of moderate intensity physical activity due to chronic health conditions, the *Physical Activity Guidelines* recommend that they be as physically active as the extent of their capabilities permit. In addition, older adults should perform physical activities to improve or maintain muscle strength and balance in order to reduce risk of falls.

For children and adolescents, the *Physical Activity Guidelines* recommend 60 minutes of physical activity daily including moderate or vigorous intensity aerobic activity (3 days a week of vigorous intensity), muscle strengthening (3 days per week), and bone strengthening (3 days per week).

Recent county-level data for physical activity among children and adolescents is lacking. The Youth Risk Behavior Surveillance System (YRBSS) is a national school-based survey conducted by the Centers for Disease Control and Prevention and administered to high school students. Similar to the BRFSS, this survey is used to monitor health risk behaviors that contribute to the leading causes of death and disability. Data from this survey are available at the state, local (major municipalities) and territorial levels as well as for native populations, but are not available at the county level. (Appendices E30-E31)

In 2017, 23.2% of students in grades 9 through 12 in NYS reported being physically active for at least 60 minutes per day for 7 days per week indicating that three-fourths of all adolescents are not meeting the current guidelines for physical activity. Nearly 42.4% reported being physically active for at least 60 minutes per day on less than 5 days per week and 15.0% of students were not physically active for 60 minutes on any day. Over 80% did not attend physical education classes five days per week, over 50% did not play on a sports team, and over 40.8% watched television or used computers more than 3 hours per day. A significantly larger proportion of females are not meeting current guidelines and they were less likely than males to play on sports teams. Trends in three or more hours of television viewing appear to be decreasing in NYS at a faster pace than the rest of the nation. Among WIC participants in Broome County, a lower percentage of children had less than 2 hours of television viewing as compared to NYS (83.9% vs. 85.0%).

Diet & Nutrition

Data for diet and nutrition come from the NYS Expanded BRFSS (adults). There is evidence to suggest that consumption of fresh fruits and vegetables not only provides important macro- and micro-nutrients for good health, but also decreases the risk for certain types of cancers, cardiovascular disease, and stroke as well as overweight and obesity.

The *Dietary Guidelines for Americans 2010* recommend balancing calories to manage weight, reducing/increasing specific foods and food components, and building healthy eating patterns. To manage body weight, the guidelines recommend controlling caloric intake, particularly for people who

are overweight or obese, as well as increasing physical activity. In relation to specific foods to reduce, the guidelines recommend decreasing daily sodium intake to less than 2,300 mg/day, consuming less than 10% of calories from saturated fatty acids, consuming less than 300 mg/day of cholesterol, reducing intake of calories from solid fats and added sugar, and limiting consumption of refined grains. In relation to specific foods to increase, the guidelines recommend consuming more fruits and vegetables especially dark green and red/orange ones, whole grains, and low- or fat-free fat dairy products as well as eating a greater variety of protein sources including seafood, lean meats, beans/peas, soy products, and nuts/seeds. Finally, attention to healthy eating patterns throughout the day can ensure that all of the foods and beverages that are consumed fit the caloric and nutrient needs of an individual over time.

The Expanded BRFSS data from 2018 revealed only 26.3% of adults in NYS ate 1 or less servings of fruits and vegetables per day. This value was similar to NYS in which only 27.7% of adults consumed 1 or less servings of fruits and vegetables. (Appendices E32-E33)

Like physical activity, county-level data for nutrition among children and adolescents is currently lacking. The Youth Risk Behavior Surveillance System (YRBSS) provides one of the few sources of data about dietary intake for adolescents; however this survey is conducted only every two years with limited information for specific localities. (Appendices E34-E36)

In 2017, 19.3% of students in grades 9 through 12 reported eating fruit or drinking 100% fruit juice 3 or more times per day, 32% reported 2 or more, and 60.8% reported one or more than once a day. 7.3% reported not eating fruit or fruit-drinks at all. 36.3% reported not drinking a can, bottle or glass of soda or pop within the past week, 13.7% drank soda/pop at least once a day, 8.6% twice a day, and 4.9% three times per day. Dietary consumption of fruits and vegetables as well as sugary drinks was similar across age groups and grade levels. Trend data indicate that, for the US, the proportion of students who report eating fruit or drinking 100% fruit juice less than three times per day has been decreasing since 2005 as compared to NYS which experienced its first decline in this indicator in 2009.

Overweight and Obesity

A healthy weight in adults is defined as a Body Mass Index (BMI) greater than or equal to 18.5 but less than 25 kg/m². Overweight is defined as a BMI greater than or equal to 25 but less than 30 kg/m² and obesity is defined as a BMI greater than or equal to 30 kg/m². BMI is calculated as weight (in kilograms) divided by square height (in meters) and is used as a body weight standard and an indicator of the degree of adiposity. This index is also used to provide an estimate of relative risk for disease such as heart disease, diabetes, and hypertension. Information about obesity related indicators are located in Appendix E38 and additional tables, charts, and maps appear in Appendices E39-E62 for both adults and children.

In 2018, the prevalence of overweight among adults was 27.2% and the prevalence of obesity was 33.0%, yielding a combined total of 60.2%, with an increase over the period between 2004 and 2016. Based on the 2013-2017 Expanded BRFSS survey data reported by the NYS Department of Health, Broome County ranked in the third quartile in the state for obesity and in the second quartile for the

combined categories of overweight and obesity. The rate of obesity among adult residents of Broome County exceeded the *Prevention Agenda 2017* objective of 23.2%, but was below the target of 30.5% for *Healthy People 2020*. In previous surveys, only 23.2% of adults reported receiving advice about their weight by a health professional. While this figure is similar to the proportion who are obese, 64% of individuals are overweight or obese, have increased risk based on weight status, and could be considered potential candidates for counseling about weight. Of those who reported receiving advice about their weight, 87.7% were advised to lose weight. Thus, in the majority of cases when weight status is addressed, clinicians seem to be providing clear advice to lose weight.

In children, BMI standards are based on growth chart percentiles with overweight defined as a BMI at or above the 85th percentile but below the 95th percentile for BMI by age and gender, and obese as a BMI at or above the 95th percentile for BMI by age and gender.

Until recently, the Youth Risk Behavior Surveillance System data was the only source of information about weight status for adolescents. BMI and weight category were based on self-reported height and weight. Biannual data was available at the state but not county level, and no data were available for children in elementary school. Now, weight category data can be drawn from the NYS Student Weight Status Category Reporting System (SWSCR). BMI data are collected for pre-kindergarten, kindergarten, second and fourth grade students from elementary schools, for seventh grade from middle schools, and for tenth grade from high schools. Data are reported in aggregate as weight status category and middle and high school data are reported together. These data are available for 2015-2017, the last two years of reporting with this new system.

Among elementary schools, the prevalence of overweight was 15.6% and the prevalence of obesity was 16.7% for a combined total of 32.3% for the category overweight or obese. For these indicators, Broome County was similar to Upstate New York and ranked in the second quartile for obesity and for the combined overweight/obese category. These data for obesity among elementary school children indicate that Broome County meets the 15.7% target for the *Healthy People 2020* among children age 6 to 11 and the 16.7% objective for the *NYS Prevention Agenda 2017*.

Among middle/high schools, the prevalence of overweight was 17.4% and the prevalence of obesity was 20.2% for a combined total of 37.6% for the category overweight or obese. For these indicators, Broome County was similar to Upstate New York and ranked in the second quartile for the state. These data for obesity among middle/high school adolescents indicate that Broome County fell above the 16.1% target for the *Healthy People 2020* among children age 6 to 11 and the 16.7% objective for the *NYS Prevention Agenda 2017*.

Because actual height and weight data are used to calculate BMI data reported to the state by schools instead of self-report, these data may provide a more valid estimate of prevalence than self-report. However, another important consideration is the opt out option parents may choose in relation to data submission by NYS schools. Parents of children who are overweight or obese may be more likely to opt out leading to estimates that are lower than the true prevalence of obesity and overweight among school-age children. Although the YRBS includes data from high school students only, noticeable differences can be seen in the weight status categories for SWSCR as compared to the self-report measures from the YRBS for a similar time period. As might be expected, the data collected from the SWSCR reveals a higher prevalence of overweight and obesity than the self-reported data from the

YRBS. The obesity epidemic, especially among youth, raises concerns about its health consequences including the metabolic syndrome, diabetes, and associated short- and long-term complications.

Information about student weight status category by school district is presented in table format and includes identification of each school district's Need to Resource Capacity category as defined and designated by the NYS Department of Education (Appendix E48). These data are also presented in graphic format for both elementary schools (Appendix E49) and middle/high schools (Appendix E50). Four out of the six school districts with the highest rates of obesity (above the 50th percentile) are also categorized as high need to resource capacity.

For women participating in the WIC program, a significantly lower percentage of pregnant women were overweight prior to pregnancy in Broome County as compared to NYS and Upstate NY (23.7% vs. 27.6% and 27.3% respectively) and Broome County was in the second quartile for this indicator. However, an appreciably higher percentage was obese prior to pregnancy for Broome County than for NYS and Upstate NY (34.7% vs. 26.6% and 32.0% respectively) and Broome County ranked in the second quartile for this indicator. (Appendices C44-C49) For Obesity among children aged 2-4 who participated in the WIC program, Broome County ranked in the second quartile for the state (14.2%). This figure was not significantly different than the state as a whole or the upstate area. Obesity among preschool age children was below the *Prevention Agenda 2017* goal of 16.7% for children and adolescents, but it is well above the 9.6% target for obesity among children age 2 to 5 years old set by *Healthy People 2020*. (Appendix E51)

Tobacco Use

Data for smoking behaviors come from the BRFSS (adults), the YRBS (high school students), and the 2018 Prevention Needs Assessment Survey (grades 7-12). Information about tobacco use can be found in Appendices E63 and E64-E75. Based on the 2016 NYS Expanded BRFSS, smoking prevalence among adults in Broome County was 26.8% which was somewhat higher than NYS (29.9%) and slightly lower than Upstate NY (38.8%). Broome County ranked in the fourth quartile for this indicator. This rate is higher than the *Healthy People 2020* objective of 12%. The percentage of adults living in homes where smoking is prohibited was 79.3% for Broome County (second quartile) and not significantly different than statewide.

Trend analysis for BRFSS data between 1995 and 2017 showed that prevalence peaked in 1998 at 24.1% and that there was a steady decrease in prevalence from 23.2% in 2001 and to 15.5% in 2010. Unfortunately, the prevalence of smoking appears to be increasing with a prevalence of 18.1% in 2012 and 21.2% in 2017.

For Broome County, Prenatal Care Assistance Program (PCAP)/Medicaid Obstetrical and Maternal Services (MOMS) Program data related to smoking during pregnancy showed a prevalence (3-year average) of 32% in 2007, 29% in 2008-2010, and 23.0% in 2017. Although three-year averages provide more stable rates, these data are collected from new patients at the first prenatal visit and smoking during pregnancy is often underreported. Thus, these data may not provide a true estimate. Smoking during pregnancy and environmental exposure to tobacco smoke are associated with perinatal and

infant morbidity and mortality, including higher rates of pre-term labor, low birth weight, premature rupture of membranes, abruption placentae, placenta previa, miscarriage, and fetal death. Pregnant women should be counseled at the earliest point, preferably preconception, about the potential dangers of smoking during pregnancy. Decreasing smoking during pregnancy may represent a leverage point for reducing the county's infant mortality.

Data for smoking behaviors among youth is available through the YRBSS though not at the county level. In 2018 for NYS, 29.3% of high school students reported ever trying cigarette smoking even one or two puffs. In addition, during the 30 days before the survey, 11.5% reported smoking cigarettes on at least one day (past month), 3.5% reported smoking on 20 or more days (frequent smoker), and 3.7% reported smoking more than 10 cigarettes per day (heavy smoker). Among the students who reported they were currently smoking, 54.9% had not tried to quit in the past year. Over 7% of high school students reported using chewing tobacco, snuff, or dip in the past month. Trend analysis indicates that although the percentage of students who report ever trying cigarettes has decreased steadily between 1999 and 2018, the proportion of students who report smoking more than 10 cigarettes per day in the past month (heavy use) has been increasing since 2006.

Local data was available from the 2006 and 2018 Prevention Needs Assessment county-specific reports through the KYDS Coalition in Broome County. Data from the Prevention Needs Assessment Survey is presented in Appendix E57 for cigarette use (past month) and Appendix E59 for heavy cigarette use. With each higher grade, there is a monotonic increase in both cigarette use in the past month and heavy cigarette use. In 2018, the proportion of students who reported smoking on at least one day during the previous 30 days (past month) was 2.4% overall. The proportion of students who reported heavy cigarette use was less than 1% for 7th and 8th grade students. For high school adolescents, the prevalence of heavy use was 0.4% for 9th grade, 0.6% for 10th, 0.3% for 11th and 0.6% for 12th grade. Although conclusions drawn from comparisons across different surveys should be interpreted cautiously, there is some evidence to suggest that Broome County has lower prevalence of heavy smoking among adolescents than NYS. For cigarette smoking in the past month, Broome County was below the *Healthy People 2020* target of 16% for cigarettes across all grade levels.

Healthy People 2020 Objectives — Substance Abuse

- SA-2 Increase the proportion of adolescents never using substances.**
- SA-2.1** Alcohol among adolescents age 12 to 17 (11%)
 - SA-2.2** Marijuana among adolescents age 12 to 17 (88.9%)
 - SA-2.3** Alcoholic beverages among high school seniors (30.5%)
 - SA-2.4** Illicit drugs among high school seniors (58.6%)
- SA-3 Increase the proportion of adolescents who disapprove of substance abuse.**
- SA-3.1** Having one or two alcoholic drinks nearly every day among 8th graders (86.4%)
 - SA-3.2** Having one or two alcoholic drinks nearly every day among 10th graders (85.4%)
 - SA-3.3** Having one or two alcoholic drinks nearly every day among 12th graders (77.6%)
- SA-4 Increase the proportion of adolescents who perceive great risk associated with substance abuse.**
- SA-4.1** Consuming five or more alcoholic drinks at a single occasion once or twice a week among adolescents age 12 to 17 (44%)
- SA-13 Reduce past-month use of illicit substances.**
- SA-13.1** Use of any alcohol or any illicit drugs during the past 30 days among adolescents age 12 to 17 (16.6%)
 - SA-13.2** Use of marijuana during the past 30 days among adolescents age 12 to 17 (6%)
 - SA-13.3** Use of any illicit drug during the past 30 days among adults age 18 years and older (7.1%)
- SA-14 Reduce the proportion of persons engaging in binge drinking of alcoholic beverages.**
- SA-14.1** Binge drinking (past 2 weeks) among high school seniors (22.7%)
 - SA-14.2** Binge drinking (past 2 weeks) among college students (37%)
 - SA-14.3** Binge drinking (past month) among adults age 18 and older (24.4%)
 - SA-14.4** Binge drinking among adolescents age 12 to 17 years (8.6%)

Substance Abuse

Based on data from the Statewide Planning and Research Cooperative System (SPARCS), between 2017-2019 there were 145 alcohol-related motor vehicle injuries and deaths among adults equating to a rate of 25.1 per 100,000, which is lower than NYS (28.9 per 100,000) and Upstate NY (33.5 per 100,000). For this indicator, Broome County ranked in the first quartile. For this same time period, there were 46 discharges among neonates due to drug related causes equating to a rate of 29.8 per 10,000 newborn discharges. This rate was significantly higher for Broome County than for NYS (10.1.0 per 10,000 newborn discharges) but not for Upstate NY. For this indicator Broome County ranked in the fourth quartile. Broome County's three-year age-adjusted estimate for drug-related overdose hospitalization discharges was 13.3 per 100,000, which was similar to both NYS (13.5 per 100,000) and Upstate NY (13.4 per 100,000). Trend data seem to show that for all three of these indicators (alcohol-related motor

vehicle injuries and deaths and newborn drug-related hospitalization rates, and drug-related hospitalizations); Broome County rates appear to be increasing.

Data from the Expanded BRFSS for 2016 indicate that 20.1% of adults engaged in binge drinking (5 or more drinks in a row) compared to 18.3% for NYS and 19.1% for Upstate NY. For binge drinking, Broome County ranked in the third quartile. For this indicator, Broome County is not only ranked below the county-level median with this health behavior, but is also below the *Healthy People 2020* objective of 24.4% for binge drinking among adults. The prevalence of binge drinking is higher among males than females with males being 2.2 times more likely to binge. Binge drinking among males is above the *Healthy People* target. Prevalence is also higher among adults age 35-44 than among older adults (age 65+) and among those with lower educational attainment. Men in the younger age group are 5 times more likely to binge than men 65 and older, and those with a high school diploma or less education are 2 times more likely to binge than men with a college degree. Trend data for binge drinking was relatively stable from 2004 to 2012, but more recent data suggest this pattern is changing towards an increase. Although Broome County is below the *Healthy People 2020* target for binge drinking, continued observation may be warranted given recent shifts in prevalence. (Appendices E76-E79)

Heavy drinking in the past month is defined as an adult male having more than two drinks per day or adult female having more than one drink per day. Among adults in Broome County, 7.2% of adults report heavy drinking in the past month. Like binge drinking, heavy drinking is higher among males in the 35-44 age group. Trend data for heavy drinking follows a similar pattern to binge drinking with stable rates until 2010 followed by an upward trajectory. Between 55% and 60% of adults in NYS have had at least one drink in the past month without considerable variation in this indicator over time.

Data from the 2018 Prevention Needs Assessment Survey revealed that 10.4% of students engaged in binge drinking and there was a monotonic increase in the percent of students who engaged in binge drinking by grade level (Appendix E81). The percent binge drinking among 12–17 year-olds (7th through 12th grade) was higher than the *Healthy People 2020* objective of 8.6%. In 2018, the percent of 12th graders who reported binge drinking was 23.7%, however comparisons to the *Healthy People 2020* objective cannot be made as this objective refers to binge drinking in the past two weeks (versus past month), which will inflate the proportion.

In 2018, 20.4% of 7th to 12th grade students reported using alcohol in the past month, 20.4% reported using marijuana, 2.4% reported using cigarettes, 22.3% reporting using E-cigarette use, 3.3% reported chewing tobacco use, 1.7% reported using amphetamines, 1.9% reported using sedatives, 1.9% reported using other narcotics, and 3.6% reported using inhalants. Overall, 16.6% of students reported using any drug, which is above the *Healthy People 2020* target of 16.6 percent. There was a similar gradient by grade level observed for lifetime use of alcohol, with 34.1% of all 7th to 12th grade students in Broome County using alcohol at some time during their life. For lifetime use of any drug, 10.2% had smoked cigarettes, 26.5% had used E-cigarettes, 20.4% had used marijuana, 7.0% had used chewing tobacco, 1.9% had used inhalants, 1.7% had used amphetamines, 1.9% had used other narcotics, and 1.9% had used sedatives. While comparisons to a similar survey conducted by Monitoring the Future indicate that the rates are not significantly higher than those observed across the country, they are nonetheless disturbing, particularly for parents. Marijuana use now equals or exceeds the prevalence of cigarette smoking and is 3 times greater than the target objective for *Healthy People 2020*. (Appendix E80 for alcohol use, Appendix E83 for marijuana use)

Data from the 2018 Prevention Needs Assessment also show that 72.3% of 7th through 12th grade students think people risk harming themselves if they have five or more drinks of an alcoholic beverage once or twice a week. This figure is higher than the *Healthy People 2020* objective (SA-4.1 target 44%). In addition, 71.1% of 8th graders, 60% of 10th graders, and 66% of 12th graders either strongly or somewhat disapprove of having someone their age having one or two drinks of an alcoholic beverage nearly every day. These figures are considerably lower than the *Healthy People 2020* objective SA-3 (targets are 86.4%, 85.4%, and 77.6% respectively).

Healthy People 2020 Objectives — Mental Health

MHMD-1	Reduce the suicide rate. Target: 10.2 suicides per 100,000 population
MHMD-4	Reduce the proportion of persons who experience major depressive episodes.
MHMD-4.1	Adolescents age 12-17 (7.4%)
MHMD-4.2	Adults age 18 and older (5.8%)
MHMD-5	Increase the proportion of primary care facilities that provide mental health treatment onsite or by paid referral. Target: 87%
MHMD-6	Increase the proportion of children with mental health problems who receive treatment. Target: 75.8%
MHMD-9	Reduce the proportion of adults with mental health disorders who receive treatment.
MHMD-9.1	Serious mental illness (64.6%)
MHMD-9.2	Major depressive episodes (78.2%)
MHMD-10	Increase the proportion of persons with co-occurring substance abuse and mental disorders who receive treatment for both disorders. Target: 3.0%
MHMD-11	Increase depression screening by primary care providers.
MHMD-11.1	Adults age 19 and older (2.4%)
MHMD-11.2	Youth age 12-18 (2.3%)

Mental Health

Based on the 2016 Expanded BRFSS, 9.9% of Broome County adults reported 14 or more days with poor mental health (Appendix E11-E15). This proportion was 10.7% for NYS and 11.2% for Upstate NY. Adults in Broome County were 1.2 times more likely to report poor mental health for at least 2 weeks out of the past month. Similarly, 11.4% of adults in Broome County reported that their physical health was not

good for 14 or more out of the past 30 days (Appendix E7). In 2016, over 30% of Broome County adults reported having arthritis and more than half of those with arthritis were over 65 years of age. Almost 25% of adults reported having a disability (Appendix E17) and 68.8% of those with a disability were over the age of 55. For all of these indicators, higher percentages were reported for those who were older (\geq age 55), less educated (high school education or less), and had incomes less than the Broome County median individual income ($<$ \$25,000). Physical health and mental health share a dyadic relationship with reciprocal interactions. Individuals with chronic conditions often experience depression, and those with depression often have physical manifestations. It is interesting to note that as many adults reported poor mental health as did poor physical health. Among children, data from the 2018 Prevention Needs Assessment Survey indicated that 37.2% of adolescents (7th-12th grade) reported depressive symptoms.

Poverty, Crime, & Delinquency among Youth

Economic security means living in a household where there is enough money and resources to meet basic needs. Children living in poverty experience food insecurity and compromised physical health associated with poor nutrition. Extreme economic deprivation is the single most important risk factor associated with problem behaviors in youth, substance abuse, violence, sexual acting out and teenage pregnancy, delinquency, poor academic performance, and dropping out of school.

In 2018, 21.2% of children in Broome County ages birth to 17 years lived in poverty, a 3.2% decrease from 2011, though lower to Upstate NY and NYS (19.9% and 15.7%). In addition, the percentage of Broome County children receiving food stamps increased from 17.9% in 2005 to 27.7% in 2016. The percentage of Broome County youth in families receiving public assistance also rose over this same time period (from 7.2% to 8.4%), and is higher than for Upstate NY and NYS (6.3% and 4.1%). 3.5% of children and youth in Broome County receive supplemental security income (SSI) as compared to 2.1% in the rest of the state. Approximately 53% of Broome County children received free or reduced lunches in 2016, compared with 47.5% in Upstate NY and NYS. In three of the five indicators of economic security (poverty level, public assistance, and supplemental security income), Broome County has a higher percentage of children in poverty than NYS. (Appendix E89)

Physical health and emotional health are interdependent, as evidenced by self-inflicted injuries, such as suicide attempts. Between 2012-2014, 22 children age 15-19 had self-inflicted injuries that required hospitalization (110.3 per 100,000 youth aged 15–19). The suicide mortality rate in 2012-2014 was favorable. One suicide occurred among adolescents age 10-19 for the three-year period. (Appendix E90) Still, the numbers of children who experience depression, anxiety, or bipolar disorder and the impact these have on their emotional, cognitive, and academic abilities remains concerning.

Data for youth arrests and violent crime can be found in Appendix E91. Broome County youth aged 16 to 21 had a lower rate of arrests for driving while intoxicated (15.3 per 10,000) than NYS (17.5 per 10,000) but lower than Upstate NY (25.2 per 10,000). In Broome County, this same age group also has a higher rate of arrests for property crime (146.7 per 10,000) than NYS (106.7 per 10,000) or Upstate NY (99 per 10,000). There were 57 intakes for juvenile delinquency among Broome County youth ages 7 to 15 years, which was less than half the number of intakes in 2005 (Appendix E92).

Results from the 2018 Prevention Needs Assessment Survey revealed a disturbing array of antisocial behaviors in school (past year) among 7th through 12th graders (Appendix E84). In 2018, 8.7% reported being drunk or high at school, 6.4% reported being attacked by another person with intent to harm, 8.4% of students were suspended from school, 4.5% reported gang involvement, 3.5% reported selling illicit drugs, 2.3% reported having been arrested, 4.1% reported having carried a handgun, though only 1.0% reported carrying a handgun to school. Opportunities and rewards for pro-social involvement with peers, school, family, and community act as protective factors. In contrast, poor family management, family conflict, and exposure to adult antisocial behavior can contribute to delinquent behaviors.

National Data indicate that 1 in 10 children suffer from serious emotional disturbance, only 30% of them graduate with a high school diploma and suicide is the third leading cause of death in 15-24 year olds. According to the NYS Office of Mental Health, approximately 5% of NYS children have emotional disturbances with intensive need for specialty services and 12% have at-risk behaviors with need for early identification and intervention.

Depression in the Elderly

Along with children, elders are members of our community considered among the most vulnerable to mental health problems and their consequences. Factors such as social isolation, cognitive changes, financial stressors, and diminished physical capacity can exacerbate mental and emotional problems. In the most serious situations, these conditions leave elders highly vulnerable to abuse and/or neglect.

Population studies among the elderly indicate a prevalence of depression ranging from 1% to 20%. Consequences of depression include reduced life satisfaction and quality of life, social deprivation and loneliness, increased use of health and home care services, cognitive decline and impairments in activities of daily living as well as suicide and non-suicide mortality.

Social Determinants of Health

County Health Indicators by Race/Ethnicity (CHIRE) for 2012-2016 were made available by the New York State Department of Health (see Appendix B61). These indicators provide information about racial/ethnic differences in socio-demographic, general health, birth- and injury-related indicators as well as differences across multiple health conditions including respiratory diseases, heart disease and stroke, diabetes, cancer, and substance abuse/mental health.

Based on census data, non-Hispanic Blacks/African Americans comprised 6.0% of the county population, non-Hispanic Asian/Pacific Islanders comprised 4.8%, and Hispanics 4.1%. Income was lower and poverty was higher among these minority populations. Median household income (2012-2016) was \$2,680 for non-Hispanic Blacks/African Americans, \$39,837 for non-Hispanic Asian/Pacific Islanders, and \$24,463 for Hispanics as compared to \$50,20 for non-Hispanic Whites. The percent of families below poverty (2012-2016) was 3.5 times higher for non-Hispanic Blacks/African Americans, 1.5 times higher for non-Hispanic Asian/Pacific Islanders, and 3.5 times higher for Hispanics than for non-Hispanic Whites (32.7%,

13.8%, 32.6% respectively vs. 948%). These data indicate that minority populations in the county face more difficult economic circumstances than Whites.

While total mortality rates were similar for non-Hispanic Blacks/African Americans and non-Hispanic Whites, the percentage of premature deaths (< 75 years) for non-Hispanic Blacks/African Americans was almost double that for non-Hispanic Whites (69.1% vs. 36.8%). The premature deaths among this minority group contributed to more years of productive life lost (10,167 vs. 7,279 per 100,000). And while the overall mortality rate for non-Hispanic Asian/Pacific Islanders was less than half that of non-Hispanic Whites, the percentage of premature deaths among this minority group was higher than that of non-Hispanic Whites (44.4% vs. 36.8%). For Hispanics, the total mortality was slightly lower than that for non-Hispanic Whites, but the percent of premature deaths was larger (38.1% vs. 36.8%). Based on the Indicators for Tracking Public Health Priorities (Appendix 167), the ratio of premature deaths (before age 65) was 2.5 for non-Hispanic Blacks and 2.3 for Hispanics as compared to non-Hispanic Whites. These ratios were higher than NYS and higher than the 2018 NYS Prevention Agenda objective of 1.87 and 1.86 respectively.

Nativity indicators showed similar disparities. The percent of births with early (1st trimester) prenatal care and the percent of births with adequate prenatal care (Kotelchuk Index) was considerably lower for non-Hispanic Blacks/African Americans than for non-Hispanic Whites (early prenatal care 61.5% vs. 76.8% and adequate prenatal care 69.7% vs. 82.2%). These differences in prenatal care may account for the higher percentage of premature births and low birthweight births among non-Hispanic Blacks/African Americans than among non-Hispanic Whites (premature births 12.1% vs. 7.9% and low birthweight births 12.6% vs. 6.4%). Although the ratio of preterm births for non-Hispanic Blacks as compared to non-Hispanic Whites in Broome County was lower than NYS (1.7 for Broome County vs. 1.6 for NYS), it was nonetheless slightly higher than the 2018 NYS Prevention Agenda objective (1.42 ratio). The teen pregnancy rate among females aged 15-17 was 4.1 times higher for this minority group than for non-Hispanic Whites (52.9 vs. 13.2 per 1,000). Among Hispanics, the teen pregnancy rate for females aged 15-17 was 4.4 times higher than that for non-Hispanic Whites (58.8 vs. 13.2 per 1,000).

With respect to disease morbidity, the number of events among specific minority populations is often less than 20, creating unstable rates even for three-year averages. Because of the small number of cases, comparisons for non-Hispanic Asian/Pacific Islanders and for Hispanics cannot be made. For non-Hispanic Blacks/African Americans, differences are evident in asthma hospitalizations. The age-adjusted hospitalization rate (all ages) for non-Hispanic Blacks/African Americans was 2.2 times the rate for non-Hispanic Whites (20.0 vs. 9.3 hospitalizations per 10,000). Moreover, the asthma hospitalization rate among youth aged 0-17 years was 19.6 per 10,000 for non-Hispanic Blacks/African Americans compared to 12.0 per 10,000 for non-Hispanic Whites.

Similar differences exist for diabetes. The age-adjusted hospitalization rate for diabetes as a primary diagnosis was 35.3 per 10,000 for non-Hispanic Blacks/African Americans compared to 12.9 per 10,000 for non-Hispanic Whites. For hospitalizations in which diabetes was coded as a co-morbidity (any diagnosis), non-Hispanic Blacks/African Americans experienced higher hospitalization rates than non-Hispanic Whites (358.0 vs. 182.2 per 10,000). Further, the age-adjusted hospitalization rate for short-term complications secondary to diabetes was likewise higher for non-Hispanic Blacks/African Americans than for non-Hispanic Whites (19.9 vs. 5.4 per 10,000).

Economic disadvantage, poverty, and minority status can affect health and well-being. These social determinants likely reflect disparities in mortality and morbidity within Broome County. Minority populations experience a disproportionate share of early deaths, poor birth outcomes, and disease burden due to asthma and diabetes.

C. The Local Healthcare Environment

The Physical Environment - Geography & Climate

Broome County includes the upper regions of the Appalachian Mountain Chain. Although the county is a small metropolitan area, with a Rural Urban Continuum Code (RUCC) of 2, it is often referred to as rural particularly at the upper and eastern edges. According to the [2019 Broome County Agricultural Economic Development Plan](#), farmland accounts for 18% of the land mass within Broome County. The number of farms in Broome County has continued to decline. The most recent statistics from the 2012 USDA Census of Agriculture indicated there were 563 farms covering 79,676 acres within the county. These figures represent a 3% decrease in the number of farms and an 8% decrease in acreage since 2007.

The county has two large population centers, surrounding suburban areas, and, for the largest portion of the land area, predominantly rural townships with small village centers. The roadways in these latter areas lack sidewalks except in the small villages. Many, if not most, of the residential suburban areas lack sidewalks as well. This deficit has made “walk-to-school” programs difficult. However, even in the more populated areas where sidewalks are present, traffic and safety issues often prevent parents from allowing their children to walk to school. Residents have also expressed concerns about sidewalk maintenance, particularly in the winter, due to snow and ice. The risk of falling is of particular concern among the elder population.

On the other hand, the community has made significant investment in a “Greenway” Project as well as walking trails such as can be found in Otsiningo Park, the “Rail Trail” in Vestal, and a newly completed trail in Whitney Point. The Greenway Project follows the natural contours of the area’s waterways and provides opportunities for both walking and bicycling in addition to beautifying the community and preserving green space. Most of these sites have the added benefit of being located in relatively flat areas in contrast to the surrounding hills. Creating alternative indoor options for walking such as schools that are readily accessible in rural areas was achieved through past innovative chronic disease initiatives.

Travel distances make accessibility to health services located largely in urbanized areas more difficult both for those who seek health care services as well as for those who deliver them such as home care, hospice, and emergency medical services. The northern climate with its mixture of snow and ice deters travel on roadways during winter and often late fall and early spring. Public transportation is available in urbanized areas, but there are limited transit services outside these areas, most of which are “on-demand.” BC Lift provides a transportation option for handicapped riders, though this service is also by request. These services may be cost-prohibitive for the rural poor. Public transportation in rural areas

was rated as the second most important concern by emergency medical personnel. An intersection of two major highways, I-81 and the recently developed I-86, previously Highway 17, brings economic benefits as well as challenges such as traffic congestion and motor vehicle accidents.

Like many areas, residents express concern about air and water quality, industrial waste contamination in soil and groundwater, as well as lack of inspection of private wells. The discovery of natural gas within the Marcellus Shale formation and its potential extraction raised many environmental concerns. In 2014 however, high-volume hydraulic fracturing was banned and currently is not permitted in New York State. Environmental issues remain a top priority with a desire for a “greener environment,” more eco-friendly buses, and greater recycling. Most urbanized areas, excluding Johnson City, have municipal water systems that are fluoridated; however, most residences in rural areas have private wells, so access to and consistent use of fluoride supplements creates a challenge for dental care in this county.

Topography and location influence the climate of Broome County. Broome County is primarily pleasantly cool with an average annual temperature of 45.8° F and moist. This area has about 48% of the annual average available sunshine, primarily in the summer months. The area has a reported 212 cloudy days with 80% or greater overcast per year. Inclement weather is often cited as a barrier to being more physically active. In relation to regional climate, the impacts of global warming continue to be a concern with its potential for more severe weather events and devastating floods. Mitigation in response to the severe flooding that occurred in 2005, 2006, and 2011 continues, and information about flooding as well as response to other weather-related hazards by the county and its municipalities can be found in the [2019 Broome County Hazard Mitigation Plan](#).

Legal Aspects - Laws & Regulations

Broome County Legislature is composed of 15 elected legislators representing county residents. The Legislature is the policy-making body and taxing authority of Broome County Government. Through its power is to legislate and approve appropriations, the County Legislature shapes the direction of Broome County Government. The Broome County Charter defines the duties and powers of the Legislature. The County Legislature is responsible for the adoption of all local legislation and levy of property taxes. The county operates the county legal systems, handling the prosecution of crimes committed within the county with sole authority over felony trials and shares authority with local courts in misdemeanor cases. The county operates the sheriff’s office and probation services; provides social services, maintains public records, is responsible for the delivery of public health, oversees the county landfill, maintains and constructs county highways, and provides public transportation.

Social Aspects

Social isolation, particularly for rural elders, is a major issue. Census data from 2013-2017 reports 11,279 elders, 65 years of age and older live alone. A comparison between the 2009 Census data and 2017 in the age range of and 65 above continue to increase. The lower end of this age spectrum reflects the initial impact of the aging of the “Baby Boom.” Unfortunately, the core volunteers for senior centers and vital services such as Meals on Wheels tend to be older adults, which is a shrinking cohort in Broome

County. Another issue of concern is the potential increase in the need for in-home services resulting from the predicted growth of the very old (85+ years) population.

In 2018-2019, the Broome County Office for Aging conducted nine focus groups and collected over 2,000 surveys. The data revealed that almost 28% of older adults reported feeling socially isolated, especially those with incomes less than \$19,999 and between the ages of 55-65 years. Previous surveys in Broome County indicated that 19% of seniors living alone did not socialize with family, friends, or neighbors in the past week and experienced decreased motivation to cook for self, which raises concerns about their nutritional status. The outmigration of younger family members, often to seek employment in more urban settings contributes to the social isolation of elders. Lack of social networks contributes to isolation of elders, particularly among the oldest cohort and those living in poverty. Intergenerational concerns related to elders include but are not limited to the issue of grandparents caring for grandchildren and the stress on family caregivers for the elderly, particularly with chronic and debilitating health issues.

Health Care and Economics

Diminishing funding from both private and public sources along with a rise in the number of unemployed and uninsured/underinsured are placing an ever increasing strain on health care resources. As cost control measures are being undertaken in the health care sector, more of the cost burden for care is being shifted to the county level. A concern is the resulting strain on the portion of the system that serves as a safety net within our county including The Dr. Garabed A. Fattal Community Free Clinic (Community Free Clinic). Many governmental agencies and offices are functioning with tight budgets. Although Broome County has been successful in running many health promotion and education programs that are grant funded, both public and private foundation grant funding has been curtailed and successful programs may be less sustainable without these types of funding. Efforts to ensure sustainability of existing services have focused on expanding and diversifying funding sources.

Institutions - Schools

There are 12 public school systems serving K-12 in Broome County in addition to Catholic and other religious related systems. These school systems serve parts of four counties in addition to Broome. The Board of Cooperative Educational Services (BOCES) serves 15 school districts in Broome and Tioga counties. Post-secondary education is offered in colleges and technical schools located in Broome County including: Binghamton University, State University of New York at Binghamton, Broome Community College, Davis College, and Ridley-Lowell Business and Technical Institute. Fourteen colleges and universities are located within a one-hour drive of Binghamton.

Care and education of very young children is an important part of the community. Because childcare is provided in both formal and informal settings, the ability to accurately determine service providers and service usage is limited. Preschools in NYS provide early childhood education, laying a solid foundation

for future growth and learning. NYS is involved in an ongoing effort to have preschools approved by the Department of Education. According to the NYS Education Department (NYSED) State Education Department Reference File ([SEDREF](#)) database, there are 37 preschool programs operating in Broome County, however only six of these programs are on the approved list of special education programs pursuant to section 4410 of the NYS Education Law.

Agriculture

Agricultural issues continue to have ramifications for the health of citizens of Broome County. Dairy and fruit and vegetable farming remain the mainstays of the local agricultural picture. Farm workers have distinct risks for health issues as well as access to health care services. Rural dwellers, particularly farmers often define health as the ability to work, delaying health care until unable to work. This cultural aspect of how health is defined is compounded by the preference for use of informal networks, the nature of self-employment, which limits access to health insurance, and the hands-on nature of farming which leads many agricultural workers to seek health care only when they can no longer ignore the problem. This delay may result in an emergent situation, raising the cost of treatment. One advantage of a strong agricultural system within the region is the ability to accentuate the use of locally grown/produced foods. The Cornell Cooperative Extension (CCE) along with many regional partners including the Rural Health Network of South Central New York (RHNSCNY) are focusing on bringing locally grown/produced foods to public institutions within the county. Growing Health, a food tasting symposium has served to help raise awareness about the advantages of using locally grown foods. Food safety is of concern throughout the country with many recent examples of food contamination. Moreover, in an era of mass production and distribution of food supplies, the source is often difficult to discern. Food safety concerns may encourage the use of locally grown/produced foods.

Media Messages

Broome County has four local television stations serving the area. Cable television services also include a regional news channel, with one focus area being the Southern Tier of New York. In addition, the area has multiple radio stations. The Press and Sun Bulletin is the local daily newspaper and provides an electronic site entitled [pressconnects.com](#). Each of these media outlets is a source for health information and public service announcements (PSAs). These PSAs have provided support for several programs including Sodium Reduction in Communities, Steps to a HealthierNY, BC Walks, and the Rock on Cafe. Use of social marketing and media for health messages are a means of effecting changes in diet, physical activity, and tobacco use making healthy choices normative and creating a healthy lifestyle culture.

Laws and Regulations

New York State has been highly successful in promoting tobacco free environments through laws and regulations regarding tobacco use in public areas, use of taxes to deter tobacco consumption, and focus on enforcement of regulations on tobacco sales to minors. The most recent success was demonstrated through the amendment to the Adolescent Tobacco Use Prevention Act (ATUPA), in effect as of November 13, 2019, which has raised the minimum age of sale from 18 to 21 for tobacco products, including electronic cigarettes. The greatly reduced access of these products to minors will ideally prevent a generation from acquiring costly and potentially deadly addictions. For almost two decades, tobacco-free workplace regulations have been in place and have become more stringent, now covering entrances to public institutions such as hospitals and libraries prohibiting individuals from congregating just outside doorways to smoke. Smoking is prohibited at New York Playgrounds between sunrise and sunset if anyone under the age of twelve is present. Many recent amendments to these laws have included electronic cigarettes otherwise known as vaping into their jurisdiction as well. In 2017, Binghamton University was also recognized as a Tobacco Free Campus, as part of a Tobacco Free initiative.

Environmental Management

Broome County enjoys the active participation of its citizens in shaping environmental policy through the Broome County Environmental Management Council (EMC). Initially established by the Broome County Legislature, the EMC seeks to preserve, protect, and enhance the local environment. Its members include members of the community with environmental concerns who serve as Broome County's government citizen advisory board on environmental matters. Since 1971, volunteer members of the EMC have conducted meetings and public information sessions in addition to preparing reports, plans, and advisory resolutions. Topics of concern to the EMC include natural resource management, water resource protection, land use planning, and sustainable development as well as hazardous and solid waste management.

SECTION TWO – LOCAL HEALTH UNIT CAPACITY PROFILE

Introduction

Public health responsibilities encompass preventing epidemics and the spread of disease, protecting against environmental hazards, preventing injuries, encouraging healthy behavior, helping communities to recover from disasters, and ensuring the quality and accessibility of health services.

Public health employees provide safe environments and services to help the people who are most at risk to thrive. While the core functions of public health are health assessment, policy development as it relates to matters pertaining to health, and assurance of a healthy environment through surveillance, the result of these functions is to improve the health of our residents and communities. Private and public organizations, individuals, government officials and public health employees work together to accomplish this mission.

The focus of health programming in our community is determined by the needs of the population and is data driven and evidence based. Public health employees monitor the health status of the community through surveillance of local information regarding disease states and environmental hazards. Additionally, employees review data collected by the New York State Department of Health and the needs assessments of various community agencies to compile a Broome County Community Health Assessment. Health related issues are diagnosed and investigated with the intent to inform, educate, and empower the community, thereby giving residents the voice and responsibility for action. In support of community efforts, the Health Department then develops policies and plans in response to the identified areas of action.

Public health response also includes enforcement of laws and regulations that protect health. Food service inspections, along with compliance checks for retail tobacco outlets are two examples of how public health employees monitor areas of concern to protect the health and safety of community members.

Working with at-risk populations, those who are uninsured or underinsured, the Health Department links people to necessary services and assures the availability of healthcare options.

Operational planning is an important part of public health. To assure a competent public health workforce, the Health Department will continue to work with institutions of higher education to train and develop expertise in employees, ensuring that they meet or exceed established standards.

The department will continue to evaluate effectiveness, accessibility and the quality of both personnel and population-based health programming, and will use data to research innovative, community focused solutions to health problems.

Broome County Health Department has adopted ten essential public health services that are integral to assuring the health of the community (see also Appendix F2).

Organization

Broome County Health Department is a full-service health department. In addition to state-mandated core basic services, a range of preventive and population-based services is provided to ensure public health and wellness. The ability of the health department to provide preventive services and chronic disease support and education (e.g., breast cancer screening) strengthens the existing health care delivery system with the goal of taking a proactive role in helping to improve the overall health status of community residents. Divisions within Broome County Health Department include Clinic Services, Administration, Environmental Health Services, Health Promotion and Disease Prevention, Children with Special Health Care Needs, Maternal Child Health and Development. The Fiscal Services Unit and Health Promotion and Outreach (grants) are part of the Administration Division (refer to Organizational Chart in Appendix F1).

Local health departments in New York State are required by NYS Public Health Law to conduct Community Health Assessments as part of the application to obtain state aid for local public health services. Priorities and recommendations identified in the Community Health Assessment are the basis for measuring and evaluating the array and quality of local public health services provided to county residents. Health Department administration is responsible for this important activity. A complete description of the process used to conduct the community health assessment can be found in Section 3 d. of this report.

Broome County Health Department is committed to heightening public awareness of preventable health conditions through community health education and promotion. Lifestyle choices and personal health habits are important factors in the prevention of disease.

Several programs are designed to assist and motivate individuals to voluntarily practice and sustain positive changes in their health-related behaviors are available. Staff specializing in health education and disease prevention within various Health Department Divisions described below is available to provide educational materials and presentations to the public on a variety of topics. The programs listed within each Division provide an array of health education and promotion activities throughout Broome County. Many programs offer health education and promotion throughout multiple counties.

County taxes help support health department services. Although some services are free to Broome County residents, most services have a fee based on cost, with fees adjusted on ability to pay. Medicaid, Medicare, and private insurance may be used to pay for care. Fees are also charged for most Environmental Health Division services.

Staffing & Skill Level

The health department is headed by a Public Health Director and staffed with 60 full time-equivalent (FTEs) employees. The health department employs a part-time Medical Director and a Health Advisory Board provides administrative consultation. The Public Health Director is responsible for initiating and managing the local public health programs and has the general powers and duties specified in Section 352 of the NYS Public Health Law. The Director is responsible for maintaining a high standard of public health services in accordance with the general policies and objectives of the County Executive and County Legislature and with applicable State and local health laws and ordinances. General supervision

is exercised over the environmental health, sanitation, medical and public and/or community health nursing services.

There are six division directors: Environmental Health Division Director, Director of Clinic Services, WIC Nutrition Services Director, Director of Children with Special Health Care Needs, Director of Maternal Child Health and Fiscal Services Administrator. In addition, there are Supervising Public Health Educators, Supervising Public Health Nurses, part-time physicians (practicing in the sexually transmitted disease clinic, chest clinic, and employee health), full-time and part-time Nurse Practitioners, Registered Professional Nurses in a variety of roles, Public Health Engineers, Senior Public Health Sanitarians Groundwater Management Specialists, and a Public Health Preparedness Coordinator. Descriptions of the administration and divisions are detailed in the sections that follow.

Expertise & Technical Capacity

The Director is responsible for the conduct of the Community Health Assessment. The Health Department has the privilege of having tenured staff member, Yvonne Johnston, DrPH, MPH, MS, RN, FNP, also an Associate Professor and the Founding Director Master of Public Health Program Binghamton University, direct and author the last two Broome Community Health Assessments. In addition to her above-mentioned roles, this individual has served as the local evaluator for multiple NYSDOH and CDC grant projects led by the Health Department. Many of these local program evaluation analyses provided input to the document and informed the decision-making process.

A variety of data sources were used to conduct this assessment in addition to the use of pencil-and-paper surveys, online surveys using Survey Monkey, and focus groups. Access to online data has improved the ability to obtain relevant and meaningful local statistics, many of which are available through the NYS Department of Health website including the NYSDOH Prevention Agenda Dashboard, Community Health Assessment Indicators, Community Health Data Set, Delivery System Reform Incentive Program (Care Compass Network), which are publicly available, as well as SPARCS data and other sources available through the Regional Health Information Organization; HealtheConnections and the Health Commerce System.

Expansion of data that is geocoded and which can be mapped provides rich information for public health assessment and planning. In addition, the county provides Geographic Information System and Mapping Services through an online portal, and this service was used for developing some of the maps in this document. The conduct of the Community Health Assessment and the preparation of this document is a daunting task and requires considerable human resources. This process, however, is invaluable in relation to development of collaborative efforts with local hospital systems. Fortunately, the Southern Tier Population Health Improvement Program (PHIP); through HealtheConnections, provided tremendous support and financial resources. The Health Department was able to hire and train several part-time, temporary public health representatives to assist with gathering and updating data and writing sections of the 2019-2024 CHA/CHIP. Continued efforts to build the capacity of local health departments to conduct comprehensive, meaningful, and user-friendly Community Health Assessments are still necessary. Constrained by its budget, increasing service demands, and need to respond to emerging public health threats, the local health department look to the state for direction and support of these efforts.

Adequacy & Deployment of Resources

Administration

Administrative services include: coordination of community health assessment; public health planning; annual reports; preparation and analysis of complex financial and statistical reports; provision of information and guidance in fiscal matters; coordination of departmental budget process; payroll and personnel processing; accounts payables/receivables; cash management; statistical and financial analysis; billing; claiming; grants management; representing the department to the public; general distribution of communications and written materials from Administration and the outside community to the department; and preparing departmental staff and the community to respond to public health emergencies. Health Department staff regularly participates in emergency preparedness drills/exercises designed to test response protocols and procedures. Staff routinely provides presentations to community groups on emergency preparedness and emerging public health topics. The Emergency Preparedness Program, explained at the end of this Administration Division section, also oversees the development of the Broome County Medical Reserve Corps—a cadre of medical and non-medical professionals that have volunteered to provide various services during emergencies and disasters. In addition, the contracted services of the Public Health Medical Director are based in Administration.

Description of Services

The Administration Division is composed of three units: Fiscal, Departmental Support, and Administration.

- **Fiscal** is responsible for all facets of the Health Department's finances. Under the direction of the Fiscal Services Administrator, the fiscal staff provide payroll and personnel processing, accounts payable and receivables, cash management, statistical and financial analysis, billing, claiming and grants management. In addition, the unit prepares complex financial and statistical reports including cost reports, state aid applications, and various reports for Health Department programs. Staff provides information and guidance on fiscal matters to the other divisions. Fiscal staff act as liaisons to agency and non-agency staff regarding fiscal and program operations, departmental budget requests, and grant programs. The Fiscal Services Administrator coordinates the budget process, fiscal procedures, and personnel activities for the entire Health Department.
- **Administration:**
 - Plans, directs, and administers all public health programs and services according to applicable laws and regulations as described in the Broome County Charter, Public Health Law, and federal regulations.
 - Serves as a primary and expert resource for establishing and maintaining public health policies, practices, and capacity.
 - Conducts public health surveillance, investigates public health issues, and evaluates public health interventions targeting chronic disease prevention and control, emerging infectious disease outbreaks, toxic exposures, environmental health problems, injuries, unintentional child fatalities, injuries, or deaths due to motor vehicle, pedestrian and

bicycle crashes, communicable diseases, maternal child health morbidity, and tobacco control and preventive cancer services.

- Directs the 2019-2024 Community Health Assessment and Community Health Improvement Plan process and functions as a community liaison in the process.
- Provides direct supervision and direction of departmental community health education and promotion activities. Coordinates and administers health education and health promotion activities in collaboration with other community agencies, stakeholders, residents and elected officials.
- Provides direct supervision and direction to the fiscal and departmental support staff.

➤ **Administration:**

Public Health Standards:

Investigate health problems and environmental public health hazards to protect the community

- Conduct timely investigations of health problems and environmental public health hazards.
- Contain/mitigate health problems and environmental public health hazards.
- Analyze public health data to identify trends in health problems, environmental public health hazards, and social and economic factors that affect the public's health.
- Maintain a plan with policies and procedures for urgent and non-urgent communications.
- Inform and educate about public health issues and functions.
- Provide health education and health promotion policies, programs, processes, and interventions to support prevention and wellness.
- Provide information on public health issues and public health functions through multiple methods to a variety of audiences.
- Develop public health policies and plans.
- Serve as a primary and expert resource for establishing and maintaining public health policies, practices, and capacity.
- Conduct a comprehensive planning process resulting in a Community Health Improvement Plan.
- Maintain a Public Health Emergency Preparedness and Response Plan for all threats and hazards.
- Enforce public health laws.
- Review existing laws and work with governing entities and elected/appointed officials to update as needed.
- Educate individuals and organizations on the meaning, purpose, compliance, and benefit of public health laws and how to comply.
- Conduct and monitor public health enforcement activities and coordinate notification of violations among appropriate agencies.
- Evaluate and continuously improve processes, programs, and interventions.
- Use a performance management system to improve organizational practice, processes, programs, and interventions.
- Develop and implement quality improvement processes integrated into organizational practice, programs, processes, and interventions.
- Maintain administrative and management capacity.

- Develop and maintain an operational infrastructure to support the performance of public health functions.
- Establish effective financial management systems.
- Maintain capacity to engage the public health governing entity.
- Maintain current operational definitions and statements of the public health roles, responsibilities, and authorities.
- Provide information to the governing entity regarding public health and the official responsibilities of the health department and of the governing entity.
- Encourage the governing entity's engagement in the public health department's overall obligations and responsibilities.

2020 Administration Objectives

- Engage in meaningful research of community health status, measured by jurisdictional mortality, incidence, or prevalence. Assess county characteristics such as poverty, health disparities, and health literacy to determine health behaviors, adverse health events, and populations at risk.
- Coordinate stakeholders from all sectors to participate in the Community Health Improvement Plan.
- Develop a well-trained and competent workforce through assessing training needs and collaborative planning with institutions of higher learning to maintain the technological tools of the public health infrastructure that are necessary to support all essential public health services.
- Increase awareness of chronic disease prevention through evidence-based health promotion and education activities and strategies that encourage lifestyle changes and engages community members where they live, learn, work, play, and pray.
- Build the capacity of community organizations to provide health information and programming as part of "doing business" offering cost-effective programs that impact health outcomes and are easy to replicate.
- Collaborate with institutions of higher learning to bring in expertise in planning and evaluation, epidemiologic studies, data collection, and management.
- Continue to support and coordinate and develop the Broome Opioid Abuse Council (BOAC) along with strengthening the planning capacity of the county to reduce the social and health harms related to the misuse of opioid drugs. The multidisciplinary council, led by the Broome County Opioid Overdose Coordinator seeks to improve the county's response to the growing opioid abuse crisis facing residents and to reduce the incidence and prevalence of opioid addiction and death. Goals have been established within the structure of subcommittees intending to: educate the public about addiction and available services; facilitate the development of appropriate treatment and prevention services; and strengthen the capacity of law enforcement and the courts to protect the community.
- The Public Health Emergency Preparedness Program will utilize grant funding to enhance infrastructure for responding to emerging infectious diseases such as Ebola and the Zika Virus which may affect the health and safety of Broome County residents. This may include meeting with hospital personnel, convening drills, practicing donning and doffing of personal protective

equipment, and communication exercises with EMS, hospital CMOs, and the County Executive Office.

2020 Administration Program Highlights

- Continue to maintain emphasis on reducing the opioid crisis with the direction of the Broome County Opioid Prevention Coordinator and Overdose Data to Action Grant to help build and support the county response infrastructure.
- Maintain health education activities to provide for coordination of efforts to prevent diseases and encourage healthy lifestyles by building the capacity of community organizations and by seeking insurance reimbursement where appropriate.
- Improved community health assessment and surveillance activities through coordination with other community agencies.
- Continued maximization of grant funding to support operating budget as the focus of public health shifts from direct services provision to surveillance, assurance, and policy development.
- Prioritization of expenses to reflect identified staff needs for education and technology, while focusing on equitable salary levels for recruiting and retaining staff.

Public Health Emergency Preparedness/ Medical Reserve Corps

Broome County Health Department, under the direction of both state and federal governments, is responsible for emergency response plans and active response to any type of emergency affecting the public health including natural events (i.e., floods, ice storms) and deliberate malicious acts (terrorism). Additionally, the Emergency Preparedness Program provides training and exercises to test and train public health response staff. The Program also oversees the Medical Reserve Corps (MRC) which consists of medical professionals and non-medical volunteers who donate their time and expertise to prepare for and respond to emergencies of any kind. The MRC also engages in chronic disease initiatives and programs offered by the Health Department.

The Broome County Public Health Emergency Preparedness and Response Plan is developed by the Public Health Emergency Management Program within the Broome County Health Department. The Plan is an annex of the Broome County Comprehensive Emergency Management Plan Emergency Support Function #8 – Public Health and Medical Services.

The Plan utilizes an all-hazards approach to planning and is based upon standards and guidance provided by the New York State Department of Health, the Centers for Disease Control and Prevention, the National Association of County and City Health Officials Project Public Health Ready, and the Public Health Accreditation Board.

While Broome County's Emergency Support Function - Public Health and Medical Services establishes the strategy for public health emergency management in Broome County, the Public Health Emergency Preparedness and Response Plan expands upon the strategy by defining tactical and operational guidelines for utilization by the Broome County Health Department and its response partners. The Plan includes annexes which further define the operational procedures of the Broome County Health Department when providing public health emergency response.

This Plan is a living document continuously updated to reflect new evidence-based guidance, after-action reports and improvement plans, and lessons learned from real world events. It is developed in collaboration with partners across all phases of public health and medical emergency management.

The Broome County Health Department provides services focusing on improving the health and well-being of individuals, families, and the greater community of Broome County. The Broome County Health Department accomplishes this task by consistently assessing and addressing the health needs of the community through the offering of routine services, policy and plan development and implementation, and by preparing for and responding to emergencies.

An emergency can occur at any time, suddenly and without warning. Proper planning is essential to minimize the impact of any emergency on the community. The PHEPRP is designed to facilitate a timely, effective, efficient, and coordinated emergency response to events affecting the population within Broome County.

Maternal Child Health and Development

Description of Services

Maternal Child Health and Development: The assurance of optimal physical, psychosocial and developmental health and wellbeing for childbearing and child-rearing families is the goal through maternal child programs designed to help families receive the evaluation and treatment services they need. Some children may experience delays in their development, and early detection and treatment may make a difference...for the child, the family, and the community.

The programs offered through the Maternal Child Health and Development Division help ensure physical, psychosocial, and developmental health and well-being for childbearing and child-rearing families in Broome County. Some children may experience delays in their development. Early detection and treatment of these delays may make a difference for the child, the family, and the community. This division offers several programs designed to help families access the detection and treatment services they need.

Early Intervention Program (EIP) service coordinators work closely with families of children with developmental delays and/or diagnosed conditions with a high probability of delay, to identify the families' concerns and priorities for their children. Individualized family service plans are constructed by the service coordinator with the family and agreed upon by the family and the Early Intervention Official/Designee. Early Intervention service coordinators also offer referral information to families regarding a variety of topics, including childhood lead poisoning, health insurance and community events where families can connect with other families of children with developmental disabilities and delays. The Early Intervention Program is a federally mandated statewide program offering evaluations and therapeutic support services for infants and children (from birth up to three years of age) with special needs and their families.

Child Find: component of the Early Intervention Program focuses on ensuring at-risk children are engaged in primary health care, will receive appropriate developmental surveillance and screening from a primary care provider, are referred to the Early Intervention Program for a multi-disciplinary

evaluation when indicated and have health insurance coverage. There were 76 new referrals to the Child Find Program in 2018 with 207 children actively enrolled. There were 105 new referrals to the Child Find Program in 2017 with 251 children actively enrolled. There were 532 new referrals to the Early Intervention Program in 2018 with 842 children actively enrolled. There were 487 new referrals to the Early Intervention Program in 2017 with 748 children actively enrolled. The decrease in referrals and subsequent active enrollment in Child Find is likely reflective of the increase in Early Intervention referrals and active enrollment.

Preschool Special Education Program: from Early Intervention, a child may transition into the for children aged three to five with suspected or confirmed delays which will affect learning. Children aged three to five may also be referred directly to the Preschool Special Education Program. Resources including special education and therapy (occupational, physical, and speech), are available to assist parents of preschool children with disabilities to help them prepare their children for the transition to school (kindergarten). Participation in quality learning experiences is important for all children to achieve high educational standards. Allowing children with and without disabilities opportunities to learn together in the least restrictive environment, whenever possible, benefits all children. Outreach is provided to community agencies, schools, and primary care providers to streamline the referral process for children with and at risk for developmental delays.

Education to Handicapped Children's Program (EHCP) Committee on Preschool Special Education (CPSE) (ages 3–5 years): The Education to Handicapped Children's Program is a federal and state mandated program for children, ages three through five, with suspected or confirmed delays, that will affect learning. This program is directed through the New York State Department of Education with the objective being the transition of identified children into the formal school system. As with other programs, the family is an important part of the team in developing a plan based on the identified needs of their child. The EHCP process determines placement opportunities and services to benefit both the child and the family.

Children with Special Health Care Needs (CSHCN) Program: assists families in ascertaining community resources, as well as providing outreach throughout the community to increase awareness of resources available, to identify unmet health and related needs, and to collaborate with community partners to develop plans to overcome barriers and increase access to services. Outreach activities include participation in community health fairs and events, presentations at meetings of community and health organizations, and informational sessions sponsored by the CSHCN grant.

Healthy Families Broome (HFB): is part of a statewide initiative, Healthy Families New York. This program is a comprehensive prevention program that focuses on the safety of children while supporting families. A Public Health Educator (PHE) trained by Prevent Child Abuse New York serves as a Family Resource Specialist. The PHE offers eligible expectant families a home visit. During the home visit, the PHE completes an in-depth psychosocial assessment with the expectant parents to assess their strengths, needs, and challenges. The PHE provides referrals to community agencies, and eligibility is determined for the long-term home visiting program.

Broome County Child Fatality Review Team: established in 2008, recently expanded to become the **Broome-Tioga Regional Child Fatality Review Team.** This is a multidisciplinary team of professionals established in 2019 pursuant to New York State Social Services Law (SSL) to review the death of any child under the age of 18 whose death is unexpected or unexplained. The Team is authorized to review any unexpected or unexplained death, but priority is given to instances where:

- any child for whom Child Protective Services has an open case.
- any child for whom at the time his/her death has an open preventive services case in Broome County or Tioga County.
- any child who at the time of his/her death was in the care and custody or guardianship and custody of Social Services or a voluntary authorized agency.
- a report was made to the New York Statewide Central Register of Child Abuse and Maltreatment involving the death of a child.

The mission of the B-T CFRT is to improve our understanding of how and why children die, develop and promote a regional system of child death review and response, and to identify systemic and policy issues, and public health interventions to improve child health, safety and protection. Our ultimate goal is to prevent future deaths and to promote child safety through a confidential review process which is thorough, comprehensive, and multidisciplinary.

The Broome County Health Department and key stakeholders from Tioga County Public Health and both counties' departments of Social Services, County Attorney, District Attorney, Sheriff, Emergency Medical Services, and Coroners; as well as New York State Police; UHS Pediatrician; and representatives from several community agencies meet monthly for case review. The Broome County CFRT has discussed 104 child fatality cases from 2009 through December 2018 and has developed a formal process to identify system-based impediments to child health and safety that will ultimately reduce the number of child deaths. The B-T CFRT adopted this same strategy. Some interventions targeted at preventing child deaths have been recommended and implemented by the Family Violence Prevention Council, Mothers and Babies Perinatal Network, Broome County Health Department Maternal Child Health Division, and the Sheriff's Department.

Maternal and Child Health Nursing: Broome County's commitment to families begins before the birth of a child, with a home visit available to expectant families from a Maternal Child Health Nurse. Receiving high quality prenatal and postnatal care increases the likelihood that each child has a solid foundation of health from the beginning of life. Our nurses offer care that is essential to this mission, including skilled psychosocial assessments of maternal and child health, including breastfeeding support, monitoring infant growth and development, providing referrals to providers and community agencies, and promoting healthy behaviors and practices. Working closely with other Health Department programs, such as WIC, Early Intervention, and Environmental Health, our nurses help ensure that all the resources provided by Broome County are mobilized to support our young families. The physical, psychosocial, and developmental wellbeing of our childbearing and childrearing families is critical to the

overall viability and health of our community, and Maternal Child Health nurses are instrumental in achieving that goal.

The Health Department has sponsored the **Women, Infants and Children's (WIC)** Program in Broome County since 1979. The WIC Program is a supplemental food program that services approximately 5,000 participants throughout the county. Clinics are held almost daily with evening and weekend hours to meet the needs of the families enrolled. WIC nutrition staff provides nutrition education and support to families who receive a prescribed food package every month to assist with growth and proper development during pregnancy, lactation, infancy, and early childhood up to the child's fifth birthday. Staff makes referrals to community agencies to assist the families with meeting their needs and goals. The program offers an enhanced peer counseling program to support and promote breastfeeding. Anthropometric measurements and hemoglobin levels are obtained to assist with assessment of the clients' health status and the staff communicates with health care providers as needed. WIC staff also screens for elevated lead levels for children in collaboration with the Maternal Child Health and Environmental Health staff.

Table 16. Broome County Women, Infants, Children (WIC) Program Data, 2018

Program Data	YTD 2012 (N)
Total # of Participants Served	17187
# Clinic Days	264
Average # of Participants/Day	786
# New Pregnant Women	255
# New Women (Postpartum and Breastfeeding)	95
# New Infants	109
# New Children	95
Total New Participants	554

2020 Maternal Child Health and Development Objectives

- Increase the number of prenatal visits to ensure early and continuous comprehensive prenatal care to reduce infant mortality, decrease low-birth-weight babies, and increase positive birth outcomes.
- Increase the number of evaluation visits to postpartum/ newborn clients to minimize environmental hazards to reproduction/growth/development through evaluation of home settings, health habits and nutrition status.
- Continue to improve breastfeeding initiation rates and duration through education provided to prenatal clients and through support of postpartum women and infants as soon after delivery as possible.
- Continue to provide home visiting, nursing assessment and education to children with identified elevated blood lead levels and refer at risk dwellings for assessment.
- Train PHN staff as Certified Lactation Counselors.
- Train PHN to offer bereavement support to families dealing with the loss of a child.
- Ensure appropriate newborn bloodspot screening, follow-up testing, and referral to services.

- Continue to provide training in medication administration to child-care providers.
- Reduce fetal, infant and child death by early identification of problems, developing and implementing interventions and providing community education.
- Increase the number of children screened for lead poisoning at age one and two by providing information to parents, communicating with physicians and providing referrals to the Environmental Health division and continuing screening of children enrolled in WIC.
- Continue to meet nutritional demands of women, infants and children through the WIC program, continue to improve breastfeeding initiation and duration through support of the WIC Nutrition and peer counseling staff and breast pump program.
- Maximize use of preventive health services through education and collaboration with local health care providers, the Clinic Division, Department of Social Services, schools, New York State Department of Health, and child-care providers.
- Expand Healthy Family Broome (HFB) program throughout Broome County and increase the number of families served.
- HFB's Public Health Educator offers assessments to expectant and new families to assess their strengths and needs. Offer families information regarding local community resources and connect eligible families to Healthy Families Broome home visiting program.
- Continue to review and update Quality Assurance Corporate Compliance Plan in the division to ensure program integrity, accuracy, appropriate authorization of service and quality of care.
- Ongoing and increasing need for services in both the Early Intervention Program and the Preschool Special Education Program demands assurance of adequate capacity of needed services for infants and children identified as having developmental and/or learning delays and/or being at risk for developmental delays. Continue working to identify new service providers, including expansion of individual contracts in the Preschool Special Education Program.
- Continue to work successfully to accommodate billing changes in the Early Intervention Program, working with families and providers to obtain all information required to maximize third party insurance payments.
- Develop procedures to monitor and review the payment of Early Intervention Program services not covered by third party insurance through the Escrow account billed to the county.
- Continue to strive to meet both federal and state performance standards in the Early Intervention Program.
- Collecting and reporting child outcomes is a requirement of the Individuals with Disabilities Act (IDEA). The performance of the New York State Part C Early Intervention Program on improving child outcomes is now reported in the Annual Performance Report. Strive to improve child outcomes for children enrolled at least six months in the Broome County Early Intervention Program.
- Improving family perceptions and outcomes of the Early Intervention Program is now also included in the Annual Performance Report. Actively participate in the *Improving Family Centeredness Together* State initiative to identify and address needs to help Early Intervention families feel more connected.
- Identify and participate in various community organizations to better foster collaboration and increase awareness of available services.

- Continue conservative fiscal management of the Children with Special Needs Programs while meeting Federal and State regulations.
- Continue to work with and utilize the preschool software program intended for billing Medicaid to maximize reimbursement of eligible services and efficiently capture data that will be useful in completing reports to assist in better program management.
- Work with the preschool software program to develop procedures to review and address denied Medicaid claims.
- Continue to develop procedures for monitoring of services provided in the Early Intervention and Preschool Special Education Program to ensure that plans developed for each child match both their needs and their ability to participate.
- Continue dialogue with Committee on Preschool Special Education Chairpersons, tuition-based programs, and NYS Education Regional Associates to ensure that eligible children are receiving Free Appropriate Public Education (FAPE) in the Least Restrictive Environment (LRE).
- Continue to identify models and procedures which will promote efficient use of providers' time as well as maximizing desired results for children and families.
- Work with New York State BEI and regional/local agencies to determine the impact of Health Homes for Children and respond accordingly.

2020 Maternal Child Health and Development Budget Highlights

- Continue to identify vulnerable families and implement areas of collaboration with Department of Social Services and other human service providers to prevent child abuse/neglect.
- Continue to develop better infrastructure to supplement operating budget costs with third party insurance revenue, state aid and grant funding.
- Continue to assist families in ascertaining community resources to meet their health care needs, through referrals and linkages with community agencies.
- Use local data to expand resources and motivate action toward elimination of lead poisoning in collaboration with the Environmental Health Division and more community agencies.
- Review salary of PHN position in order to be more competitive and better able to recruit registered nurses for employment.
- The New York State Department of Health still does not have a target date when system reports in NYEIS will be fully operational. The Bureau of Early Intervention has been routinely providing reports not currently available in NYEIS to municipalities to improve the ability to meet federal and state performance standards.
- The New York State Early Intervention State Fiscal Agent continues to work to maximize insurance payments for covered services in the Early Intervention Program. Third party insurance coverage of services in the Early Intervention Program remains marginal, with Medicaid and Escrow funds bearing the majority of the costs. Work to ensure that Medicaid coverage is fully utilized before payments are made from Escrow funds.
- Ongoing and increasing requirements of children with disabilities and developmental delays will continue to challenge the department to find resources to meet their needs. As the national incidence of young children diagnosed as having Autism rises, the increase is being seen at the local level as well. This will continue to present a challenge to identify appropriate services that will adequately support them and meet their needs.

- Understanding of the effects of Adverse Childhood Experiences is emerging. Focus efforts to increase awareness and develop ways to support survivors

Environmental Health

Description of Services

The Division of Environmental Health conducts routine inspections of approximately 1,500 regulated facilities, responds to complaints of public health nuisances, rabies control, enforces the Clean Indoor Air Act and the Adolescent Tobacco Use Prevention Act, reviews plans for public water and private sewage disposal systems, permitting and regulation of swimming pools, bathing beaches, mobile home parks, hotels/motels, food facilities, campgrounds, children camps, coordinates lead poisoning prevention efforts and the Healthy Neighborhood Program, Lyme disease education, conducts communicable disease outbreak investigations and educates facility operators with training courses and the general public with appearances and media releases. The Division of Environmental Health also responds to emergencies and participates in other department emergency planning initiatives.

The programs offered by the Environmental Health Division strive to preserve and protect the public and the quality of the environment as it impacts the public health of Broome County and to prevent illness and injuries caused by environmental factors. This division is charged with providing information on and the necessary enforcement of state and local health laws, codes and standards that apply to various facilities and systems. The services performed include the following:

Water quality (public supplies), Residential sewage systems, food safety, lead poisoning prevention, public health nuisances, regulation of bathing beaches, public swimming pools, children's camps, hotels and campgrounds, Indoor Air Quality / Clean Indoor Air Act, Toxins / Environmental Assessments, Youth Tobacco Use Prevention, Rabies, Emergency Preparedness and Response, Mobile Home Parks, Tick-Borne Disease Prevention, Healthy Neighborhoods, Educational Materials Only on West Nile Virus, Tattoos and Body Piercings, Bed Bugs, and Tanning.

Lead Poisoning Prevention:

Childhood Lead Poisoning Prevention: Lead poisoning is caused by eating, drinking or breathing anything with lead in it. It can slow a child's normal growth and development and can cause mental retardation, kidney disease, liver damage, blindness or death. Regular testing on children up to six years of age is required to identify the problem early. The Lead Poisoning Prevention Program is managed by the Broome County Health Department with testing done by health department clinic staff, private physicians, and medical clinics. Advice on cleaning the child's environment, nutrition, housekeeping, working with landlords/property owners and physicians, and retesting are part of the follow-up when an elevated lead level is found. Data for the lead prevention program for 2018 are detailed below.

Childhood Lead: The Broome County Health Department offers services to all children with elevated blood lead levels through the Childhood Lead Program. This program coordinates appropriate follow-up for lead poisoned children. Staff members educate parents about

strategies to prevent lead exposure to reduce lead hazards as well as conduct environmental investigations. Referrals are made to other agencies and programs as needed and staff coordinate communications between the Regional Lead Poisoning Resource Center, health care providers and parents.

Primary Prevention: Primary prevention staff educates, identifies, and requires correction of lead-based paint hazards in high-risk housing prior to a child being diagnosed with an elevated blood lead level.

Lead Hazard Control Grant (HUD): This program is designed to fund the cost of controlling lead paint hazards in low-income housing. Grant funding is available in the form of five-year forgivable loans for both rental and owner-occupied housing units built before 1978. This program accepts referrals from partner agencies, property owners and tenants to inspect older homes with young children. To be eligible, units must house or be regularly visited by at least one child age six or younger or a pregnant woman. All work is completed by certified lead abatement contractors selected by the program.

Table 17. Blood lead tests by age group of the child at testing during the selected time frame 01/01/2018 – 12/31/2018

Lead Values (mcg/dL)							
	0 to <5	5 to <10	10 to 14	15 to 19	20 to 44	45 to 69	70+
# Children	2801	163	27	18	27	5	2

**Table 18. Blood lead tests by age group of the child at testing during the selected time frame
01/01/2018 – 12/31/2018**

Blood Lead Level (mcg/dL)*	Age Group (months)						
	< 9 months	9 to < 18 months	18 to < 36 months	36 to < 48 months	48 to < 60 months	60 to < 72 months	72+ months
0 to < 5	41	1225	1014	208	139	61	113
5 to < 10	1	48	72	25	9	2	6
10 to 14	0	4	15	3	0	0	5
15 to 19	0	2	7	4	3	0	2
20 to 44	0	3	8	8	7	0	1
45 to 69	0	0	1	4	0	0	0
70+	0	0	0	2	0	0	0

Healthy Neighborhoods: The Healthy Neighborhoods Program addresses the environmental and health needs of residents living in geographically targeted neighborhoods within Broome County. Grant funds are used to implement a program designed to reduce residential injuries, childhood lead poisoning, hospitalizations due to asthma, and exposure to indoor air pollutants.

Water Supplies: Inspect, survey, educate and monitor the various public water supplies in accordance with Part 5 of the NYS Sanitary Code. Review plans for the construction, addition, or modification of any public water supply to assure compliance with State and Federal Regulations. Require correction of any violations and provide technical assistance to water supply operators to comply with Part 5 of the NYS Sanitary Code. Provide technical information to well owners.

Wastewater Treatment: Division of Environmental Health staff reviews, inspects, educates and takes enforcement actions as needed, designs, and provides approval of existing residential systems seeking modifications or corrections. Plan reviews are completed for new systems as well as enforcement of nuisance complaints regarding failing systems. Permits and approvals are provided in accordance with both New York State and Broome County Sanitary Codes. Staff review and provide approval of all proposed wastewater disposal systems (10,000 gallons) for new construction or modifications to existing systems. Approval is issued in accordance with NYS Department of Environmental Conservation SPDES (State Pollutant Discharge Elimination System) Permits and Standards for Waste Treatment Works.

Emergency Response: Staff responds to events resulting in the discharge of liquid, gaseous or solid materials that may produce an environmental hazard. Follow-up action is coordinated to eliminate problems and determine that all public hazards are eliminated. Environmental Health is an active member of the Local Emergency Planning Committee to plan and respond to natural and manmade disasters.

Subdivisions: Review and provide approvals for plans and specifications for realty subdivisions. This includes the development of water supplies and design of wastewater disposal systems.

Adolescent Tobacco Use Prevention & Clean Indoor Act: Staff enforces NYS Public Health Law requirements for the sale of tobacco products including vaping products, provides community awareness on tobacco issues, and enforces the Clean Indoor Air Act prohibiting smoking in enclosed public areas.

Indoor Air Quality (non-tobacco): Investigate complaints of impacted indoor air quality. Provide recommendations concerning corrective action and suggest laboratories for required analyses or collection of necessary samples. Recent air quality problems have involved PCBs, asbestos, chlordane, radon and chlorinated solvents.

Toxic/Solid Waste Dumpsites: Investigate and report on dumpsites in Broome County which may present a potential public health problem. Review and comment on any reports completed concerning remedial actions, hydrogeological data collected, and proposed construction. Respond to chemical emergencies that may produce hazards; review remediation activities to reduce public health hazards.

Food Service: Inspect, investigate, educate and take enforcement action as needed over all regulated food service facilities in Broome County.

Mobile Home Parks: Inspect, educate and take enforcement action on any violations for mobile home parks per Part 17 of the NYS Sanitary Code including public water supplies and sewage systems.

Temporary Residences, Campgrounds and Children's Camps: Inspect, educate and take enforcement action on any violations for hotel/motels, travel trailer campgrounds and children's camps per Part 7 of the NYS Sanitary Code. This includes reviewing and approving plans for construction, alteration and/or modification of proposed or existing buildings as well as children's camp supervision and safety requirements. Regulation of sewage and water supplies as well.

Rabies Control: Staff members investigate reports of animal exposures, ship suspected rabid animals to the state laboratory, and provide outreach and education. Staff enforce 10-day confinement periods and quarantine, support free rabies clinics and provide authorization of rabies prophylaxis.

Swimming Pools and Beaches: The Division of Environmental Health inspects, educates and takes enforcement actions as needed on all public swimming pools and bathing beaches in Broome County in accordance with Part 6 of the NYS Sanitary Code.

Public Health Nuisances: The Division of Environmental Health responds to or makes referrals to appropriate agencies to report rodents, outdoor burning, household garbage complaints, and sale of Bath Salts and Synthetic Marijuana.

General Environmental Health educational information is available on the following topics: **West Nile Virus, Lyme disease, Mold, Bedbugs, Tattoo Guidance and Tanning.**

2020 Environmental Health Objectives

- Continue to monitor and reduce public health hazards found during inspections within program areas, along with increased education and enforcement actions.
- Implement new program policies and procedures to maintain accountability and efficiency.
- Modify Environmental Health staff roles to meet the increasing demands with limited staff and funding.
- Prioritize program objectives to those of high risk. Cut or limit non-mandated programs to meet budget constraints.
- Modify inspection protocols to increase program efficiency and minimize excessive travel.
- Increase educational awareness of Environmental Health issues via free in-house and on-line training courses, smart phone apps and media.
- Develop partnerships with all municipal code enforcement officers to minimize residential environmental hazards.

2020 Environmental Health Budget Highlights

- Continue to pursue grants to decrease net county support.
- Minimize unnecessary and costly human post exposure prophylaxis by providing health care specialists the tools necessary to make sound judgments when providing treatment.
- Continue to meet all New York State Department of Health program deliverables with a limited and static budget.

Clinic Services

Description of Services

The Clinic Division provides specialized clinic services in an outpatient care setting. The primary site is located at 225 Front Street and immunization and outreach services are provided at several locations throughout the County. The division is comprised of six basic program areas: Communicable Disease, Employee Health, HIV Testing, Immunization, Sexually Transmitted Diseases, and Tuberculosis. The Clinic Division currently manages three grants which enable the department to provide additional HIV testing, both anonymous and confidential, outreach and education on HIV counseling, testing, referral, and partner notification. The Immunization Action Plan grant is designed to increase immunization rates through surveillance and education of local healthcare providers as well as outreach to homeless shelters and the County corrections facility to improve Hepatitis A and B and Influenza immunization rates. Descriptions of the services previously listed are explained further in the following section. The addition of program Data will provide an understanding of the array of programs offered to the public and the impact that this division has on the community.

Communicable Disease Control: An important role of the local health department is to investigate diseases that the New York State Department of Health designates as reportable. When an individual contracts a disease such as measles, hepatitis, or meningitis, reports to the Health Department are

required from physicians, hospitals, and laboratories. The nurses who work in disease control speak with the person or parent/ guardian to determine the source of the disease, identify others at risk, and recommend needed treatment. All information is protected and treated confidentially. Fact sheets and printed materials are also available to the public by request. Mandated diseases reported in 2016 was 496 and 551 in 2017. The largest reporting of any disease was 246 Chronic Hepatitis C cases. Lyme disease cases increased from 66 to 105 in 2017. Group B Strep cases decreased from 35 in 2016 to 27 in 2017.

Table 19. Communicable Disease Investigation Report, 2018

COMMUNICABLE DISEASE REPORT -YEAR 2018	
DISEASE	# Reported
Amebiasis	1
Campylobacteriosis	16
Cryptosporidia	4
E coli: Shiga toxin producing	3
Giardiasis	8
Salmonellosis	23
Shigellosis	4
Yersiniosis	
Hepatitis A	1
Hepatitis B, acute	2
Hepatitis B, pregnant carrier	1
Hepatitis B, chronic unduplicated	15
Hepatitis C, acute	41
Hepatitis C, chronic unduplicated	208
Measles	
Mumps	2
Rubella	
Pertussis	5
Aseptic/ viral meningitis	8
Group A Strep, invasive	7
Group B Strep, invasive	28
Haemophilus influenzae, invasive	2
Meningococemia, Meningococcal Meningitis	1
Pneumococcal infection, sensitive to penicillin	24
Pneumococcal infection, resistant to penicillin	1
Other bacterial meningitis	
West Nile infection	2
Other viral encephalitis	
Legionella	10
Listeriosis	1
Anaplasmosis	12
Babesiosis	
Ehrlichiosis	5
Lyme disease	58

COMMUNICABLE DISEASE REPORT -YEAR 2018	
DISEASE	# Reported
Malaria	
Rocky Mountain Spotted Fever	4
Miscellaneous	1
TOTAL	498

Tuberculosis Control Clinic: The Tuberculosis (TB) Control Clinic provides for the diagnosis, treatment, prevention, and control of TB in Broome County. An individual who is suspected of having TB is interviewed by a clinic nurse and referred for a chest x-ray and other tests, as indicated. The clinic physician discusses treatment recommendations with the individual. Medication is provided through the clinic and follow-up appointments are made for the client. As with other communicable diseases, it is sometimes necessary for other family members, or close contacts of the client, to be tested/examined at the clinic as well.

The Tuberculosis Control Clinic reaches out to identify individuals in targeted populations at high risk for exposure to TB who have been infected but are not yet contagious. Staff will conduct outreach to find these individuals and provide treatment before they become ill and contagious to others. The Clinic serves as a resource for other health professionals, health care facilities, and congregate living establishments in the community. Referrals from these sources are welcome. The clinic nurse is available to answer questions and to provide educational presentations and materials.

Hepatitis C Testing: In accordance with NYS law, Hepatitis C testing is offered to all persons born between 1945-1965. People in this age group account for the majority of those infected with Hepatitis C. Risk factors specific to Hepatitis C include sharing a needle to inject drugs (even once many years ago), receiving a blood transfusion before 1992, receiving clotting factors before 1987 or having been on long term kidney dialysis, having tattoos or piercings done in an unprofessional setting, or snorting drugs.

Table 20. Chest Clinic – Program Data, 2018

Program Data	2018 (N)
Clinic Visits	627
Patients Seen	314
Mantoux Administered	152
Patients Started on Preventative Treatment	58
Medication Refills	134
Suspect TB Cases and Investigations	0
Confirmed Active TB Cases	5
DOT (Directly Observed Therapy)	341

Immunization Action Plan Grant: The Immunization Action Plan is a grant that is funded by the New York State Department of Health. The goals of the grant are to increase childhood, adolescent and adult immunization rates in Broome County, to ensure that all vaccination records are completely and accurately entered in NYSIIS (NYS Immunization Information System), and to increase immunization focused education, information, and training opportunities to local health department staff, the public, health care providers, local schools and day care centers. Our objectives are to increase 4:3:1:3:3:1:4 childhood immunization coverage among county children aged 19-35 month and increase HPV vaccination coverage among county girls and boys aged 13 years according to targets described in the vaccination coverage guidance document. In addition, we are commissioned with ensuring that Perinatal Hepatitis B Prevention Program (PHBPP) case management is completed consistent with CDC guidance and NYS public health law 2500e and regulations by 24 months of age; to increasing county specific influenza vaccination coverage among adults aged 18+ years by five percentage points from the 2016 baseline as measured through eBRFSS; achieving a measurable improvement in underserved population using evidence-based interventions.

Immunizations: There is a clinic at the Broome County Health Department that offers all of the routine childhood immunizations: Polio, Hepatitis B, Hepatitis A, Diphtheria-Tetanus-Acellular Pertussis (DTAP), HPV, Rotavirus, Hemophilus Influenzae B (Hib), Pneumococcal Conjugate, Measles-Mumps-Rubella (MMR), and Varicella. Tetanus-diphtheria (Td), Tdap for adults, and meningococcal vaccine are offered for college students. Flu vaccine is offered during flu season at the Broome County Health Department. Flu vaccine is given to persons at risk on a seasonal basis.

Table 21. Immunization Clinics – Program Data, 2018

Program Data	Routine (N)
Sessions	79
Visits	334
Immunizations	1,576

Table 22. Immunization/Vaccine Data, 2018

Type of Vaccine Administered	YTD 2018 (N)
Pediatric Pneumococcal	2
DtaP	12
Rotavirus	1
Varicella	38
TD	17
HIB	2
IPV	35
MMR	67
Flu	998
Pneumococcal	2
HPV	65
Pediatric Hep B	27
Adult Hep B	8
Tdap	112
Hep A/Hep B (Twinrix)	8
Pediatric Hep A	22
Typhoid	0
Yellow Fever	0
Meningitis 4	103
Meningitis B	9
Rabies	9
Adult Hep A	9
DTAP & IPV	10
DTAP, IPV & HIB	0
Pediarix (DTAP & Hep B & IPV)	2

Sexually Transmitted Disease (STD) Clinic: The Sexually Transmitted Disease (STD) Clinic is available to those people who are at risk or may have come in contact with one or more sexually transmitted diseases. There is no charge to Broome County residents for STD testing and treatment. A confidential interview by a professional staff member includes asking about the clients' symptoms, their sexual activities and other information important to the diagnosis of their problem.

Following the interview is an examination, which will include getting samples of blood, discharges or other specimens for laboratory testing. Some of the tests will be done at the time of the visit so the results are known immediately. Other tests will take approximately 1 week to get back results. Once the diagnosis has been made, medication is either prescribed or given at a time of the visit, depending upon the diagnosis. Instructions will be given on how to take the medicine, how to prevent re-infection and how to obtain lab results. Recommendations for partner treatment are made, if needed.

Rapid HIV testing is offered to anyone attending the STD Clinic. Both confidential and anonymous rapid HIV testing is offered. Everything that is discussed in the STD Clinic, including test results, is confidential. Nothing can be discussed with someone else without the client's written consent.

Table 23. STD Clinic – Program Data, 2017

Program Data	2017 (N)
STD Clinic Visits	1,285
STD Clinic Total Sessions	171
Broome County Jail Clinic Visits	592

Table 24. STD Clinic Diagnosis – Program Data, 2017

Most Frequent Diagnoses	2017 (N)
Nongonococcal/Urethritis	85
Human Papilloma Virus	97
Chlamydia*	87
Gonorrhea**	31
Syphilis	15
Trichomoniasis	56

*605 cases diagnosed in Broome County, 87 of which were diagnosed at the Broome County Health Department

**114 cases diagnosed in Broome County, 31 of which were diagnosed at the Broome County Health Department

HIV Counseling and Testing Services: Clinical testing is the only way to determine if a person is infected with HIV, the virus that leads to AIDS. Early diagnosis and treatment can improve the quality of life for a person with the virus. Confidential and anonymous HIV testing is available through the STD Clinic (778-2839), but there are also times set aside specifically for HIV testing with trained HIV test counselors. The Broome County Health Department does rapid HIV testing and accurate results are available in 10-20 minutes. Call **1-800-562-9423** to make an appointment for anonymous HIV testing at the Health Department, Southern Tier AIDS Program, or throughout the region. Specially trained staff can provide information and programs about HIV/AIDS to individuals and groups.

PrEP Grant: This grant is funded through NY State and has been awarded to United Health Services (UHS), we have been subcontracted to provide education and outreach services in Broome, Tioga, and Chenango county. The focus of the grant is to educate, medical providers and personnel as well as populations that are at very high risk for HIV, on PrEP (Pre-Exposure Prophylaxis). PrEP is an evidence-based, biomedical intervention with proven efficacy to prevent HIV infection in individuals at highest risk for HIV. PrEP is part of Governor Cuomo's 3-point plan to end the AIDS epidemic in NY State and decrease the number of new HIV infections by 2020.

Southern Tier AIDS Anonymous Program (STAP): The New York State Department of Health provides funding with a Broome County match for a HIV Program Representative who provides the anonymous testing at the Broome County Health Department, the Southern Tier AIDS Program (STAP) office, and many community-based organizations that provide services to individuals at risk for HIV infection.

School Based Dental Sealant Program Grant: This grant is funded by the NYS Department of Health. The Broome County Health Department has subcontracted with the Lourdes Hospital Center for Oral Health to render services in five local school district elementary schools (Thomas Jefferson, Horace Mann, Calvin Coolidge, MacArthur, and Woodrow Wilson) using their mobile van units to enhance health promotion and disease prevention activities and provide underserved children a point of entry into the dental health care system. The objectives of the grant include establishing or expanding preventive service models for providing dental prevention services (specifically dental sealants) to underserved populations, to improve participation rates of dentists in public insurance programs, and to develop case management models to address the needs of difficult-to-reach school-aged populations.

Table 25. School-Based Health Center Dental Program (SBHC-D), 2018-2019

Program Data	2018-2019 Grant Year
Number of consent forms returned	384
Number of children who received oral screening/ examination	194
Number of children who received oral prophylaxis	104
Number of children who received topical fluoride	149
Number of children who received sealants	35
Number of children who received oral health education	174
Number of children who received treatment services on site at the SBHC-D	26
Number of children who were referred for treatment to off-site dental services of the Article 28 operator or in the community	44

Program Data	2018-2019 Grant Year
Number of 2nd and 3rd grade children who returned consent forms	101
Number of 2nd grade children who received sealants through the School Based Sealant Program (SBSP)	6
Number of 3 rd grade children who received sealants through the SBSP	1
Number of 3rd grade children whose sealants were applied by the SBSP were retained at next reassessment (6-15 mos.)	1
Number of 2nd and 3rd grade children who received treatment services on site at the SBSP	12
Number of 2nd and 3rd grade children who were referred for treatment to off-site dental services of the Article 28 operator or in the community	34
Number of 2nd and 3rd grade children who were referred for urgent dental treatment to off-site dental services of the Article 28 operator or in the community	16
Number of 2nd and 3rd grade children who were referred for urgent dental treatment to off-site dental services who completed a follow-up visit	1
Number of 2nd and 3rd grade children who received oral prophylaxis	34
Number of 2nd and 3rd grade children who received topical fluoride	49

2020 Clinics Objectives

- Through a coordinated effort, participate in and collaborate with community agencies in a community-wide emergency preparedness response plan including development and implementation of regional stockpile distribution and mass immunization/prophylaxis clinics.
- The community will continue to be served by a system to monitor infectious diseases by subgroup.
- Prevent and minimize vaccine-preventable diseases by providing education, surveillance and direct service as needed.
- Reduce the transmission of sexually transmitted diseases by providing education, surveillance and direct service as needed.
- Prevent HIV infection in individuals at highest risk for HIV, through outreach and education on PrEP (Pre-exposure Prophylaxis). PrEP is part of Governor Cuomo's 3-point plan to end the AIDS epidemic in NY State and decrease the number of new HIV infections by 2020. Continue to offer confidential and anonymous HIV testing.
- Evaluate for tuberculosis infection and reduce transmission by providing targeted testing, education, surveillance and direct service to populations at risk.
- Provide oral health education and preventive dental services to elementary school children through contracted services with Lourdes Center for Oral Health.
- Implement an electronic medical record system and become bi-directional with the local RHIO.

2020 Clinics Budget Highlights

- Continue to expand revenue collection procedures for all services, including sexually transmitted disease services by establishing contracts with third party payers and continuing to bill for sexually transmitted disease services with patient approval.
- Maximize grant revenues to support the operating budget. Several grants help maintain our operating costs down, these include the IAP (Immunization Action Program) Grant, PrEP Grant,

the STAP (Southern Tier Aids Program) Anonymous Grant, and the Broome County Sheriff's Correctional Facility Grant.

- Increase staff development and training in their fields of expertise and programs, i.e. Tuberculosis, sexually transmitted disease, immunizations, and communicable disease.
- Insight software training on the Electronic Medical Records (EMR) Modules to smoothly implement the EMR system.

Chronic Disease and Injury Prevention Program Grants

Cancer Services Program of the Southern Tier (CSP): The Broome County Health Department has been the lead agency for the Cancer Services Program, serving Broome and surrounding counties for over twenty years. Currently, the Cancer Services Program of the Southern Tier serves Broome, Chemung, Chenango, Schuyler, and Tioga Counties. This is a unique collaboration of government, community-based organizations and health care partners that promote services through outreach, education, and case management to overcome healthcare barriers and increase cancer screening rates in our area. The NYS Department of Health and the Centers for Disease Control and Prevention (CDC) provide funding for local community health care practitioners to offer clinical breast exams, mammograms, Pap tests/pelvic exams, colorectal screenings, and limited diagnostic follow-up procedures.

The Medicaid Cancer Treatment Program provides Medicaid Health Insurance Coverage for CSP clients utilizing the CSP income eligibility criteria. The CSP does not reimburse for prostate cancer screenings but provides Medicaid Cancer Treatment Program coverage for uninsured men diagnosed with the disease if they are eligible

Table 26. Cancer Services Program of the Southern Tier Data, 2018

Procedure		2018
Cancer Screenings Reimbursed Through Broome, Chemung, Chenango, Schuyler and Tioga Counties		
	Clinical Breast Exams	213
	Mammogram Screening / Diagnostic Mammograms	191/44
	Pap Test/Pelvic Exam	63
	Colorectal FIT	109
Medicaid Cancer Treatment Program Applications		
	New Breast Cancer/ Renewal 6n – 1.3 R	

The Community Cancer Prevention in Action Grant (CPiA): is a five-year (2018-2023) public health imitative funded by the New York State Department of Health's Bureau of Chronic Disease with the goal of supporting local cancer prevention and risk reduction interventions using a policy, systems, and environmental change approach. Broome County was one of only four grantees in the state awarded the grant and covers targeted areas in Broome and Tioga Counties. CPiA works within 6 school districts and their respective communities, businesses, and health care organizations to promote the grant initiatives. These areas include: Binghamton, Deposit, Harpursville, Johnson City, Maine-Endwell, and Owego-

Appalachian. The primary goals of CPIA include: increasing knowledge of the dangers of indoor tanning and UV radiation, increasing sun safety policies, increasing policies for paid leave time for cancer screenings, and increase community knowledge of the HPV vaccine.

Tobacco Free Broome & Tioga: Advancing Tobacco Free Communities Grantee, is working to change the community environment to support New York State's tobacco-free norm through youth action and community engagement. Our goal is to educate, engage, and mobilize youth, parents, and community leaders to take action in creating lasting changes that will decrease tobacco industry impact in our community. Our Community Engagement and Reality Check coordinators work together to: reduce the negative influence of tobacco product marketing on youth and adults at retail outlets, increase number of public outdoor areas where tobacco use is prohibited (parks, public grounds) to promote clean air, eliminate second hand smoke exposure in multi-unit housing with an emphasis on protection of low-income residents, and promote policies that reduce tobacco use imagery in youth rated movies, on the internet and social media.

Table 27. Recent Policies Enacted in Broome County

Policies Obtained in Broome County	Impact
Tobacco/Smoke Free Parks (partial or entire park)	15 municipalities
Tobacco/Smoke Free Grounds (businesses/libraries/agencies)	55
Tobacco Free College Campus	4
Smoke Free Housing	6 low income Housing Management Companies have adopted 100% tobacco free indoor policies
Letters of Support to Reduce the Density of Tobacco Retailers or Their Proximity to Schools/Playgrounds/Parks	Over 50

Broome County Traffic Safety/Injury Control: The Broome County Traffic Safety Community Education Project seeks to reduce the number of traffic related injuries and fatalities through community education programs and service. This program heightens public awareness on issues such as child passenger safety, bike/pedestrian safety, teen safe driving, occupant restraint use, older driving safety, veteran safety and motorcycle safety.

Table 28. Community Programs by the Broome County Traffic Safety Community Education Project, 2018-2019

Traffic Safety Focus Area	Traffic Safety Measures	# between 10/1/18-9/30/19
Child Passenger Safety (CPS)	Child Safety Seat Misuse Percentage	81%
	# Child Safety Seat Inspections	300
	# Child Safety Seats Distributed	165
	# Educational Programs	22
	# Child Safety Seat Check Events	8

Traffic Safety Focus Area	Traffic Safety Measures	# between 10/1/18-9/30/19
	# Certified CPS Technicians	30
Bike/ Pedestrian Safety	# Educational Programs	14
	# Bicycle Helmets Distributed	158
	# Elementary Schools that received Bike/ Ped Poster	37
Teen Driver Safety	Held the 7 th Annual Teen Traffic Safety day (School Districts; Students)	20; 650
	# of teen driver safety presentations	25
Motorcycle Safety	# of Lawn Signs Distributed	125
Older Driver Safety	# of CarFit Events (Events; Drivers Evaluated)	3; 33

Creating Healthy Schools and Communities (CHSC): is a five-year (2015-2020), public health initiative of the New York State Department of Health (NYSDOH) with the goal of reducing major risk factors of obesity, diabetes, and other chronic diseases in 85 high-need school districts and associated communities. In 2015, the Broome County Health Department was awarded the CHSC grant and has worked with four high-needs school districts and their communities to decrease the risk of chronic disease associated with poor diet and inactivity. The targeted areas include Binghamton, Deposit, Harpursville, and Johnson City. The Broome County Health Department has worked with the CHSC school districts and communities to improve access to healthy, affordable foods and opportunities for physical activity. Examples of these measures include implementing Complete Streets policies; increasing physical activity in the community, at child care centers, and before, during, and after the school day; promoting healthful eating for all students in grades K-12 by increasing the availability of local fruits and vegetables and increasing access to healthier foods and beverages; increasing access to chronic disease preventative services and community-based resources; and incorporating Safe Routes to School within CHSC school districts.

Older Adult Fall Prevention Grants: From 2010 until 2015, The Broome County Health Department was the lead agency for a five-year Fall Prevention Grant funded by the New York State Department of Health. The purpose of the program was to reduce falls among older adults by employing evidence-based strategies within the community and health care delivery system. The grant program funded three evidence-based community programs and one pilot project called STEADI (**ST**opping **E**lderly **A**ccidents, **D**eaths and **I**njuries) that supports the implementation of health care provider fall risk assessments into the local health care delivery system. The three evidence-based community programs are Tai Chi-Moving for Better Balance, Stepping On Program, and Otago Program. Since April 2017, the Broome County Health Department, Binghamton University and United Health Services were funded by the National Network of Public Health Institutes (NNPHI) to evaluate the STEADI program. Broome County served as an alpha test site for STEADI as requested by the Centers of Disease Control and Prevention. As part of the evaluation, an initial manuscript article was published with the NYSDOH, NNPHI, CDC, and Binghamton University. The link to the publication:

<https://www.ncbi.nlm.nih.gov/pubmed/30239774>

SECTION THREE – PROBLEMS AND ISSUES IN THE COMMUNITY

A. Profile of Community Resources

The following list of community resources is inclusive but by no means exhaustive of the many health-related services available in Broome County. Much of the information about the agencies listed here was gathered from a combination of community resource guides including *United Way's First Call for Help* Directory, the *United Way's Broome County Family and Youth Services Guide*, and the *Broome County Elder Services Guide* published by Actions for Older Persons. Additionally, these agencies and others that provide community services and resources can be found online at their respective websites. A directory of non-profit community agencies and services can be found online at: <http://www.unitedwaybroome.org/>. Detailed information about these agencies can be found in Appendix G1 and includes the name of the service provider, the target population served, and a brief description of services provided.

Broome County is known among area providers as a “resource rich” community. There are many health and human service programs and agencies that share a common goal of improving the health status of area residents in different ways, yet each has their own specific mission, objectives, and target population.

There have been significant efforts at the county level to develop an *integrated planning* approach to services. Broome County's Integrated County Planning (ICP) Committee represents a customer-oriented system for delivering human services that builds on community and individual strengths and relies on standards, best practices, and outcomes that are valid and measurable. It seeks to accomplish this by combining several existing planning processes into a more streamlined and understandable process that guides the allocation and management of resources. The purpose of this approach is to foster collaboration among community organizations and minimize or eliminate duplication and maximize effective use of resources. This approach also assists department heads in health and human services to be aware of resources allocations for specific population groups and concerns. An online, web-based process for community agencies to request letters of support from county departments has streamlined communication among agencies applying for grant funding.

Assessment of Services

As part of the Community Health Assessment process, an extensive list of community resources was compiled. This “Resource Guide” appears in Appendix G and will also be published separately on the Broome County website along with the *2019-2024 Community Health Assessment (CHA)*, the *2019-2024 Community Health Improvement Plan (CHIP)*, and all supporting Appendices. This Resource Guide contains information about location, hours of operation, and social media presence for community agencies and is topically organized for ease in locating a service provider. The following sections provide details on many of these agencies, the services that they provide, and their current capacity for addressing the health needs of our community.

B. Access to Care

Hospitals

Broome County has two major hospital systems operating within its geographic boundaries: Ascension Lourdes Memorial Hospital (Lourdes) and United Health Services (UHS) Hospitals. The Lourdes system has one acute care facility with 242 licensed beds and UHS has two acute care facilities, Wilson Medical Center (Wilson) which has 280 licensed beds and Binghamton General Hospital (BGH) with 220 licensed beds (Table 34). Both health care systems are well known and respected in the community. Both systems have multiple programs including community outreach education as well as primary care sites. Their primary service areas include Broome, Chemung, Chenango, Cortland, Delaware, and Tioga Counties, though each draws from different zip codes within the local area.

Lourdes is part of Ascension Health, which is a Catholic not-for-profit system and has a main hospital campus that includes a hospice program, regional cancer center, breast care center, and ambulatory surgery center. Lourdes is designated as a Level 1 Perinatal Center, Primary Stroke Center, and is one of forty-three Sexual Assault Forensic Examiner (SAFE)-Designated hospitals in NYS that provides specialized care to sexual assault patients.

United Health Services (UHS) is a locally owned, not-for-profit healthcare system governed by an all-volunteer Board of Directors, which includes community residents. UHS operates four hospitals, two of which are located in Broome County – Wilson Medical Center and Binghamton General. Wilson Medical Center is a university affiliated teaching hospital and a Level II Adult Trauma Center with Life Flight capability that serves as the Regional Trauma Center for South Central New York State and Northern Pennsylvania. In addition, this facility is a state-designated Primary Stroke Center and offers state-of-the-art stereotactic radiosurgery at their Cyberknife Center of New York. The hospital is also designated by NYS as a Level 3 Perinatal Center. Binghamton General provides certified mental health services which includes rehabilitation for chemical dependence and withdrawal as well as a comprehensive psychiatric emergency program.

In conjunction with the Community Health Assessment, the area hospitals completed their Community Service Plans (CSPs). The 2019 Community Service Plans provide details on the major health systems' efforts and progress toward addressing the priorities identified by the 2019-2024 Community Health Assessment. The CSPs will be published online at the following addresses:

- The Community Service Plan for United Health Services Hospitals will be published to the following web address: <https://www.nyuhs.org/about-us/community-service-reports/>
- The Community Service Plan for Ascension Ascension Lourdes Memorial Hospital will be published to the following web address: <https://healthcare.ascension.org/CHNA>

Table 34. Area Hospitals - Licensed Number to Operate and Type of Beds, Broome County, NY

Care Unit	Binghamton General	Lourdes	Wilson Medical Center
Coronary Care			16
Intensive Care	8	12	12
Maternity		25	34
Medical-Surgical	86	194	190
Neonatal Continuing Care			2
Neonatal Intensive Care			6
Neonatal Intermediate Care			6
Pediatric		11	14
Chemical Dependence - Rehabilitation	20		
Coma Recovery	1		
Transitional Care	20		
Physical Medicine/Rehabilitation	24		
Psychiatric/Mental	56		
Trauma Brain Injury	5		
Total	220	242	280

Primary Care & Other Healthcare Services

The list of area primary care centers appears in Appendix G2 and map of locations in Appendix G9. The catchment area served by both health care systems extends beyond Broome County into Tioga and surrounding counties. Lourdes operates eighteen primary care offices, eight of which are located in Broome County including four in Binghamton, two in Vestal, and one in each of Endicott and Whitney Point. Of these locations, three provide care to pediatric clients including one specifically for endocrinology (Appendix G3). In addition, Lourdes operates three walk-in clinics in Broome County, two located in Binghamton and one in Endicott (Appendix G5). UHS operates 10 primary care offices in Broome County: four are in Binghamton and one each located in Deposit, Endicott, Endwell, Johnson City, Vestal and Windsor. Of these locations, three provide care to pediatric clients with two locations in Binghamton and one in Vestal (Appendix G3). In addition, UHS operates four walk-in clinics in Broome County located in Binghamton, Chenango Bridge, Endicott, and Vestal (Appendix G5). UHS also maintains two school-based health centers in two high-need elementary schools (Appendix G6).

Specialty services in Broome County are available through both Lourdes and United Health Services. The medical staffs of the system's four hospitals in Broome, Chenango and Delaware counties include more than 500 doctors representing a wide range of medical specialties and primary care options.

One additional healthcare system with regional operations in Tioga County and Northeastern Pennsylvania, Guthrie Medical, operates a clinic in Vestal. This clinic provides family care services and other specialty services including ophthalmology, endocrinology, audiology, cardiology, optometry, and urology. This location is one of the primary practice sites responsible for out-migration of health care services from the county, as patients from this practice generally are referred to Robert-Packer Hospital in Sayre, Pennsylvania.

Cornerstone Family Healthcare Federally Qualified Health Center

Cornerstone Family Healthcare (Cornerstone) is a non-profit Federally Qualified Health Center with a mission to provide high quality, comprehensive, primary and preventative health care services (Appendix G4). Cornerstone operates 18 locations in Orange, Rockland, and Ulster counties in NY and Pike County in PA as well as one site in Broome County. Cornerstone has over six hundred employees including more than 50 Board Certified/Board Eligible physicians, dentists, nurse practitioners, physician's assistants, dentists, social work and counseling staff who provide care to more than 40,000 individuals and families annually. A Registered Dietitian and Certified Nutritionist is on staff 5 days a week and is an integral part of the patient care team, and works one-on-one with patients providing nutrition and weight loss counseling and chronic disease management. Cornerstone also provides wellness programs, educational health talks and support groups, chronic disease management services, health assessments, clinical screening, and health coaching around the topic through a Certified Patient Educator. Cornerstone also operates a fleet of mobile health and mobile dentistry units. Cornerstone is nationally recognized as a Patient Centered Medical Home (PCMH) receives US Department of Health and Human Services funding, and has Federal Public Health Service (PHS) deemed status.

Mission in Motion

In addition to services offered through primary care office sites, Lourdes provides services through two mobile medical van units through its Mission in Motion program. Both mobile medical unit vans make health care accessible by providing primary care and cancer screening services to those in underserved and rural areas in the Southern Tier. One medical unit, the Mobile Mammography van, is a member of the Cancer Services program funded by NYS and provides no cost/low cost mammograms, pelvic exams, and Pap tests. This van also provides health care services for women including breast exams, digital mammography screenings, routine gynecological screenings, and education. The other mobile van, a primary care medical unit, is used for general wellness and health screenings throughout the area, as well as a wide variety of occupational health service screenings. It offers a wide range of health care services to the public including: cancer screenings, health promotion, disease prevention, education and information, physical exams, occupational health testing, and cholesterol testing. Both mobile units travel to a wide variety of community sites such as churches, schools, senior centers, and worksites.

Center for Oral Health

In January 2005, in response to a long standing need for dental care in the community, Lourdes opened a dental clinic, entitled the Center for Oral Health. This center was opened in order to provide increased access to dental services for children who are uninsured, on Medicaid, or on NY Child's Health Plus program, a population that is underserved for dental services in the Broome County area. The initial start-up grant application was submitted jointly by Lourdes Hospital and the Broome County Health Department to the NYS Department of Health's Dental Bureau. This effort was also supported by UHS Hospitals, who felt the need far exceeded current capacity to serve the dental needs of low income children and their families. Services are provided by dentists and registered dental hygienists through the Center for Oral Health include routine cleanings, patient education, fluoride treatments, sealants, x-rays, urgent care, fillings, and extractions. All services offered at the Center of Oral Health are available on the Lourdes Mobile Dental Clinic and all children at participating schools are eligible to receive a free dental education, screening, and a parent report to bring home. These services, in turn, are coordinated with the Broome County Health Department, which has a long-standing dental sealant program in area schools, so that services are maximized and not duplicated. Lourdes also offers a Patient Financial Assistance Program to help patients who meet specific guidelines and who are not eligible for any other available program. The Center for Oral Health is conveniently located in Binghamton, next door to the Broome County Health Department.

UHS Dental Clinic

Supported by UHS Hospitals, UHS also has a fully operating dental clinic located within Binghamton General Hospital. The clinic provides care for all ages, from children to the elderly and offers many treatment options, such as anesthesia or sedation, for patients with special needs, or for those who have severe handicap limitations or who are compromised medically. Additionally, the clinic provides patient screenings for oral cancer and treatment for patients undergoing radiation or chemotherapy for head or neck cancer. It also provides education about oral hygiene, complete examinations, X-rays,

cleanings, fluoride treatments, fillings, fittings of crowns, bridges and dentures, and extractions and minor oral surgery. Dental services are offered on a sliding fee scale that covers between 20-60% off a patient's bill if they qualify for financial assistance. The clinic is open five days per week by appointment for patient dental care.

Broome County Mental Health Department

Broome County Mental Health Department is responsible for planning, developing, and evaluating mental hygiene services in Broome County. These mental hygiene services include alcoholism and substance abuse services, mental health programs, and services for mentally retarded and developmentally disabled citizens. Beyond its regulatory role as the local governmental unit, the Department of Mental Health is also licensed to operate mental health and chemical dependency programs.

Broome County Department of Mental Health directly operates both mental health and chemical dependency programs. These programs include outpatient programs for adults, adolescents and children. The New York State Office of Mental Health (OMH) licenses the mental health programs. The New York State Office of Alcoholism and Substance Abuse Services (OASAS) licenses the addiction programs.

Three subcommittees advise the Mental Health Commissioner: Mental Health Subcommittee, Alcoholism/Substance Abuse Subcommittee, and the Mental Retardation/Developmental Disabilities Subcommittee. A number of programs operate in each of these three areas such as adult clinic, child and adolescent clinic, chemical dependency services unit, and the Keep Youth Drug-free and Safe Coalition among others. In addition to its operations in the three service areas, the Broome County Department of Mental Health has established contracts with a number of area private, not-for-profit agencies including Catholic Charities of Broome County, Fairview Recovery Services, Family & Children's Society, Ascension Lourdes Memorial Hospital, and the Mental Health Association of the Southern Tier.

Emergency Medical Services

Emergency medical services (EMS) are provided by Broome County as well as private emergency squads. The emergency response provided by the county is a separate department under county government. Emergency medical response for Broome County is provided by a combination of ambulance services and non-transporting first response services (Appendix G7-G9). These responders are the physical link between local hospitals and the geographic townships and serve as the "ultimate safety net." Unfortunately, there is no level of government that is responsible for providing EMS to all municipalities. The success of EMS in the county is tenuously sustained by the support and cooperation of many community agencies and volunteers. The EMS leadership in the county strives to ensure the availability of emergency services through recruitment, education, training, and mentoring of EMS personnel. Despite the fact that communities are not required to have or support EMS, most have some form of volunteer service agency. In addition to their critical emergency response role, EMS often provide education and outreach to community members teaching them about recognition of heart attack and stroke symptoms and when to activate EMS.

Long Term Care Facilities & Home Care Services

A total of eleven skilled nursing facilities are licensed to operate in Broome County; four are located in Binghamton, two in Endicott, two in Johnson City, two in Vestal and one in Endicott. Willow Point is a county facility and the only public option. Although occupancy rates vary, all but one of the facilities have consistently been at or above 90%. While all provide baseline services, Elizabeth Church Manor and James G. Johnston Memorial Nursing Home provide outpatient occupational, physical and speech therapy. Ideal Senior Living Center offers a clinical laboratory and radiology diagnostics on site. Susquehanna Nursing and Rehabilitation Center operates an Adult Medical Day Care on the premises. Three of the nine facilities offer the provision for respite care while all nine are contracted to provide hospice care through Hospice at Lourdes. An updated list of these facilities appears in Appendix G19. Among these facilities, there are 1,832 skilled nursing beds, a 13% increase from 2013.

CHHAs provide part time, intermittent, skilled services including preventative, therapeutic, rehabilitative, health guidance and/or supportive care to persons at home. Home health services include nursing, home health aides, medical supplies, durable medical equipment and appliances as well as at least one additional service that may include physical therapy, occupational therapy, speech pathology, nutritional services, or medical social services. Services provided by CHHAs may be reimbursed by Medicare, Medicaid, private payment, and commercial health insurers. In Broome County, there are three Certified Home Care Agencies serving Medicare and Medicaid clients. All three agencies provide similar services, with Lourdes at Home offering audiology and respiratory therapy. Client census rates vary among the three.

In addition, there are 15 licensed home care services agencies: six are located in Binghamton, five in Johnson City, two in Vestal, and two in Endicott. Six provide services exclusively in Broome County while the remaining agencies service one or more counties in addition to Broome County. These facilities offer home care services to clients who pay privately or have private insurance coverage. These agencies may also contract to provide services to Medicare/Medicaid beneficiaries whose cases are managed by another provider or entity, such as providing home health aide services to a certified home health agency patient or providing a licensed practical nurse for a Medicaid prior-approved private duty nursing shift.

Broome County has one freestanding hospice program operated by the Hospice at Lourdes. Hospice is a program that provides care to terminally ill individuals focused on easing symptoms rather than treating disease. The emphasis of the program is to help individuals remain at home for as long as possible. The hospice program provides physical, psychological, social, and spiritual support and care for the patient and their family. Services offered through hospice include nursing and physician services, medical social services, counseling (including nutrition and bereavement counseling), and physical and occupational therapy. In addition, hospice can provide home health aide and homemaker services, medical supplies and appliances, speech therapy, and short-term inpatient care. Hospice is available through Medicaid, Medicare, private payment and some health insurance carriers. Referrals to hospice may come from any source, but must have physician certification that the patient has a terminal illness with a life expectancy of fewer than six months.

Elder Care Programs & Services

A number of programs and services are available through the Broome County Office for Aging (Appendix G22). These programs and services include: caregiver services, foster grandparent program, health and wellness program, health insurance counseling, home delivered meals, home energy assistance, home repair, in-home services (including homemaker, personal care, shopping, and emergency response services for the home bound), resource assistance, legal services, and mental health services. In addition, 10 senior sites offer socialization, nutritious meals, and wellness activities. Transportation services are also available. A list of apartment options for seniors and those with disabilities is provided in Appendix G23.

Diagnostic and Treatment Centers

Diagnostic and Treatment Centers (Clinics) are free-standing clinics that are separately-owned and are not operated by a hospital. By contrast, clinics that are owned and operated by a hospital are known as Hospital Extension Clinics. These free-standing clinics include centers that are federally certified to provide specialized services, such as surgery or dialysis. In Broome County, there is only one free-standing Diagnostic Treatment Center, Bridgewater Center for Dialysis, which is located in Binghamton and has a service capacity of 8 clients. There are three Diagnostic and Treatment Center Extension Clinics that operate in Broome County, Vestal Healthcare (service capacity 24), LLC, Vestal Healthcare - UHS Dialysis on Pennsylvania Ave (service capacity 15), and Vestal Healthcare - UHS Dialysis on Park Avenue (service capacity 24). All four centers provide renal dialysis services for patients with end stage renal disease (ESRD) with a combined total service capacity of 71 clients.

Healthcare Workforce

Physicians

Though not exhaustive of all practicing physicians in the county, 106 physicians from a broad range of specialties are listed as members of the Broome County Medical Society as of December 2019. In 2016 the NYS Health Workforce Planning Data Guide (Appendix G10) noted 664 active patient care physicians in the county 250 in primary care, 94 in general internal medicine, 36 in general pediatrics, 29 in general surgery, and 25 in obstetrics/gynecology.

In The Southern Tier, which includes Broome, Chenango, Delaware, Tioga, and Tompkins counties, 50% of physicians are age 50 or older. In 2016, just over 25% of physicians were female and only 3.5% were from underrepresented minorities (URM) in the Southern Tier of NYS. Compared to 2013, there was a small increase in the proportion of female physicians (up from 22%) but a large decrease in the percentage of physicians from URMs (down from 6.1%). There is notably less diversity in the physician workforce in the Southern Tier than NYS as a whole, which is 31.8% female and 10.6% underrepresented minority. Compared to NYS, there is a larger proportion of physicians age 50 or older and a smaller proportion that is female, and the physician workforce is less diverse.

Physician shortages for the area are captured in the Federal Health Professional Shortage Areas (HPSA). Primary Care HPSAs are based on a physician to population ratio of 1:3,500 and does not take into account the number of physician assistants or nurse practitioners. The Health Resources and Services Administration data for HPSAs indicate a primary care shortage for the low-income population within the county, and Broome County is designated as a Medicaid Eligible Population HPSA for mental health, dental health, and primary care. The HPSA primary care designation for these areas represents service needs for 67,691 residents or 34.1% of the Broome County population (NYS Health Workforce Planning Data Guide, 2016). These figures are a substantive increase (169%) from 2013 for which, there were identified service needs for only 23,713 residents or 12.1% of the Broome County population (NYS Health Workforce Planning Data Guide, 2013).

In addition, the University of the State of New York Regents report of Designated Physician Shortage Areas (2013) identified the Deposit service area (including the towns of Colesville, Sanford, and Windsor) and the Greater Binghamton service area (including the towns of Barker, Binghamton, Chenango, Conklin, Dickinson, Fenton, Kirkwood, Lisle, Maine, Nanticoke, Triangle, Union, and Vestal as well as the City of Binghamton) as Primary Care Regents Physician Shortage Areas. In addition, Broome County is designated as a shortage area for primary care physicians and psychiatrists within the Developmental Disabilities Services Office. In the category of non-primary care shortage areas, Broome County is designated for preventive medicine. Both United Health Services hospitals are eligible under the Primary Care and Non-Primary Care designations.

Like most of the health professions, physicians will be “aging out” in large numbers over the next decade. Given the sizeable increase in HPSA service need over the past three years, the demand for primary care services appears to be exceeding the supply of primary care providers in Broome County. Moreover, significant gaps have been noted by local health systems in specialty areas including ophthalmology, urology, psychiatry, and pathology.

Nurses

Registered Nurses comprise the largest proportion of the healthcare sector workforce. The Center for Health Workforce Studies (CHWS) reports there are 2,792 Registered Nurses (RNs), 745 Licensed Practical Nurses (LPNs), and 210 Nurse Practitioners (NPs) in Broome County (Appendix G10). Across all levels of preparation, the number of nurses was relatively unchanged from 2013.

Nurses staff hospitals, nursing homes, assisted living facilities, home care agencies, outpatient clinics, primary care and specialty practices, health departments, and hospice programs. For the period 2008 to 2018, the US Bureau of Labor Statistics projected a 22% increase in employment for nurses adding 581,500 new RNs and 155,600 new LPNs to the workforce. In addition, 458,000 RNs and 80,100 LPNs will be needed to replace nurses who are expected to retire or leave the field during this time period.⁷ For New York State, the 2016 report by the CHWS examined the balance between supply and demand for the registered nursing workforce. Their analysis concluded that there was currently a relative balance that would likely be maintained over the next decade if current training and retirement patterns

⁷ The Center for Health Workforce Studies (2011). *The health care workforce in New York, 2009: Trends in the supply and demand for health workers*. Albany, NY: Author.

remained stable. However, the report also indicated that small changes (as little as 10%) in entry into or exit from the profession or a 2-year change in retirement could significantly alter their projection.⁸

Furthermore, recent practice patterns indicate that nursing positions are shifting from the traditional hospital setting to home health, ambulatory care, and nursing homes. Current workforce models provide varying estimates and many factors contribute to supply and demand.⁹ On the demand side, the aging population and increasing prevalence of chronic diseases such as diabetes contribute to the expected need for more healthcare workers. Economic factors and healthcare policy changes are more difficult to predict. The Affordable Care Act and Medicaid Redesign as well as policy recommendations of the Institute of Medicine¹⁰ are likely to increase demand while education cycles, training capacity, and faculty shortages are likely to limit supply. Overall, the net effect nationally is long-term projected shortages in the nursing workforce.

Between 2016 and 2026, employment in healthcare is predicted to grow faster than other sectors of the economy, and within the healthcare sector, employment is expected to grow most rapidly for home health care and in provider practices, whereas hospital employment is projected to be less robust (Figure 18). In fact, it is anticipated that half of the fastest growing occupations will be in healthcare with the highest demand for home health aides, personal care aides, physician assistants, and nurse practitioners (Figure 18).¹¹ At present, the number of nurses employed in hospital settings still greatly exceeds those in homecare, long term care, and office settings (Appendix G17).

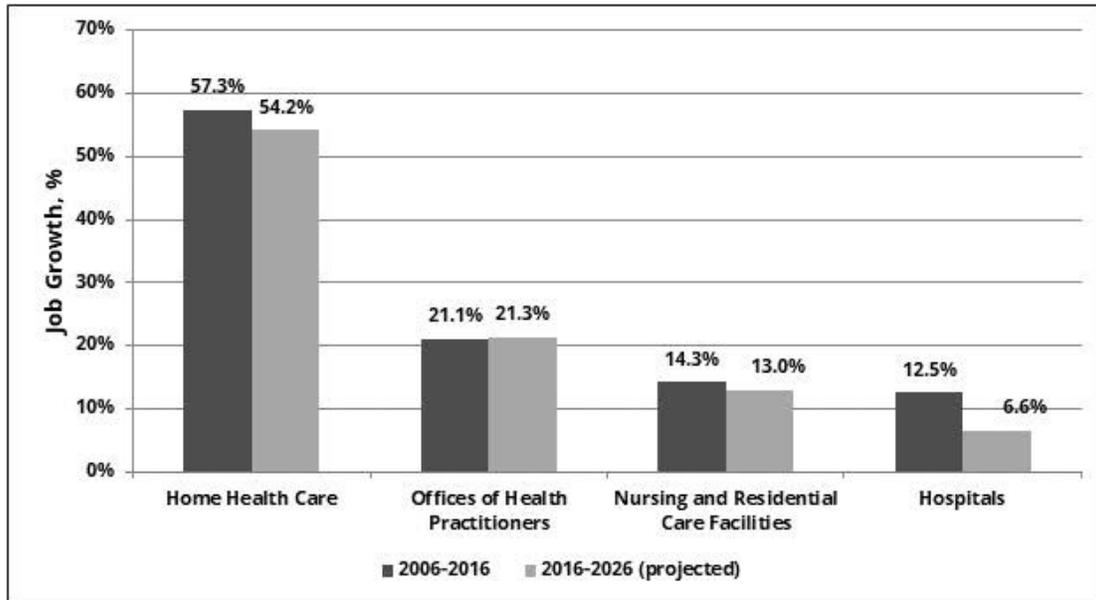
⁸ The Center for Health Workforce Studies (2016). *Health Workforce Analysis Guide: 2016 Edition*. Albany, NY: Author. Retrieved from http://www.healthworkforceta.org/wp-content/uploads/2016/10/Health-Workforce-Analysis-Guide_2016-Edition.pdf

⁹ Keckley, PH., & Coughlin, S. (2012). The new health care workforce: Looking around the corner to future talent management. Available from the [Deloitte Center for Health Solutions](#).

¹⁰ Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health*. Washington, DC: National Academies Press.

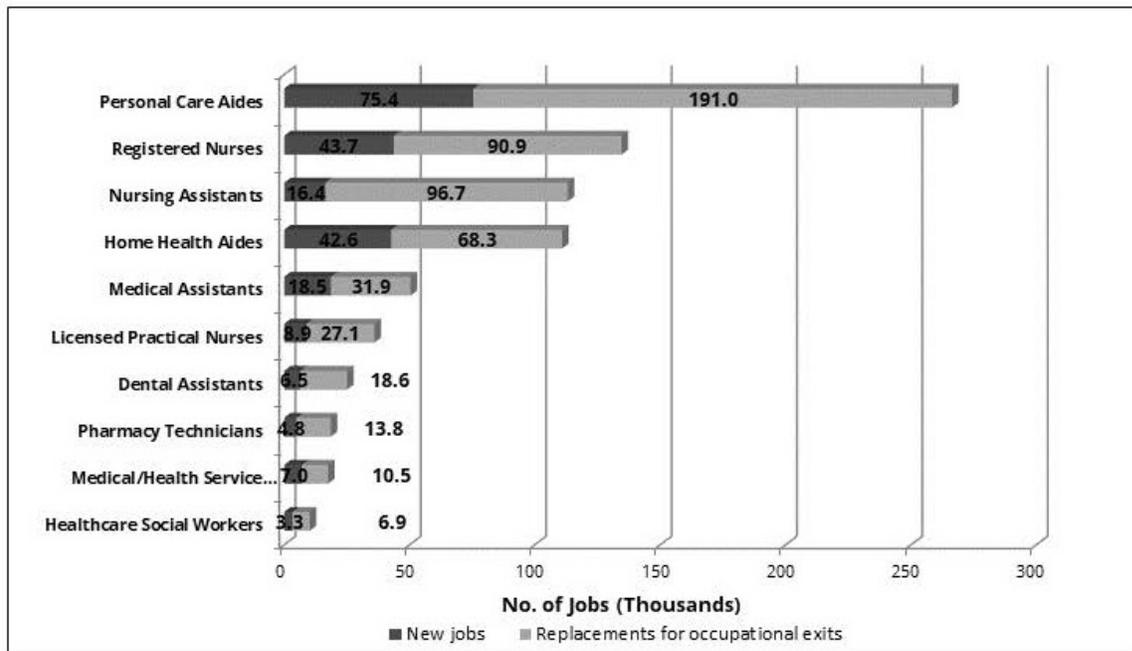
¹¹ Salsberg, E. & Martiniano, R. (2018, May 9), Health care jobs projected to continue to grow faster than jobs in the general economy [Health Affairs blog]. DOI: 10.1377/hblog20180502.984593

Figure 17. Job Growth in Selected Settings within the Health Care Sector, 2006-2016 and Projected 2016-2026



SOURCE: Bureau of Labor Statistics, employment projections, 2016–26: Table 1.9: 2016–26 Industry-occupation matrix data, by industry; Table 2.7: Employment and output by industry, 2006, 2016, and projected 2026; Current Employment Statistics national estimates for employment, hours, and earnings. Image retrieved from <https://www.healthaffairs.org/doi/10.1377/hblog20180502.984593/full/>

Figure 18. Projected Annual Need for New Workers among Health Care Occupations with the Greatest Need, 2016-2026



SOURCE: Bureau of Labor Statistics, employment projections, 2016–26: Table 1.9: 2016–26 Industry-occupation matrix data, by industry; Table 2.7: Employment and output by industry, 2006, 2016, and projected 2026; Current Employment Statistics national estimates for employment, hours, and earnings. Image retrieved from <https://www.healthaffairs.org/doi/10.1377/hblog20180502.984593/full/>

Public Health Practitioners & Other Allied Health Professionals

A study of public health workforce needs conducted in six states, including NY, noted that public health agencies, particularly those in rural areas had difficulty recruiting RNs. These recruitment issues are most often related to budgetary constraints, non-competitive salaries, availability of RNs and adequacy of numbers prepared with the desired level of education. Recommendations from the public health workforce report relevant to nursing professionals include: providing support and assistance to educate graduate and undergraduate nurses with essential knowledge, skills, and competencies for public health practice; developing service obligated scholarship or loan repayment programs similar to the National Health Service Corps; encouraging educational institutions to be responsive to the needs of local public health agencies; providing incentives for collaboration between academia and public health agencies; developing best practice models; supporting curricula for public health in schools of nursing; and monitoring the size and composition of the public health workforce.

Data extracted from the CHWS 2016 Health workforce Planning Guide for a variety of allied health professionals are located can be found in Appendices G11 (Healthcare Providers) and G12 (Allied Health). These tables provide information about the absolute number of providers as well as the number of providers per 100,000 population for Broome County as well as comparative statistics for the Southern Tier, Upstate NY, and NYS. Provider rates for select health occupations are presented in graphic form in Appendices G15 (Healthcare Providers) and G16 (Allied Health). Broome County exceeds regional provider rates for most of the allied health professions including dentists, occupational therapists, pharmacists, physical therapists, and speech language pathologists. However, the regional availability of these allied health professionals, across rural Upstate NY and especially in the Southern Tier, is woefully inadequate to meet the service needs of the population.

Health Professions Education

Broome County has benefitted from having two schools of nursing located within the area (Appendix G18). Broome Community College prepares Associate Degree nurses and Binghamton University (BU), Decker College of Nursing and Health Sciences prepares nurses with Baccalaureate, Masters, and Doctoral (PhD) degrees. The Baccalaureate program includes both traditional students and those seeking a second degree. In addition, RNs can obtain a BS or MS degree at BU. A majority of the students prepared that the Masters level stay in the Upstate NY region often serving in Health Profession Shortage Areas. The PhD program is the only doctorate focused on rural nursing in the country.

SUNY Broome offers several degree and certificate programs which prepare students for the workforce or to further their education. Beyond the nursing program offered by SUNY Broome, there are various other programs of study including Dental Hygiene, Health Information Technology, Clinical Laboratory Technician, Radiologic Technology and Physical Therapist Assistant.

The clinical campus for SUNY Upstate College of Medicine is located in Binghamton with approximately one-fourth of third and fourth year students complete their clinical experiences at this location. The Clinical Campus is affiliated with United Health Services Hospitals and a network of family care centers.

The Decker School of Nursing has expanded to become the Decker College of Nursing and Health Sciences offering graduate degrees in Public Health, Physical Therapy, Occupational Therapy, and

Speech Language Pathology. The Decker College will be located in Johnson City next to the New College of Pharmacy and Pharmaceutical Sciences. Development of interprofessional experiences and competencies along with advanced simulation training are included in all health profession curricula.

Primary Care & Preventive Health Services Utilization

Southern Tier Cancer Services Program

The Cancer Services Program of the Southern Tier (CSP) serves Broome, Chemung, Chenango, Schuyler and Tioga Counties. The purpose of the program is to increase breast, cervical and colorectal cancer screenings by offering reimbursement for these services for the uninsured. The program offers breast and cervical screenings to individuals age 40-64 and colorectal screenings to individuals ages 50-64. There are exceptions to the age groups in cases where there are increased risk factors (as determined by the program guidelines). If an individual is diagnosed with breast, cervical, colorectal or prostate cancer, staff can meet with him or her to determine if they are eligible for the Medicaid Cancer Treatment Program, utilizing the Cancer Services Program income eligibility criteria. This program provides Medicaid insurance coverage through the duration of their treatment.

The Cancer Services Program is a program of the New York State Department of Health and funding is provided by New York State and the Centers for Disease Control and Prevention. The program is only available to New York State residents.

The majority of individuals who participate in the program are low-income, working, and uninsured individuals. Recently there has been an increase in the number of individuals contacting the program, usually through referrals, who have lost their jobs and their health insurance coverage.

Triaging Clients for Public Health Insurance Programs:

The CSP of the Southern Tier screens clients for eligibility over the phone. There is no need for proof of income or insurance status in order to receive program screening services. Clients are sent a NYS attestation, stating that they are over 40 and that the insurance status and income information is accurate. At this time, callers are offered referrals for local insurance navigation programs as a resource to assist them with reviewing their eligibility for public health coverage program options. Clients are also referred to Patient Financial Assistance Programs offered through United Health Services and Lourdes Hospitals. These programs offer uninsured patients billing discounts or charity care based on their income

Medicaid Cancer Treatment Program Coverage:

The Medicaid Cancer Treatment Program Coverage (MCTP) is a program specifically designed to serve clients who have been diagnosed through the CSP or who have no health insurance and are in need of cancer treatment services/procedures. CSP staff meets with clients who have been diagnosed with breast, cervical, colorectal or prostate cancer and those who have been diagnosed with pre-cancerous cervical conditions, and complete the MCTP application on behalf of Medicaid Enrollment Officers who work directly with NYSDOH CSP. The income guidelines are higher, allowing the client to make up to

250% of the Federal Poverty Guideline. In cases of a breast or cervical diagnosis, there is no income exclusion. The application process is expedited. If approved, the client receives full Medicaid coverage for a determined timeframe. Generally, if the client is diagnosed with cancer, they receive coverage for a full year, with annual renewals. CSP staff again meets with the client to complete the recertification application. In order to be eligible, the client must still be receiving or in need of treatment.

C. Emerging Issues in the Community

Emerging issues in the community were identified by the Broome County Community Health Assessment Steering Committee through analysis of health indicators, discussion of partner experiences and observations of serving client needs, through local surveys conducted by community agencies, from priorities set by state and local government, and based on current events affecting community members' daily lives. The topics identified related to

- Prevalent conditions affecting peoples' lives, especially youth, and resulting in high mortality and years of productive life lost: the opioid epidemic and the vaping scourge
- State and national priorities to improve people's lives across the lifespan: the Age Friendly initiative, and
- Underlying social determinants of health: housing, transportation, and access to affordable healthcare

The Opioid Epidemic

Background

According to the Centers for Disease Control and Prevention (CDC), from 1999 to 2017, more than 702,000 people have died from a drug overdose. Unintentional injury is now the leading cause of death in the United States for ages 1-44, and drug overdose is the leading cause of unintentional injury for ages 25-64. In 2017 more than 70,000 people died from a drug overdose, and of those deaths almost 68% involved a prescription or illicit opioid. Two out of three drug overdose deaths involve an opioid and have been responsible for over 47,000 deaths in 2017 (CDC, 2019). The total economic burden for prescription opioid misuse alone in the United States is 78.5 billion per year. In addition to the rising numbers of overdoses, the National Institute on Drug Abuse reported an increase in the incidence of neonatal opioid withdrawal syndrome (NOWS) and neonatal abstinence syndrome (NAS) from 2004 to 2014 (1.5 cases per 1000 hospital births to 8.0 cases per 1000 hospital births). The cost of the rising incidence of NAS and NOWS increased from 93 million in 2004 to 563 million in 2014 (National Institute on Drug Abuse, 2019).

According to the New York State Department of Health, opioid overdose deaths have significantly worsened from 2015-2016 with 15.1 deaths per 100,000 population in 2016 in New York state. The overdose death rate involving heroin in 2016 was 6.5 deaths per 100,000 and deaths involving opioid pain relievers was 11.7 deaths per 100,000. A subcategory of opioid pain relievers, synthetic opioids

excluding methadone, contributed to 8.3 deaths per 100,000, including illicit fentanyl products. Higher rates of overdose deaths were seen in males compared with females in 2016 in New York State. An increase from 7.5 deaths per 100,000 population in 2010 to 22.3 deaths per 100,000 in 2016 was seen among males, compared with 3.4 deaths per 100,000 in 2010 to 8.1 deaths per 100,000 in 2016 among females. In 2016 rates of overdose deaths were highest for White non-Hispanics, 19.8 per 100,000 compared with 10.5 per 100,000 for Black non-Hispanics and 12.6 per 100,000 for Hispanics (New York State Department of Health, Opioid Dashboard)

In Broome County, the crude rate of overdose deaths involving any opioid significantly worsened from 2015 to 2016 with an increase from 14.2 deaths per 100,000 in 2015 to 29.2 deaths per 100,000 in 2016. The crude rate of overdose deaths involving any opioid aged 18-44 significantly worsened from 2015 to 2016 increasing from 24.3 per 100,000 to 52.0 deaths per 100,000 in Broome County. This rate is significantly higher for Broome County than seen in the Southern Tier and NYS excluding NYC. The overdose deaths involving any opioid age adjusted rate significantly worsened from 2015 to 2016, with an increase from 16.0 per 100,000 in 2015 to 32.1 per 100,000 in 2016 (New York State Department of Health, Opioid Dashboard). The Broome County District Attorney reported 24 overdose deaths in 2017, 13 overdose deaths in 2018 and 9 overdose deaths in 2019 as of September (Broome County Health Department).

The aged-adjusted rate per 100,000 for overdose deaths involving heroin in Broome County significantly worsened from 2015 to 2016, increasing from 8.0 per 100,000 to 15.4 per 100,000. This rate is significantly higher than those seen in the Southern Tier and NYS. The age-adjusted rate for overdose deaths involving opioid pain relievers per 100,000 population in Broome County was 18.2 in 2016 compared with 12.0 in NYS. Both the crude and age adjusted rates for overdose deaths involving synthetic opioids other than methadone have significantly worsened from 2015 to 2016. The age adjusted rate for all emergency department visits (including outpatients and admitted patients) in 2016 involving any opioid overdose was 139.7 per 100,000 compared with 56.0 per 100,000 in NYS. The crude rate of emergency department visits in 2016 (including outpatients and admitted patients) aged 18-24 years involving any opioid overdose was 170.8 per 100,000 compared with 104.5 per 100,000 in NYS, and for ages 25-44 was 316.0 per 100,000 compared with 103.4 per 100,000 in NYS. The age adjusted rate for all emergency department visits (including outpatients and admitted patients) in 2016 involving any opioid overdose was 139.7 per 100,000 compared with 56.0 per 100,000 in NYS (New York State Department of Health, Opioid Dashboard).

These significant increases in overdose deaths and emergency department visits in Broome County highlight the need for immediate action. It is essential to identify risk factors and eliminate barriers to life saving treatment by increasing access and availability to overdose reversal trainings and medication assisted treatment. The community approach must be further utilized to continue developing interventions and decreasing the stigma associated with those suffering from opioid addiction, in order to decrease the prevalence of fatal opioid overdoses in Broome County.

Evidence Base & Best Practices

The CDC has listed several evidence-based interventions that address the opioid overdose crisis. Many of these practices are already being implemented in Broome County, including, targeted Narcan training and education, Medication Assisted Treatment (MAT), and Academic Detailing (CDC). Targeted Narcan distribution ensures that those who are greatest risk of overdose or those who are most likely to

encounter someone who is at risk of overdosing receives Narcan training and is provided with a Narcan kit. Other evidence-based strategies for Narcan distribution include community distribution and equipping first responders. Medication Assisted Treatment (MAT) combines behavioral therapy and FDA approved medications to treat substance use disorders by preventing painful opioid withdrawal symptoms. Many studies have shown that MAT contributes to significant reductions in opioid use and overdose. Academic detailing is an educational strategy that is designed to provide tailored training and technical assistance to healthcare providers, done so by trained professionals using marketing techniques, to help providers use best practice methods when prescribing opioids to their patients. When a series of tailored educational sessions were used for a group of providers on Staten Island, a 29 percent decrease in the rate of prescription opioid overdoses on Staten Island was observed (Carroll, Green, Noonan, 2018).

Current Interventions

Broome Opioid Awareness Council

The Broome Opioid Awareness Council (BOAC) was created in 2014 in response to a significant increase in opioid related overdoses and fatalities. BOAC focuses on identifying barriers and developing solutions for the issues resulting from the increase of drug abuse in Broome County. The council functions as a coalition together with community agencies from treatment and prevention services, law enforcement and peer response, statistics and data, community education, rural communities, and media and advocacy sectors to increase community collaboration, with the goal of decreasing youth and resulting adult substance use and its impact on the community. The focus areas of BOAC encompass an entire community response including community education, outreach and prevention, law enforcement response, substance abuse treatment, and educating medical professionals. BOAC seeks to target factors existing in Broome County that place youth at risk for substance abuse, reduce risk factors and enhance protective factors, increase community collaboration and awareness, and overall create a healthier, safer community. Through support from the Broome County Health Department, BOAC has worked towards implementing multiple response strategies to reduce deadly drug overdoses including education and public information messaging, harm reduction strategies, and the use of law enforcement to prosecute fentanyl drug dealers and increased paroling of drugged drivers, which is funded through STOP-DWI and DA's office for Advanced Roadside Impaired Driving Enforcement (Broome County Health Department).

Drug Free Communities

Drug Free Communities (DFC), a federally funded grant through Substance Abuse and Mental Health Services Administration, was enacted in 2016 and addresses the factors in a community that increase the risk of substance use and promotes protective factors that minimize those risks. It also focuses on strengthening community coalitions with a goal of reducing substance abuse among youth and adults and works with and supports BOAC's mission and goals. One of the ways DFC measures current substance use, risk factors and protective factors is through the administration of the Prevention Needs Assessment to local schools. This assessment is used to provide data and serves as a tool for education purposes for the youth and adults of Broome County (Broome County Health Department).

Naloxone Trainings

Naloxone trainings and overdose recognition education are offered through Truth Pharm, Southern Tier Aids Program, Addiction Center of Broome County, Lourdes Youth Services Alcohol and Drug Education Prevention Team (ADEPT), and Binghamton University. Binghamton University has become the first University to be certified as an Opioid Overdose Prevention Site.

Medication Assisted Treatment

Medication Assisted Treatment (MAT) is offered through the Addiction Center of Broome County (ACBC), United Health Services Southern Tier Drug Abuse Treatment Center and New Horizons. ACBC provides a Vivitrol Program, the Southern Tier Drug Abuse Treatment Center offers a Methadone Clinic and New Horizons provides Suboxone (Buprenorphine). MAT will be available through the Family & Children's Society soon.

Inpatient/Outpatient services and treatments

Fairview Recovery Services offers community residence for both men and women, as well as supportive living, shelter and housing plus care. Helio Health provides medically supervised withdrawal and stabilization services, as well as inpatient rehabilitation services. United Health Services New Horizons offers both an inpatient and outpatient unit. The Addiction Center of Broome County is providing intensive outpatient groups and outpatient rehabilitation groups. The Family and Children's society provides an outpatient substance use treatment program.

Prescription drop box locations

There are numerous prescriptions drop box locations available in Broome County to return unused prescription opioids for destruction including the Endicott police dept, Broome County office building, Broome County Library, and Broome County Sheriff's Office. Prescription take back days are also offered through the Broome County Health Department.

Connection to Resources

There are many crisis hotlines available 24 hours a day including the Drug Abuse Crisis Line provided through United Health Services New Horizons and HOPEline provided through New York State's Office of Alcohol Substance Abuse Services (OASAS). The Broome County District Attorney's office created Operation S.A.F.E. (Save Addicts from Epidemic) as a hotline for family members or those facing addiction who need support and resource assistance for treatment options and other available resources in Broome County. The Broome County Sheriff's Office developed the Assisted Recovery Initiative to assist individuals that are suffering from substance use disorder who are voluntarily seeking treatment.

Potential Interventions

To further strengthen the interventions already present in Broome County there are potential interventions to be considered including an Opioid Fatality Review Team, expanded Naloxone trainings offered more frequently through multiple organizations in Broome County, strengthening peer response efforts, as well as more organizations offering MAT in Broome County.

Other states such as Maryland and Utah have created local Overdose Fatality Review Teams in response to the rising number of opioid overdose fatalities. Some of the major goals of these review teams are to

identify missed opportunities for prevention and gaps in the system, build working relationships between local stakeholders and improve communication within a jurisdiction, recommend policies, programs or changes to local law to prevent more overdose deaths, and inform local and state overdose and opioid misuse prevention strategy. (Maryland Department of Health, 2015)

The National Association of County and City Health Officials (NACCHO) provides funding for Opioid Overdose Epidemic Toolkit for local health departments. This Toolkit monitoring and surveillance, prevention, harm reduction and response, linkages to care, stakeholders and partnerships (NACCHO)

Summary

In response to the increasing rates of overdose deaths involving opioids in Broome County, community partners and organizations have begun implementing interventions that identify risk factors, provide lifesaving treatment, and help those who are suffering with addiction get connected with help and treatment. Although there has been a positive response from the community, there is opportunity to strengthen this response even further in Broome County, and expand these interventions while reducing the stigma surrounding opioid drug use.

The Broome County Community Health Improvement Plan (CHIP) interventions that address this issue focus on increasing availability and access to overdose reversal trainings and medication-assisted treatment options, promoting prescriber education and familiarity with opioid prescribing guidelines, establishing additional permanent safe disposal sites for prescription drugs and organized take-back days, and building support systems to care for opioid users or those at risk of an overdose. Most of these interventions reflect evidence-based strategies that have been implemented in other jurisdictions and have shown to be effective at reducing overdoses or other risk factors that may increase the likelihood of an overdose to occur (CDC, 2018).

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The Vaping Scourge

Opportunity

Electronic cigarettes, also known as vapes, e-cigarettes, vape pens, electronic nicotine delivery systems (ENDS), have been the most commonly used tobacco product among youth since 2014. They contain a battery that heats a flavored liquid into an aerosol that is inhaled. The liquids usually contain nicotine, which is a highly addictive substance, and flavorings in a base of propylene glycol and vegetable glycerin (CDC & NYS Dept of Health). At this time, vaping is not approved by the Food and Drug Administration (FDA) as a smoking cessation aid, and is not considered to be an FDA-approved form of nicotine replacement therapy (CDC, 2019)

According to the Centers for Disease Control and Prevention, in 2018 more than 3.6 million middle and high school students used e-cigarettes in the past 30 days in the United States. This included 4.9% of middle school students and 20.8% of high school students. Youth are more likely than adults to use e-cigarettes and use them more than cigarettes, cigars, smokeless tobacco and hookah. In 2017 only 2.8% of U.S. adults were current e-cigarette users and among the e-cigarette users in adults in 2015, 58.8% were current regular cigarette smokers, 29.8% were former cigarette smokers, and 11.4% had never been regular cigarette smokers. In 2015, among adult e-cigarette users, only 1.3% had never been cigarette smokers, and among youth e-cigarette users aged 18-24 years, 40% had never been regular cigarette smokers (CDC, 2018).

In New York state, according to the NYS Youth Tobacco Survey, from 2014 to 2016, the e-cigarette usage among youth doubled from 10.5% to 20.6%, and from 2014 to 2018 this rate increased fully 160%. In 2018, according to the Youth Tobacco Survey 27.4% of high school students reported e-cigarette use. About five times as many high school students in New York state use e-cigarettes compared with smoking cigarettes. Few students plan to try smoking cigarettes, but an increasing amount are open to e-cigarettes and more than half of teenagers believe that nondaily e-cigarette use causes little or some harm. Of those youth who do use e-cigarettes, a third of them believe nondaily e-cigarette usage is harmless. Youth and young adults claim their reasons for trying and using e-cigarettes are flavor, taste, curiosity, and belief that they are less harmful than other tobacco products. The use of e-cigarettes does not prevent youth from smoking, and those who use e-cigarettes are at an increased risk for starting smoking and continuing to smoke. More than half of high school students and young adults who smoke also use e-cigarettes, known as dual use (NYSDOH). A statewide health advisory on vaping associated pulmonary illness was issued by the New York State Department of Health in August 2019. From August 2019 to November 2019, NYSDOH reported an increase in the number of Vaping-Related Illness reports they received, increasing from about 10 the week of August 6th to about 200 as of November 11th. The highest spike in cases reported weekly was the week of September 10th with more than 25 cases reported (New York State Vaping-Related Illness Investigation, NYSDOH).

In Broome County, according to the latest Prevention Needs Assessment conducted in 2018, there was a reported increase in students that use e-cigarettes. 26.5% of students surveyed reported using an e-cigarette in their lifetime and 28.8% used one in the past 30 days. These rates are significantly higher

than the national data for past 30-day use, 20.8% in the United States compared with 28.8% in Broome County, and higher than the state level of high school student e-cigarette use as well (28.8%, 27.4%).

Current Interventions

New York has been a leading state in implementing and amending public health laws to decrease use of tobacco products, including e-cigarettes, among its residents. Some of these laws include the Clean Indoor Air Act and the Adolescent Tobacco Use Prevention Act (ATUPA). The Clean Indoor Air Act was enacted in 1989 and amended in 2017 to include e-cigarettes. This act prohibits the smoking of tobacco products in almost all places of employment, including restaurants and bars in all of New York state. ATUPA was enacted in 1992, and prohibits the sale of any tobacco product to minors that are under the age of 18. Amendments were made to ATUPA to include e-cigarettes under the term “tobacco products”. Effective November 13th, 2019, the minimum age of sale will be increased to 21 years of age in all of New York State. Smoking and vaping are prohibited at New York playgrounds between sunrise and sunset if anyone under the age of twelve is present and smoking or vaping outside on hospital grounds is prohibited as well. Since the early 2000’s many youth anti-cigarette smoking campaigns and educational programs were developed including NYS Tobacco Control Program and Reality Check. These programs have now expanded to include anti-vaping messages and provide educational programs for schools educating youth on the dangers of vaping.

In Broome County, many policies have been implemented and laws amended to limit availability and public use of e-cigarettes. Public policy, educational programs, and community awareness events have been utilized as preventative methods in the county. The Prevention Coalition of Broome County, which is comprised of 12 sectors from within the community, has been a leader in planning, implementing and evaluating prevention practices and programs in the community. The coalition uses data from the Prevention Needs Assessment conducted in Broome County to highlight certain substances as high priority areas among youth to focus prevention efforts. In 2018, they selected alcohol, marijuana, and tobacco as high priority substances. Tobacco Free Broome and Tioga, which functions as a community partner of the New York State Tobacco Control Program and is funded by a grant from the New York State Department of Health, is a partnership of community-based organizations and individuals committed to building healthier communities through tobacco-free living. Some of the programs supported by Tobacco Free Broome and Tioga include Tobacco-Free Outdoors, Point of Sale, Smoke-Free Media, Smoke-Free Multi-Unit Housing, and Reality Check. Reality Check is an educational program targeted at youth to empower and engage them to produce changes and prevent the use of tobacco products, including e-cigarettes.

As of August 2017, Binghamton University has transitioned to a tobacco free campus as a part of a Tobacco Free Initiative. Under this initiative, the tobacco free policy prohibits the use of any tobacco products, including e-cigarettes, on all university property. The main goal of this policy is to provide a healthy campus environment and to promote the well-being and safety of all Binghamton University faculty, staff, students, and visitors. As a part of this initiative, the University provides smoking cessation programs and devices that are readily available.

Many public policies have been enacted and amended, with educational programs strengthened in Broome County to prevent youth from engaging in vaping related activities. However, vaping rates among youth are still on the rise prompting a need for further strengthening of these interventions.

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The Age Friendly Initiative

Integrating the Domains of Livability into Prevention Agenda Priorities

As people are living longer lives it has become essential to create and support initiatives to improve the experiences of aging. A statewide executive order issued by Andrew Cuomo directs state agencies to include New York State Prevention Agenda priorities and the AARP/World Health Organization eight domains of livability for Age Friendly communities, where appropriate, in agency policies, procedures, and procurements. As a result of his efforts and those of groups and individuals throughout the state, NYS has been named by AARP and the World Health Organization as the first Age Friendly state in the nation. Broome County, with rates of residents aged 60 years and older above the state and national figures, is working to become an Age Friendly community through integrating these priorities and domains of livability into our county Prevention Agenda.

The inclusion of Age Friendly concepts in the Prevention Agenda highlights the need for community participation in efforts to improve the health and quality of life of aging adults. Their inclusion means that Age Friendly concepts will be focused on as priorities for action, that tangible goals will be set, and that related interventions will be undertaken by agencies throughout the county. The goal of the project is for all people in our communities to: feel safe in the community, participate in community activities, be treated with respect, have access to safe, appropriate and affordable housing and transportation, have access to recreational opportunities and health services, know what services and activities are available and have access to information by a means they prefer (e.g. online, in print, in person), be active, vital contributors to the economic, civic, and social life of the community, and receive appropriate support if they can no longer look after themselves.

Improvements will be brought about through targeted actions and investments by the county, like the pioneering of multi-faceted programs that support aging in place and the implementing of smart growth reforms that directly support the prevention agenda goals and ultimately the eight domains of livability. Such actions and investments are achieved through system level changes, like offering incentives to agencies in the county for integrating Age Friendly concepts into their action plans, establishing new procurement guidelines and financing models, and implementing regulatory changes.

This new strategic focus on improving the wellness of people across their lifespan will help to create and foster a healthier, more integrated, sustainable, and equitable Broome in which people of all ages can easily receive services, take part in, and move around their community.

Broome Survey

In 2016-2018, over 2,000 surveys were collected to assess the health and wellness of our older adults and identify areas for improvement.

The survey results reveal areas in need of the most urgent attention: Housing, Transportation, Mental Health, Physical Health, Caregiving, Financials, and Social Integration. A summary of the survey findings is below.

Housing

Most older adults reported that their community was a good place to live, and that they were somewhat confident that they will be able to continue living in their current residence as long as they like. Many do not plan on moving from their current home (37.92%), but those who would consider moving would do so to reduce living costs (22.36%) or because they can no longer maintain their home (36.17%). Over 27% reported that their home needed major repairs that would cost \$1,000 or more to fix, and about 28% reported that their home needed small repairs that they were unable to take care of themselves. Repairs can be costly and contractors hard to find, and because some older adults are not physically able to do the work that they need done themselves, many of their homes need repairs to be livable.

Participants in the survey commented that a need for home repairs, a lack of reliable and affordable contractors (especially in rural areas), and a lack of Aging in Place organizations (allowing older adults to help each other as they age) are all major issues that make it hard to stay in their homes. Seniors who choose to move from their homes are faced with the trouble of finding safe, affordable and clean housing. Wait lists for subsidized housing can be very long, and affordable options in Broome are often in areas with high crime rates. They reported a desire for more housing options, including housing for middle income seniors with a clubhouse/pool, housing that can be purchased rather than rented, one level housing options and town houses, and senior housing communities with access to transportation, social meeting places, and walking paths. Many also reported a desire to live in a walkable community with accessible public green spaces, easy access to outdoor cafes, shopping, sitting areas, and bike trails.

Transportation

Difficulty accessing medical care within the county was the most common issue for older adults caused by lack of transportation options. This issue, along with difficulty attending social events and obtaining food, was primarily reported by individuals with incomes below 19,999/ year, compared to higher income groups. These individuals were also less likely to drive, to ask others for help, more commonly had physical impairments that prevented them from driving, and more often reported that public transportation was inconvenient. Accessibility of transportation for older adults is related to their income in Broome.

These issues have caused isolation in older adults, especially those in rural areas, because of a lack of transportation options, door to door transportation, and affordable and convenient transportation. Together these issues prevent seniors from attending social events and necessary appointments. Survey participants reported a desire for improved transportation options including rural areas, park and ride to help access downtown area, more information on transportation options, and bus stops and shelters to protect them from the elements.

Health

The survey found that the health of older adults in Broome varies between income levels. Those with incomes below \$19,999 were more likely to report fair to poor physical health than those with higher incomes. This may in part have to do with the increased difficulty lower income individuals have with accessing both the limited home care options and aids available to help with healthy aging in the community and the limited geriatric health care options for both primary and secondary care needs. Individuals in this income group also reported less exercise or physical activity. Physical health factors are also reported to vary based on the age of the senior. Increased age was not directly associated with

exercise rates, as the 60-65 age group reported less exercise or physical activity than other age groups. However, older age was associated with increased falls and higher rates of reporting those falls to primary care providers than younger seniors. Both income and age are negatively correlated with physical health in Broome.

Those with incomes below \$19,999 were also more likely to report fair to poor mental health than those with higher incomes. However, individuals in this income group were less likely to report barriers to getting mental health services (22%) than those with higher incomes did (40%), though high costs of services were one of the most reported barriers to access. This discrepancy may be due to differences in rates of seeking mental health assistance, and so noticing barriers to access. Survey participants reported other common barriers to getting mental health services: a lack of mental health professionals and resultingly long wait lists, difficulty navigating available mental health services and finding a starting point for a referral, hours of operation for existing mental health services, and stigma associated with mental health issues. Poor mental health among older adults may be then be due to several factors. These factors include difficulty of accessing available services, limited respite options for caregivers and grandparents raising grandchildren and social isolation. These barriers and contributing factors to mental health in older adults are more likely to negatively influence the health of individuals with lower incomes.

Caregiving

More than half of older adults surveyed considered themselves current or former caregivers and reported that various supports would be helpful for themselves or other caregivers. The most common improvement idea reported as potentially helpful was an increase in information about available resources for caregivers in the community (51.33%). Other supports that would be helpful include assistance with transportation (45.26%), short breaks/ respite from caregiving tasks (44.75%), assistance securing paid help (39.57%), assistance in completing forms and applications (36.03%), assistance with finding accurate medical information (including understanding medical bills) (32.62%), and connecting with other caregivers (25.41%).

The participants surveyed would like a place in Town of Chenango for caregivers to drop off their loved ones when they need a break from their duties, more grief support groups, more paid caregivers to help them age in place, and some solution to reduce caregivers' guilt about seeking help to care for their loved ones.

Financial

During the past year, 23.31% of older adults were unable to pay for some essential health or housing bill. The top financial issues faced differed between age groups. Adults aged 50-59 years had the most trouble paying for rent/ mortgage/ taxes, utility bills, and dental care. Adults aged 60-65 and 66-74 years had trouble paying for dental care, eyeglasses, and rent/ mortgage/ taxes. Adults aged 75 and over faced issues paying for dental care, eyeglasses, and hearing aids. Older adults during the last year were also not always able to buy food (6.96%), fill a prescription for medicine (4.89%) pay for health insurance premiums (3.03%), or obtain needed medical care (2.71%). Many seniors are unable to pay for services they need because they are over the income threshold to qualify for assistance like Medicaid. Some did not adequately prepare for the financial expenses brought on by aging. Survey participants reported a desire for help paying for hearing aids, glasses and dental expenses, and prescriptions.

Social

Almost 28% of older adults reported feeling socially isolated, especially those with incomes less than \$19,999 and between the ages of 55-65 years. Older adults do not engage in social activities they would enjoy primarily because of physical (38.21%) and financial (31.18%) constraints, and because they have a hard time finding activities that interest them (32.51%). Other reported barriers to social engagement include a lack of awareness about activities that are available (28.33%), lack of transportation (19.01%), a feeling that they are not welcome (13.12%), and safety concerns (7.22%).

Participants desired more activities for younger seniors, like yoga classes, low impact exercise options at senior centers, walking clubs, dances and dinners, and meet and greet activities. They reported a need for more multi-generational programs, like kids at senior centers and seniors in schools. Participants also commented on tandem/wheelchair bikes on the Rail Trail and classes on how to use iPhones.

Results

The survey has helped to illuminate specific issues that older adults in Broome are facing and has provided an avenue for respondents to be part of the solution-making process. This information will help to inform initiatives around the county, and as these initiatives and others currently underway unfold, future survey results and Prevention Agenda contents will likely be different, reflecting progress made. As a result of adopting an Age Friendly framework for action through the integration of Age Friendly concepts into the county Prevention Agenda, the physical, mental, social, and economic wellness of residents of all ages in Broome are already seeing major improvements.

The Housing Crisis

Opportunity for Action

Housing Affordability

Housing is a prominent issue in our nation with several different demographics being affected. Housing is classified as affordable when it consumes less than 30% of a household's income. Out of the 7.3 million households in New York State 2.8 million reported having housing costs that account for 30% or more of their income. The figures become even more disparate when you split the households between renters and homeowners. Nearly half of all renters and more than one in four homeowners are above the affordability threshold. The U.S. Department of Housing and Urban Development (HUD) was tasked with forming a benchmark for severely burdened households. This measure is for households whose housing costs account for half or more of their income.

These housing concerns become even worse when you realize the favorable economic trends in New York City and its surrounding areas. Over last decade, 2007-2017, the median household income for renters in New York increased by \$1,042 to \$42,073. That increase equals about a 2.5% increase. For homeowners their median household income increased by \$1,800 to reach a figure of \$89,035. When you compare Broome County to New York State and National values the differences are apparent. Broome County median household income is \$49,064 compared to the New York State's Median household income of \$66,426. Income is an important variable in calculating housing burden but there

are other factors affecting one's ability to afford housing such as taxes and utilities which vary across the different areas of New York State.

When you separate the renter and homeowner household incomes the disparities become more noticeable. Only 56.9% occupied housing units in Broome County reporting household incomes that exceed \$35,000. For New York State the average increases to 69.2% of housing units making more than \$35,000. These two values are still behind the national average of 76.7% of housing units reporting more than \$35,000 in income. When you limit the households to only represent renters the differences become even more apparent. Of the renter-occupied households in Broome County only 38% of those households reported having a household income above \$35,000. New York State had 55% of its rented units reporting income above \$35K with the national average dipping slightly to 52.1%. Depending on the area's distribution of households the burden might be different which is why it is important to know more about your area's housing information.

Housing affordability is measured in relation to household income so changes in incomes for renters and homeowners can have a significant impact on affordability. Homeowners in Broome County have a median household income of \$64,205 which is \$20,000 less than the New York State reported median value of \$86,273. When compared to the national and New York State averages Renters in Broome County have a median household income of \$24,911 while the corresponding New York State value is \$40,357. These differences in incomes and resources available must be considered when Broome County's place among New York State counties is explained. Across the board for renters and homeowners alike a lower median household income is reported and is significantly less than State and the metropolitan area median incomes.

Both low and high-income households could devote larger percentages of their income to housing costs, but lower income individuals are more likely to suffer harmful impacts from the fiscal burden. Housing cost burdens can increase the financial stress for individuals and households. All aspects of life are affected. It is harder to put funds aside for emergency, education, savings or retirement. Some households could be facing eviction or other repercussions. The fiscal stress can conclude in households moving to lower-cost locations which could have broader implications for New York State's economy.

While rental and homeowner costs are generally thought to be higher in downstate regions, Broome County has not been exempt from this issue as housing costs have been on the rise in the Southern Tier. When comparing housing costs between renters and homeowners the figures appear to favor the belief that housing costs decrease as you head away from the New York metropolitan area. Median rental costs which include rent and utilities were less than the national average and almost half the rental costs of New York State. Broome County median monthly costs to renters was reported as \$734 where New York State had a median rental cost of \$1200. The same trend is seen in homeowner households that do not have a mortgage. The median owner costs for Broome County is \$495 which is slightly above the national median value of \$474. New York State reported homeowners have a median cost of \$728. The surprise is in homeowners in Broome County who are currently paying mortgage. Homeowners report a median cost of \$2,064 which is a sizable difference to the median cost of \$1,185 reported for the New York State homeowners who

Rural and urban areas have been affected just as hard as the income and resource gaps become more pronounced. Broome county had the second highest percentage of rental households above the Affordability Threshold in the Southern Tier with 49.9% of rental households. The highest rate in the

Southern Tier area was Tompkins with 54.8% of rental households being at or above the affordability threshold. For New York State, Tompkins County and Broome County are part of the top 15 counties in percentages of renter households above the affordability threshold. For the Severe cost burden Broome had the second highest percentage of households with 29% of rental households reporting severe cost burden with Tompkins having a 33.3% of renter households reporting Severe cost burden. Broome and Tompkins are part of the top ten counties with Severe cost burden percentages relating to renter-occupied households. Renters in Broome County are a highly burdened group that is being disproportionately affected by housing costs.

For homeowner-occupied households the Southern Tier area was in the bottom groupings for both housing burden measures. 20.2% of homeowner households were reported as being above the affordability threshold. 7.2% of owners were reported experiencing severe cost burden. Although Broome County is not the top 15 counties for owner-occupied households experiencing housing burdens, the 20.2% of owner-occupied households experiencing this burden represents a significant percentage of our county's population. In 2017 54% of New York State households were classified as homeowner-occupied. Broome County's rate of 65.7% is not only an increase compared to the State average but is also larger than the national average of 63.8%. Another factor is the difference in property values when you head further upstate. For New York State 16.1% of its owner-occupied units have property values under \$100,000. The national average for owner units valued under \$100,000 is 22.2%. Broome County has double those values with 41.8% of owner units being valued under \$100,000. Although we have a higher percentage of homeowners compared to other parts of New York State our property values do not aide homeowners in giving them that extra capital like downstate properties do. Homeowners in Broome county represent a large percentage of the county's households which reinforces the cause of concern and interventions to both homeowners and renters.

Opportunity

The Southern Tier benefits from a strategic location nestled in Upstate New York. Located in the Southern Tier are multiple world-renowned colleges and universities which provide a robust pipeline of Science, technology, education and mathematic (STEM) graduates. Add to that the thousands of farms and top manufacturers in the area and it becomes clear why the state is investing in the area. The Southern Tier has a strong foundation to continue its economic growth with the assistance of New York State programs. Broome County has an alluring appeal for different demographics. Broome County housing costs are dwarfed by the expensive rates observed in the NYC metropolitan area. Broome County boasts a metropolitan area of over a quarter-million people.

With the growth of the universities in the Southern Tier we have witnessed a larger percentage of students and young professionals being retained in the area which only adds to the appeal. This is an alluring characteristic for investors. Of the 79,000 occupied household units in Broome County 34.3% or 28,000 households are rentals. This number is higher in the Binghamton metropolitan area as a myriad of professional workers, students, and families compromise the city's inhabitants.

The government has provided financial incentives to help reach this demand. For homeowners and investors interested in renting or developing rental units there are tax credits, subsidy programs, and grants that can aid in diminishing costs. Subsidies from the state help renters and the owners alike. The rent revenue stream is not interrupted while financial stress is alleviated for the renters. Rental assistance is offered by many different programs which include Section 8 housing vouchers, Housing

assistance from the state, and the USDA Rental assistance for rural units. Since the elderly demographic is a significant percentage of Broome County they also have their own programs for assistance. For overburdened elderly and disabled households, the department of HUD has Section 202 and 811 programs for assistance.

For current and prospective homeowners, the Federal and State government provide programs and grants to those who are eligible so that they can acquire affordable housing. Multiple programs by the HUD administration and housing authority of Broome County work to empower Broome residents by aiding income eligible households and persons to become homeowners. It is important to note that the HUD administration and Housing department adds no local tax burden and is fully funded by HOME and CDBG annual block grants. This entity manages and monitors all housing rehabs for qualified homeowners and works closely with affordable housing agencies to improve access to safe, sanitary, and quality housing for income qualified tenants. Compared to the rest of the state Broome County has a larger percentage of household units that are occupied by owners when compared to national, state and metropolitan averages.

- HUD entitlement Funds
 - CDBG
 - CDBG program addresses a variety of community development needs that must meet one of three national objectives: benefit low/moderate income persons; eliminate/prevent slum and blight; address an urgent need that poses a threat to the health/welfare of the community.
 - Emergency Solutions grant
 - ESG program is there to help prevent individuals to enter the cycle of homelessness and re-house homeless individuals into permanent housing situations. Components of WESG include street outreach, emergency shelter, homeless prevention, rapid re-housing, data collection via HUD mandated homeless management information system
 - Home investment partnership
 - The Home program is designed exclusively to create affordable housing for income eligible persons.
- HUD low-income housing tax credit program
 - Provides tax credit to states which then offer them to developers of eligible low-income housing projects.
 - Help continue to facilitate economic growth while improving living conditions for the community
 - Improve health and appeal of the area
 - Applicable for all potential investors or homeowners
- Appeal of affordable housing to for-profit investors.
 - Can produce consistent, steady income from renters. In many housing markets they are fully occupied dependable performers which can result in a safer investment than conventional luxury housing.
 - Large population (students) with need for rental properties as well as professionals in the area.

- Growth of area alongside educational institutions, manufacturers, and growing cities.

Interventions (current)

- Local services
 - Broome Housing authority
 - Assists with public housing as well as information distribution
 - HUD certified CHDO
 - Opportunities for Broome Inc.
 - receives funding assistance from the City, State, and Federal governments to improve local housing conditions.
 - Has several low-income housing units

In 2015 Governor Cuomo started the Upstate Revitalization Initiative (URI) which is meant to focus on growing and further developing upstate areas. The name giving to the URI winning plan for the area was Southern Tier Soaring. It is play on words on the great expectations for the area.

- **Upstate Revitalization Initiative**
 - Create long-term regional plans
 - ST strategic position.
 - **Southern Tier Soaring**
 - URI-winning plan
- **Binghamton Gateway Project**
 - Front street homes renovated
 - Aimed to create housing for low to moderate income while not sacrificing amenities.
- **Community Renewal Act/Grant; state initiative**
 - **Most projects in Broome were financed through NYS Homes and Community Renewal**
 - **Home (housing trust fund) Programs in Stueben, Tioga etc. counties**
 - **Community development block grant in Tompkins and Broome**
 - Projects overseen by First Ward Action Council
 - First ward action council is a part of Southern Tier Soaring
 - Front Street renovations
 - Next renovations are houses on Meadow street and Spring Forest avenue
 - North and Crandall street renovations
 - Funded the state house trust fund (Home), community investment fund and 8 million in federal low-income housing credit equity.
 - Additional funding came from NYSERDA, broome county land bank and the city of Binghamton
 - E.J apartments in Endwell
 - Funded by the NYS HOME program, OPDD office, federal historic tax credits and the NYS energy research and development agency (NYSERDA)

- **Century Sunrise: Mix-income communities**
 - Private venture but still has mixed income so it is an option for lower SES households

Possible Interventions

- After the Crandall Street project is completed, Binghamton also will be working on a housing project on the North Side. According to Leonard Skrill, the assistant commissioner of NYS Homes and Community Renewal, there are 15 ongoing projects in the Southern Tier, including three projects in Elmira, four in Tompkins County and two in Steuben County.
 - \$1.1 million community development block grants, \$12.8 million in low income tax credit NYS Homes and Community Renewal, \$1.3 million from HCR's Housing Trust Fund corporation, \$2 million from Rural and Community investment fund, \$2.3 in equity raised by brownfield tax credits allocated by the DEC, \$100,000 from the City of Binghamton Home and \$48,000 incentive grant from New York State Energy Research and Development Authority.

Transportation Troubles

Transportation has been identified by clients, caregivers, and providers alike as well as in the professional literature as a barrier to accessing needed healthcare services. This barrier to care can lead to missed medical appointments or delays in diagnostic testing, gaps in treatment and poor adherence, delays in obtaining prescription medications, poor management of chronic diseases resulting preventable exacerbations, and irreversible progression of conditions that would be curable if caught early. The net effects of these disruptions to clinical care are poor health outcomes for clients and increased costs to the healthcare system.

Transportation barriers are thought to disproportionately affect economically disadvantaged individuals who cannot afford to own or operate a private vehicle, those with disabilities who require specialized equipment or transport, those with functional deficits who may limit when or how they drive to care, suburban and rural residents for whom public transportation is not available and who bear a heavier cost burden due to travel distances, and those who are socially isolated and do not have the networks of family and friends to assist with rides. These vulnerabilities may exist not only for the client in need healthcare services but also for caregivers, family members, and friends.

To examine these issues in our community, HealthLinkNY, the Population Health Improvement Program agency, funded a pilot project to examine transportation vulnerability in the Southern Tier region. The goals of the project were two-fold: (1) to collect data on transportation needs and (2) to create a referral mechanism to connect patients with identified transportation vulnerability to mobility management services to help them keep their healthcare appointments. A select set of slides detailing the key findings of the pilot project are included in Appendix G. These results were presented to the Transportation Workgroup, a sub-committee of the Population Health Improvement Program at HealthConnections (formerly HealthLinkNY), and prompted further discussion of the benefits, limitations, scalability, sustainability, and implications of the findings for strategic planning related to reducing transportation barriers to care.

The project also involved a large media campaign to “spread the word” about availability of transportation services and resources in the community. Getthere, the mobility management organization for the southcentral region of NY, also had a prominent presence on the Rural Health Network website. And, Thompkins 2-1-1, the mobility management organization for Thompkins County had a prominent presence on the Human Services Coalition website.

During check-in, either the patient or caregiver received a brief questionnaire, which was returned to the office staff at checkout. The anonymous survey collected the following information: survey respondent (e.g., client, family member), demographic (e.g., age, gender), insurance (status, type), geographic (e.g., zip code, rurality), travel (i.e., mode of transport to/from appointment), trouble with transportation in the past, and need for transportation to their next appointment. At checkout, the office staff asked two key questions: (1) *Did the client have any transportation concerns about getting to their next appointment?* And for those who answered affirmatively, (2) *Would the client like to receive a call about transportation assistance options for your next appointment?* If indicated, the office staff made either a “hard referral” faxing the client’s information to mobility management services, or a “soft referral” providing the client with information on accessing mobility management services. In response to any inquiry, mobility management serviced the referral and flagged it as part of the pilot project.

Five pilot sites participated in the project including three different hospital systems with representation from hospital clinics, primary care, pediatrics, and Cornerstone, the Federally Qualified Health Center. The sites were located in five different contiguous counties in the Southern Tier and Central region of NYS. A total of 3,622 surveys were collected over a 9-month period between June 2017 and February 2018. Data were collected in two formats: (a) Survey responses were entered into an Access database and exported into Excel spreadsheets, and (b) as hard copies with surveys entered manually by a research assistant on the project.

The data were analyzed by pilot site, county, rurality, and age group. Key findings from this pilot study revealed differences in transportation vulnerability across each of these variables. The demographics primarily reflected the characteristics of the population served by each pilot site.

- Cornerstone had the highest proportion of Medicare clients (69%). Since the clinic is located in an urban area of Binghamton, these clients had the largest proportion of survey respondents who walked or rode a bicycle to their appointment (39%). This group also had high transportation vulnerability with 38% reporting difficulty in the past as well as getting to their next appointment.
- Individuals from rural Tioga County also had a high proportion of Medicaid survey respondents (41%) but only reported moderate transportation vulnerability - 21% reported difficulty in the past and 12% had difficulty getting to their next appointment. A substantial proportion used a medivan/taxi to get to their current appointment (11%)
- Individuals from the rural areas of Tompkins County had a larger proportion of older individuals (48% Medicare) with high levels of transportation vulnerability – 36% reporting difficulty in the past and 26% had difficulty getting to their next appointment. A substantial proportion used a medivan/taxi to get to their current appointment (9%)
- Pilot sites located in suburban areas of Chenango County had a larger proportion of clients with private insurance (>60% for two sites) and younger clients (pediatric) and had low levels of transportation vulnerability (3-5% reported difficulty in the past and 2-3% had difficulty getting

to their next appointment. Most drove themselves to get to their current appointment (50-70%).

Significant differences were noted in transportation vulnerability based on age and with the largest proportion of individuals who reported difficulty in the past, difficulty getting to their next appointment, and requesting referral services. Females were more likely to experience transportation vulnerability, as were individuals in the 30 to 64 age group. Interestingly, no significant differences were found for self-reported geographic residence across the rural-suburban-urban continuum.

Analysis of referrals to the two mobility management organizations involved in the project revealed a proportionate number of hard and soft referrals relative to the number of individuals who requested them. Utilization of the services however was low. It is unclear whether this finding is spurious due to insufficient data collection or due to clients finding alternative options for getting to their next appointment. Clearly, the mechanism for linking records of clinical care and transportation needs is lacking. One potential solution is a population health platform currently being implemented by Care Compass Network in which community based organizations and healthcare providers can share information on clients through a common client care plan and would be able to manage transportation needs and referrals through this portal.

Follow-up discussion considered the acceptability of services. Feedback from clients using mobility management services reported their cultural aversion to using public transportation citing loss of independence, inconvenience, and accommodation limitations. A potential solution discussed was the cost of bring clients to services versus bring the services to the client. Most of the healthcare systems are in the process of establishing telehealth services. This option can provide timely access at an early stage of a health issue and elicit a prompt clinical response to avoid the need for spending the time and money to travel distances for appointments.

Discussion also explored possible reasons for the higher transportation vulnerability among middle-aged adults as compared to older adults. One hypothesis was that older individuals may have already adapted to limitations in getting to appointments either by developing a network of people and resources on which they could rely to get to their appointments (many reported getting to their current appointment by getting a ride with someone else) or by limiting their activity. Perhaps for the middle-aged adult who may be experiencing significant chronic health issues for the first time in their lives, they have not developed the same coping behaviors and social networks in relation to their transportation needs as older adults. They may be more aware of and sensitized to their vulnerability because of a transition in their lives from robust independence to needing to accept help and assistance.

Finally, some of the discussion focused on aging in place. Mobility management services include not only transportation to receive clinical care, but also for picking up prescriptions, grocery shopping, and other instrumental activities of daily living. Many community members are not aware of the range of services available to them. In addition, in the age of online shopping and home delivery, there is emerging technology that can provide services and deliver goods without having to leave home. Self-driving cars and drones are two examples. Discussion then turned to, well if people don't need to leave their home, what impact will that have on social isolation? Is it possible to design housing and active living communities that can overcome some of the transportation issues resulting from the way residential areas are designed and community resources geographically distributed? These questions remain unanswered.

The role of social factors in accessing healthcare services were evident in this pilot project. The findings strongly support an association between socioeconomic resources and transportation vulnerability. As the population of Broome County ages, the issues around “getting there” will become manifest and have a more prominent role in how care is managed and the extent to which effective clinical management can be optimized and the most favorable health outcomes can be realized.

Burdens of the Uninsured

The US Census Bureau considers individuals to be “uninsured” if, for the entire year, they were not covered by any type of health insurance. However, the Kaiser Family Foundation notes that 27% of individuals without health insurance in 2006 were without health insurance for less than a year, suggesting rates may be even higher than reported by the U.S. Census Bureau.

Multiple barriers exist to obtaining health insurance including opportunities for full-time employment in that offer such benefits. While improving, awareness of existing programs remains a barrier to accessing publicly-funded insurance. This issue is particularly relevant for uninsured children who live in working families. New York State has a variety of publicly funded programs and collaborates with employers to educate the community about existing programs. Additionally, with the advent of facilitated enrollment, access to locations where enrollment can occur has improved. Facilitated enrollment has also streamlined the process, but staff acknowledges that the form remains lengthy, questions can appear ambiguous, and obtaining the necessary written documents can be challenging.

Not having health insurance is a substantial health issue as people are less likely to receive preventive care and more likely to be hospitalized for conditions that could have been prevented. The financial burden strains family as well as hospital budgets. Uninsured families, who already struggle financially to meet basic needs, may be financially devastated by medical bills, even for a minor problem; and hospital/provider systems bear the increasing cost of charitable care.

Information on Health Insurance Coverage can be found in Appendix G24-G32. The percent of uninsured adults in Broome County was estimated to be 4.8% in 2017, translating to 4,495 persons. The uninsured rate has dropped significantly since the last community health assessment was conducted. At that time, it was estimated 10.5% of the population was uninsured, equating to 20,500 individuals going without health insurance. In 2010, a historic shift transpired with health insurance coverage in the United States. The Affordable Care Act was passed and a new government sponsored health insurance model was initiated in September 2013. For New York State residents, New York opened its health plan Marketplace, NY State of Health, in October 2013. The Marketplace’s one stop health insurance experience offers high quality comprehensive health plans. NY State of Health is the only place where consumers can qualify to get help paying for coverage through premium discounts or tax credits. Eligible New Yorkers can also enroll in Medicaid, Child Health Plus and the Essential Plan through the Marketplace all year. In Broome County there are two NY State of Health facilitated enrollment agencies

for the Marketplace: Mothers and Babies Perinatal Network and the Southern Tier Independence Center.

Examining the demographic breakdown of Broome County residents and health insurance coverage is as follows; the age group with the highest uninsured rate is that of the 19-64, males have a higher uninsured percentage than do females, individuals with household incomes of \$25,000 or less have a higher rate of being uninsured. Other demographic correlations depicting lack of health insurance coverage are seen in populations that have a low poverty threshold and those that classify their race as African American also seem to have a higher uninsured rate. Overall, from 2000 to 2016 Broome County has seen a steady increase in adults age 18-64 that who health insurance coverage. Broome County residents report that 87.6% have a regular healthcare provider and 93.4 % report having coverage. Broome County is higher than NYS in both of these categories. As hopeful as that sounds, there is still 7.2% of the Broome County population that forgoes care because they are unable to afford to pay for it. (Appendix G25). As for children over the age of 19 in Broome County, there also has been a steady increase in health insurance coverage with 97.5% of children reported to be insured, ranking Broome in the highest quartile of NYS.

D. Broome County Community Health Assessment 2019-2024 Process

Collaborative Partners

This Community Health Assessment (CHA) has involved a variety of partners from a broad cross-section of community and human services agencies in Broome County (Appendix G1). The committee has benefitted tremendously from a stable membership of committed leaders as well as inclusion of new members who brought fresh perspectives to the work of the group.

In collaboration with the Public Health Director and the CHA Coordinator, these Steering Committee members provided the leadership for guiding selection of the mutually derived priorities. The Steering Committee's work was also supported by a Supervising Public Health Educator who led the chronic disease risk reduction interventions and who served as health department liaison on the mental health and prescription drug initiatives.

Health department senior staff, which included the division directors and department supervisors, was updated on the ongoing activities of the Steering Committee and CHA process. In addition, they provided input by making in-house data available and keeping the CHA Coordinator apprised of relevant changes to programs and services.

The core support team consisted of the Broome County Health Department Director and the Medical Director as well as administrative, technical, and interdisciplinary planning support team members.

Collaborative Efforts

Since the last Community Health Assessment, the Steering Committee met on a monthly basis. The Steering Committee serves as an active workgroup not only monitoring progress on implementation of the previous Community Health Improvement Plan but also actively seeking new opportunities for collaboration including funding for evidence-based and promising strategies to address community needs.

Committee meetings focused on re-evaluating the health status of the county and conducting specific activities to inform the *2019-2024 Community Health Assessment*. The meetings were chaired by the CHA Coordinator and attendance averaged about 10 members per meeting. Minutes were taken by Broome County Health Department staff members. Agendas and meeting minutes were e-mailed to committee members. In addition, all agendas, meeting minutes, and materials are electronically archived on the Broome County Health Department shared drive as a formal record of the CHA process.

Bi-weekly meetings between the CHA Coordinator and BCHD staff members were held to assess progress and to plan for upcoming CHA meetings and activities. Between meetings, Steering Committee members completed assessment tools and surveys and during meetings contributed to interpretation of data analyses, providing a contextual understanding of issues underlying observed differences in the occurrence and rates of disease among residents of the county.

Vision

The vision statement developed by the Steering Committee for the 2010-2013 Community Health Assessment, and reaffirmed for the 2013-17 Community Health Assessment, continues to reflect the ongoing work of the Steering Committee.

Community Themes & Strengths Assessment

The Community Themes and Strengths assessment examines topics of interest, engages the community in relation to their perceptions about quality of life, and explores community assets. A series of four Community Surveys were conducted via Survey Monkey. These surveys were provided to community organizations via an email link as well as in portable document format (PDF). Partners were asked to engage their respective service sectors in completing the surveys and a link to the survey was made available on the county website.

Particular effort was invested in surveying specific vulnerable groups. The surveys were conducted at the Dr. Garabed A. Fattal Community Free Clinic where uninsured residents obtain free health services. In addition, participation was obtained from nearly every senior center in the county to reach rural elders. All four surveys asked residents about their mental and physical health and overall general health. Each survey asked participants about topics exclusive to that survey, such as their use of medical, dental or mental health services; their perceptions about quality of life in the county; concerns and issues about their community being a safe and healthy place to live; the adequacy of health services

available; and their prioritization of health issues. A summary of the results from this survey appear in Appendices G46-G65 and are presented in narrative further below.

Community Health Status Assessment

The Community Health Status Assessment examines the health status, quality of life, and risk factors for disease present in the community. A variety of data sources were used for this assessment including: the NYS Prevention Agenda Indicators for Tracking Public Health Priorities, 2019-2024; the County Health Indicators by Race/Ethnicity (CHIRE); the Community Health Indicators Reports (CHIRS); the County Health Assessment Indicators (CHAI); the Expanded Behavioral Risk Factor Surveillance System (BRFSS); and data from the Statewide Planning and Research Cooperative System (SPARCS). These data were publicly available from the New York State Department of Health website. In addition, other county level data available online such as from the Census Bureau were downloaded, analyzed, and reviewed by the Steering Committee with comparisons made to NYS *Prevention Agenda 2019* goals.

Furthermore, Steering Committee members presented information about their agency, the populations they serve, the services they provide, and identified needs and gaps in services during meetings. Steering Committee members were asked to provide the group with recent assessments or data from their organization that would inform the process. Annual reports and other publications from community partners and agencies that service specific population sectors were compiled and reviewed. Steering Committee members readily shared materials and information.

Local Public Health System Assessment

The Local Public Health Assessment measures the capacity of the local public health system to conduct essential public health services. The local public health system is viewed as all organizations and entities within the community that contribute to the public's health and not limited to the local public health department.



To assess the scope of services provided by community organizations in relation to the Prevention Agenda priorities, community organizations were asked to complete the tables in Appendices H1 and H2, indicating how their programming aligned with Prevention Agenda 2019-2024 priority areas, focus areas, goals and objectives. The tables were disseminated via email across healthcare organizations, county governmental departments, higher education, community-based organizations, and non-governmental agencies. The

information provided by partners via these tables was used to select Community Health Improvement Plan interventions and metrics.

Forces of Change Assessment

The Forces of Change Assessment identifies factors that are currently affecting or may affect the community or local public health system. Typically, these factors involve issues that are broader than the community such as domestic economic and healthcare policy, or uncontrollable elements such as catastrophic events, or transformations in societal attitudes or values. These factors are important to identify because they may influence health outcomes. Awareness of these forces can help public health leaders to proactively anticipate change and formulate a managed response. Further, such analysis can provide insight into the gaps that exist between the current situation and ideal circumstances, and thereby inform public health planning.

Several methods were used for this assessment including analysis of the narrative responses from the Community Survey, Focus Area Ranking Tool and breakout session themes from the CHA Symposium, informal discussions with key community leaders, and examination of local headlines as well as national news events. The data obtained through these activities are woven into discussions within relevant sections of this report. Some topics were identified as more pressing issues in Broome County. These key emerging issues are: age friendly communities, the opioid epidemic, vaping and e-cigarette use, housing, transportation, and food insecurity. They are described in-depth in Section 3c: Emerging Issues.

Development of the Community Service Plans & Community Health Improvement Plan

Representatives from both area hospital systems served on the Steering Committee. Ascension Lourdes Hospital developed its own Community Service Plan (CSP), but endorsed the Broome County Community Health Improvement Plan (CHIP) and assisted with its development. In partnership with the Steering Committee, UHS submitted the CHIP as its CSP.

Committee meetings focused on assessment information and data analyses, which were presented and discussed in detail during meetings. Representatives from area agencies on the Steering Committee also presented information specific to their target populations and service sector. This process included quantitative reports of local data as well as qualitative evidence derived from personal experience and expert knowledge. The information resources and rich discussions provided the basis for examining the public health priorities for the county. This process is discussed separately in Section 4. The tool and scoring results appear in Appendix E.

Several activities supported development of the *Community Health Improvement Plan (CHIP)* and *Community Service Plans (CSPs)*. First, attendees of the CHA Symposium in April 2019 and CHA Steering Committee members voted on the Prevention Agenda Priority areas they felt most important for Broome County using the Focus Area Ranking Tool (Appendix H3). Breakout session notes from the

Symposium were also analyzed for key themes. Results from the Focus Area Ranking Tool and breakout session key themes guided discussion and selection of two public health priority areas from the Prevention Agenda 2019-2024.

To determine objectives and interventions for the CHIP, Steering Committee members completed the two tables in Appendices H1 and H2, indicating how their organization's current programming aligned with selected Prevention Agenda 2019-2024 focus areas, goals and objectives of the selected priority areas. The resulting collection of local interventions served as an inventory for the Steering Committee to explore current strategies being used and to consider additional opportunities for action. These completed documents provided a framework for thoughtful consideration of and discussions about evidence-based strategies. Collated responses to these tables was shared with Steering Committee members and was the basis for developing the work plan.

Once the Steering Committee determined the priority areas on which to focus, a template was developed for the *Community Health Improvement Plan (CHIP)*. The template was populated with information solicited from members of the Steering Committee and included identification of intervention strategies to be used, potential activities or action items, key stakeholders, and possible metrics to use for measuring process and outcomes. This information provided the data elements for the initial draft of the *CHIP*. The draft document was distributed prior to the November Steering Committee meeting and discussed. The plan was refined over the next month based on Steering Committee input. The final version of the *CHIP* was unanimously approved by the Steering Committee. This *CHIP* will serve as the basis for ongoing Steering Committee meetings during which it will likely undergo further refinement. As the *CHIP* is implemented and evaluated, specific actions/interventions may be modified and new ones added in a continuous and dynamic plan, do, check, act (PDCA) cycle. The Steering Committee will continue to meet on a monthly basis to assess progress to date and adapt the *CHIP* as circumstances direct.

Community Health Assessment Symposium

The Symposium was conceived of by the CHA Steering Committee in spring of 2018 as a way for stakeholders from various sectors to engage with local, regional, and state level data, in order to make data-informed prioritizations of local health issues. A Symposium sub-committee was convened in August 2018 to plan and execute the Symposium, which occurred April 12, 2019.

All CHA Steering Committee members were invited to the Symposium, as were other organizations whose work aligns with the five NYS Prevention Agenda Priority Areas. Invitees representing organizations were each asked to invite one client served by their organization, who could represent the community. In total, 40 individuals from 17 organizations attended (Appendix H4). None brought a client.

The Symposium was separated into a morning and afternoon session (Appendix H5). The morning session consisted of presentations by local organizations. The opening keynote by Dr. Yvonne Johnston provided valuable context for the current state of public health in Broome County and the frameworks for the CHA and Prevention Agenda (Appendix H6). Each subsequent presenter shared the work their

organization is doing to address public health in Broome County and data collected by their organizations. The data presented broadly illustrated current public health issues, social determinants of health, health disparities, and progress being made by specific programs. The Broome County Community Health Assessment Community Survey results were also presented during the morning session.

The afternoon session consisted of five breakout sessions. Each breakout session aligned with one of the five New York State Prevention Agenda 2019-2024 priority areas. Symposium attendees cycled through each of the five breakout sessions, which lasted 20 minutes per session. A scribe took notes during each session. Local subject matter experts led the breakout sessions, facilitating discussion about their priority area around the following criteria:

- Total health care costs
- Absolute number of individuals affected
- Worsening trend over the past five years
- Broome County performance compared to US/ NYS health goals
- Presence of health disparities
- Measurability/ indicators to monitor change
- Opportunity to continue current, local interventions
- Feasibility for potential intervention
- Availability of funding for initiative
- Social determinants of health: transportation, housing, socio-economic status, education and employment

At the end of the Symposium, attendees used the Focus Area Ranking Tool (Appendix H3) to rank the top five New York State Prevention Agenda 2019-2024 focus areas they felt most important. Attendees were given a list of all 20 New York State Prevention Agenda 2019-2024 focus areas separated by priority area and asked to rank only their top five in order of importance, with 1 being the most important and five being the least important. They were instructed to base their ranking on the data presentations and breakout sessions during the Symposium.

Symposium Data

Scoring the Focus Area Ranking Tool

Unweighted Totals

For each of the 20 focus areas, the total number of votes for each ranking (e.g. 1, 2, 3, 4, 5) was added. These totals were then added together for each focus area to obtain the Unweighted Total for each focus area (Appendix H7).

Weighted Totals

Being that there were 20 focus areas in total, and that a ranking of 1 was considered most important of the top five focus areas and a ranking of 5 was least important of the top five focus areas, weights were assigned to numerical rankings as follows:

- 1- weight of 1.0
- 2- weight of 0.95
- 3- weight of 0.90
- 4- weight of 0.85
- 5- weight of 0.80

For each focus area, the unweighted total for each ranking was multiplied by its respective weight as described above to obtain the Weighted Total for each focus area (Appendix H7).

Results for the Focus Area Ranking Tool

Analysis of the “importance” assigned to each focus area, as obtained through weighted and unweighted totals, was used to generate the Top 5 Focus Areas list (Appendix H8 “Focus Area Ranking Tool Results”). Notably, the same five focus areas appeared in the same order when ranked by their weighted and unweighted totals (Appendix H8).

Themes from Breakout Discussions

Scribes took notes during each breakout session. Notes from each session were aggregated and a content analysis was performed to identify key themes in each of the five breakout sessions. Of note, social determinants, health across the lifespan, and educating the general public about availability of resources all emerged as themes in multiple breakout sessions (Appendix H8 “Breakout Group Themes”).

Community Survey

Responses from the 2022 Community Survey are located in Appendix G46-G65. The 2022 survey addressed the topics of community health concerns, community health resources, quality of life, and environmental quality. There were 2544 responses to this survey.

Demographic Information

The majority of respondents were female (68.8%) and White, non-Hispanic (87.2%) which is reflective of the county’s demography and higher response rate for females (Appendices G46, G48). The highest number of respondents were ages 25-34 at 24.6% with the lowest from <18, 2.82% and >65 at 13.1%. (Appendix G47).

When asked about highest education level achieved, 5.4% of respondents indicated that they had less than a high school education, 13.4% had a high school education, and 81% had more than a high school education (Appendix G49). Most respondents were employed in the last year, with 59.02% employed full time and 15.49% employed part time. Others indicated that they were either retired (11.68%), unemployed (3.89%), on disability (3.26%), a student (3.77%), or a stay-at-home parent or caregiver (2.9%) (Appendix G50).

Most respondents have employer-based insurance (58.99%), while 27.9% have Medicare, 18.58% have Medicaid, 8.5% have direct-purchase, 4.6% have military insurance, 3.5% have another insurance, and 2.7% are uninsured (Appendix G52).

When asked about household income. 8.9% percent reported annual household incomes of less than \$15,000, 11.1% reported \$15,000 to \$29,999, 20.77% reported \$30,000 to \$49,999; 22% reported \$50,000 to \$74,999; 18.09% reported \$75,000 to \$99,999; 13% reported \$100,000 to \$150,000; and 6.2% reported \$150,000 or more (Appendix G53).

1.3% of respondents did not live or work in the county (Appendix G54).

Community Health Concerns

This survey asked respondents about their perceptions of the most pressing health concerns in Broome County. From a list of 32 community health concerns, respondents were instructed to pick the top five that were of greatest importance for Broome County and rank them from one (highest priority) to five (lowest priority).

Addiction to alcohol or other drugs was the biggest community health concern identified (64.5%) with mental health issues coming in a close second at 51.4%. Behind addiction to alcohol or other drugs and mental health issues, the other health concerns in the top five were overweight and obesity in adults, cancer, and diabetes. (Appendix G55).

This survey also asked which changes residents would like to see in Broome County to make it a healthier place to live. Increase access to mental health services (52.4%) were the biggest change identified. Increased access to mental health services was then followed by reduction of crime and improve neighborhood safety, affordable housing, increase and improve general healthcare services, and better job opportunities.

This survey also asked respondents if several health conditions were concerns for them or someone they know, and if they know where to go for help with that concern. The percent of respondents concerned about a health condition was more or less the same as those knowing where to go for help with it, for most conditions. Of note, although cancer (71%), mental health (73%), and adult overweight or obesity (71.3%) were the biggest areas of concern. With the high level of concern for each of these issues, respondents suggested that only 46.7% knew where to go with cancer, 45% for mental health, and 47.8% for overweight/obesity. (Appendix G56).

Community Health Resources

This survey asked about the formal and informal mechanisms by which individuals receive health resource information and healthcare services. When asked about where they get information about health resources in their community, 59.4% of respondents reported using the Internet/social media, 55.1% from family or friends, and 51.7% from healthcare providers (Appendix G57). This suggests that education via websites, news outlets and social media may be an effective way to reach Broome County residents regarding health resources.

With regards to engagement with the healthcare system, 90.1% of respondents reported having a primary healthcare provider (Appendix G58). When seeking medical care in the past two years, respondents reported a long wait to get an appointment (34.6%), difficulty getting to a medical

appointment due to office hours (26.6%), feeling like your healthcare provider is not listening (21.6%), feeling as if your healthcare provider does not understand you or your experience (21.2%) and feeling as if your healthcare provider is not spending enough time with you (19.7%).

Respondents were also asked to rate the availability, accessibility and quality of various health and human services including general health services; emergency services; maternal and child health services; elder services; substance use services; disability services; food access and food insecurity; and other/ community-based services. Of note, respondents rated the following services as limited availability: inpatient/outpatient mental health services (40%), affordable housing (39.5%), healthcare specialists (35.7%), primary care health providers (33.4%). Also of note is that respondents generally rated pharmacies as available/sufficient (63%) as well as eye care (48.9%), ambulance/EMS services (41.2%) and dental care (41%). Of note, respondents rated the following services as poor quality: nursing homes/assisted living (33.9%), emergency room care (33.1%), hospital care (29.6%), and affordable housing (28.8%). (Appendix G61).

Quality of Life

Survey #3 asked about activities, resources, and services that influence the quality of life for Broome County residents. Respondents rated these items as poor, fair, good, very good or excellent (a “no opinion” option was also included).

There were several noteworthy findings in regard to quality of life. One quarter (25.7%) of participants rated the quality of economic opportunities in Broome County as poor, and an additional 40.1% rated them as fair. Broome County was also not rated favorably as a place to age (14.3% poor, 28.8% fair) or in terms of safety (14.4% poor, 29.6% fair). Overall quality of life was rated as satisfactory (41.5% good, 22.5% very good). Respondents also rated Broome County as a satisfactory place to raise children (34.3% good, 22.9% very good). Schools were rated very positively by respondents (39.7% good, 21.2% very good, 10.8% excellent), as was community engagement opportunities (36.5% good, 21.1% very good, 8.1% excellent) and support during times of stress (13.6% excellent) (Appendix G62).

Healthy Behaviors

The most-frequently cited impediment to healthy choices was time constraints (41.9%). Lack of motivation (39.3%), cost (36.2%), all of the above (16.8%), support (15.4%), and knowledge (9.8%) were other high-ranking barriers to making healthy choices. (Appendix G64).

COVID-19 Questions

When asked about concerns regarding COVID-19 moving forward, almost half (45.1%) were concerned about political division or unrest. New emerging variants such as Delta or Omicron (38.6%), Long COVID (37.7%), children falling behind in school (35.9%), Loosening restrictions (35.6%), themselves or loved ones becoming infected with COVID (32.2%), financial instability (32.1%), and the health of the community (30.3%). This was a highly skipped question as 444 of 2149 respondents skipped the question.

When asked how COVID-19 had impacted daily aspects of life, 16.1% stated that the ability to get childcare improved, along with relationships with friends and family (13.3%), and job or work environment (11.2%). Respondents felt as if their mental health worsened (45.8%), along with job or

work environment (39.4%), financial stability (39.7%), relationships with family and friends (37.3%), and education and school environment (34%).

SECTION FOUR – LOCAL HEALTH PRIORITIES

A. *Prevention Agenda Priorities*

The following New York State Prevention Agenda 2019-2024 priority areas and goals were identified by the Broome County Community Health Assessment Steering Committee as the local health priorities for the *Broome County Community Health Assessment 2019–2024*:

1. **Priority Area:** Prevent Chronic Disease
 - Focus Area 1.:** Healthy Eating and Food Insecurity
 - Goal #1:** Increase access to healthy and affordable food and beverage choices
 - Goal #2:** Increase skills and knowledge to support healthy food and beverage choices
 - Goal #3:** Increase food security
 - Focus Area 2:** Chronic Disease Preventative Care and Management
 - Goal #1:** Increase cancer screening rates for breast, cervical, and colorectal cancer
 - Goal #2:** Increase early detection of cardiovascular disease, diabetes, prediabetes and obesity
 - Goal #3:** Promote evidenced-based care to prevent and manage chronic diseases including asthma, arthritis, cardiovascular disease, diabetes and prediabetes and obesity
2. **Priority Area:** Promote Well-Being and Prevent Mental and Substance Use Disorders
 - Focus Area 1:** Mental and Substance Use Disorders Prevention
 - Goal #1:** Prevent opioid and other substance misuse and deaths
 - Goal #2:** Prevent and address adverse childhood experiences (ACES)
 - Goal #3:** Reduce the prevalence of major depressive disorders
 - Goal #4:** Prevent Suicides
3. **Priority Area:** Prevent Communicable Diseases
 - Focus Area 1:** Vaccine Preventable Diseases
 - Goal #1:** Improve vaccination rates
 - Focus Area 6:** Decrease morbidity of COVID-19
 - Goal #1:** Reduce cases of COVID-19
 - Focus Area 7:** Detection of COVID-19
 - Goal #1:** Increase active surveillance and early detection of COVID-19.

Summary of the Process for Identification of Local Public Health Priorities

Local public health priorities were identified in an iterative process by the Steering Committee beginning in April 2019 at the CHA Symposium event (described in Section 3d) and formalized at the November 2019 CHA Steering Committee meeting.

The CHA Steering Committee discussed data presented at the Symposium and data collected from the Symposium (via the Focus Area Ranking Tool and breakout session themes) at their May 2019 meeting

(Appendix H8). The need to align selected CHA priority areas with other initiatives (e.g. DSRIP) and with hospital Community Service Plans (CSPs) was indicated. The group spoke at length about how the social determinants of health play into the top-ranking focus areas, and current Broome County initiatives to address those issues and related social determinants of health.

At the June 2019 meeting, the CHA Steering Committee voted unanimously to select the priority area of Prevent Chronic Disease for inclusion in the 2019-2024 Broome County Community Health Improvement Plan. This decision was based in part on voting from the Symposium. Three of the five highest-ranking focus areas are focus areas under the Prevent Chronic Disease priority area (Appendix H8). This decision was also due to the fact that many programs already exist in Broome County to prevent or mediate chronic disease, and which actively measure their performance. These programs and data gathered from them can be utilized in the CHIP to measure progress towards selected metrics.

The CHA Steering Committee also voted unanimously to select the priority area of Promote Well-Being and Prevent Mental and Substance Use Disorders. One of the remaining five highest-ranking focus areas from the Symposium voting were related to this priority area (Appendix H8). In addition, local data indicate that Broome County has been hard-hit by the opioid epidemic. Opioid-related hospitalizations, emergency department visits and deaths are occurring at higher rates in Broome County than New York State or the Southern Tier. In many cases, these rates have only worsened in the last four years.

The group also voted unanimously not to include the priority area Promote Healthy Women, Infants and Children, but to address this topic via goals, objectives and interventions under the two selected priority areas. Upon reviewing the themes from the Symposium breakout sessions, the Steering Committee agreed that social determinants of health and adverse childhood experiences (ACEs) in particular are critical to address during childhood, in order to yield positive long-term health outcomes.

Also of note, during the September 2019 meeting, the CHA Steering Committee discussed at length the emerging public health issue of vaping and e-cigarettes, especially in light of recent, nationwide unexplained vaping-associated pulmonary illness. Vape and e-cigarette use is of particular concern among youth. Committee members agreed not to include this topic as a focus area within the CHIP, since interventions are still fledgling and may not have a strong evidence base. Instead, this topic is addressed as an “emerging public health issue” for the 2019-2024 CHA (Section 3c).

The Steering Committee considered the many current interventions taking place in Broome County for inclusion in the CHIP during the October and November meetings. During this time, BCHD staff was also in touch with community and healthcare organizations to glean further information on their activities and metrics for evaluating progress (Appendix H1 and H2).

The final CHIP was presented at the December 2019 meeting. The Steering Committee voted unanimously to accept it. With regards to the unselected priority areas of the Prevention Agenda, the Steering Committee certainly appreciated that these three priority areas involve very important public health issues. Even as we recognized their significance to the health of a community, other areas were given higher priority for reasons described below.

HIGH PRIORITY: Promote Well-Being and Prevent Mental & Substance Use Disorders- Mental and Substance Use Disorders Prevention

Since the 2013-17 CHA, mental and substance use disorders (especially opioid use) has transitioned from an emerging public health issue to a public health crisis. Local data indicate that Broome County is experiencing a higher rate of opioid-related hospitalizations, emergency department visits and deaths than the Southern Tier or New York State. Many organizations have launched interventions to address the growing opioid epidemic since the 2013-2017 CHA. These interventions have led to improvements in opioid-prescribing practices, expansion of medication-assisted therapy (MAT) and increased naloxone trainings for the general public. These and other established interventions currently exist and are gathering data on their performance, which will allow the Steering Committee to measure progress towards CHIP metrics.

HIGH PRIORITY: Prevent Chronic Diseases – Healthy Eating and Food Security

The Focus Area of “Reduce Obesity in Children and Adults” was one of selected focus areas of the 2013-17 CHA. Since 2012, NYSDOH has revised Prevention Agenda focus areas and “Reduce Obesity in Children and Adults” no longer exists. However, the overarching goal of the new “Healthy Eating and Food Security” focus area is “Reduce obesity and the risk of chronic disease”.

There are currently several well-established interventions taking place in Broome County to address healthy eating and food security. Community partners have been working in this area since at least 2012 when the 2013-2017 CHA was written; in many cases, organizations have been working on this issue for even longer. This collection of evidence-based programs that already exist and are actively collecting data in the community was part of the reason this focus area was selected for the 2019-2024 CHIP.

HIGH PRIORITY: Prevent Chronic Diseases – Chronic Disease Preventive Care and Management

Broome County has a larger percent of the population aged 65 years or older (18.3%) than the Southern Tier (17.8%) or New York State (15.4%) (National Center for Health Statistics Population Data, 2016). As the population continues to age, the number of chronic diseases are expected to increase. Effective chronic disease prevention and self-management has the potential to improve health outcomes and decrease Medicare and Medicaid spending. There are a number of established chronic disease self-management programs in Broome County, which will feed into the 2019-2024 CHIP.

HIGH PRIORITY (NEW): Prevent Communicable Disease

The focus area of Prevent Communicable Disease was added to the CHIP during the 2020 update due to the COVID-19 pandemic. Goals include to increase active surveillance and early detection of COVID-19, improve vaccination rates, and reduce cases of COVID-19. As this public health emergency emerged, the steering committee agreed this would be a high priority area to focus on for coming years. With the collaborative work of local hospitals, community organizations, and schools, Broome County has worked toward selected goals. Measures are represented in the 2022 CHIP update.

Summary

Mental health disorders are medical conditions that affect cognition, mood, social relationships, coping, and functional ability. Substance use disorders involve the recurrent use of drugs and alcohol, and can disrupt an individual's physical, mental, and social well-being. Prevention at the community level, including interventions that address social determinants of health, will likely decrease the morbidity of mental and substance use disorders overall. Adverse childhood experiences (ACEs) can have a lifelong impact on mental health and well-being and are thus a modifiable risk factor. Further, mortality among people with substance use or mental health disorders can be reduced through interventions delivered at the individual, community, and health systems level (e.g. Narcan trainings, tobacco cessation).

Chronic disease refers to a medical condition that is persistent or recurrent. Cardiovascular disease and diabetes are common chronic diseases responsible for a large proportion of hospitalizations that result in excess morbidity for individuals and place a heavy cost burden on the healthcare system. A common underlying and potentially modifiable risk factor for both conditions is diet. Unfortunately, a portion of the population suffers from lack of knowledge of or access to healthy food choices. Thus, interventions directed at improving dietary choices and increasing food security can prevent the onset of these conditions and therefore offer an opportunity for primary prevention. For individuals with existent disease, efforts are tertiary in nature and seek to maximize health and minimize short-term and long-term complications that can result in expensive hospitalizations. Chronic disease self-management can also have beneficial effects as tertiary prevention of disease morbidity for both cardiovascular disease and diabetes.

Communicable diseases are illnesses that spread from one person to another or from an animal to a person, or from a surface or a good. Diseases can be transmitted during air travel through direct contact with a sick person, respiratory droplet spread from a sick person sneezing or coughing. (CDC.gov). COVID-19 causing a public health emergency put pressure on health care systems and organizations. The effects of COVID-19 can be deterred by proper monitoring, testing, and vaccination. Government agencies, hospitals, and community organizations have worked together in creating efforts to combat COVID-19 and harbored preparedness for future communicable disease emergencies.

SECTION FIVE – OPPORTUNITIES FOR ACTION: THE COMMUNITY HEALTH IMPROVEMENT PLAN

This section presents the 2022 updates to the 2019-2024 Community Health Improvement Plan (CHIP) in a narrative format. A CHIP is a strategic roadmap for addressing public health issues in a community. This CHIP was generated from the results of the preceding Community Health Assessment (CHA) and Community Health Survey (CHS) and was developed collaboratively with a broad coalition of community partners and stakeholders. The CHIP operationalizes the Broome County vision for maximizing the opportunity for all people to take responsibility for their own well-being and achieve their optimal quality of life. The CHIP also details how our local public health department and community organizations will work together to improve the health opportunity of Broome County residents.

The CHIP is disseminated to the community through the release of this document. A separate document detailing the improvement plan and yearly updates in Excel format is submitted to New York State Department of Health. This format allows them to monitor our, and the other 61 NYS counties', progress towards achieving state goals and objectives. All the information included in the Excel document for the state, aside from updates to the interventions that are not recent or no longer relevant, is included in the following narrative.

Priority Area #1: Prevent Chronic Disease

Focus Area #1: Healthy Eating and Food Security

Goals: 1.0 Reduce obesity and the risk of chronic disease, 1.1 Increase access to healthy and affordable foods and beverages, 1.2 Increase skills and knowledge to support healthy food and beverage choices

According to the Centers for Control and Prevention (CDC), in 2016 obesity and overweight were the second leading cause of preventable death in the United States (US). The CDC stated that by the year 2050, if obesity trends continue as they have been, life expectancy in the US is predicted to be shortened by 2- 5 years. Throughout the COVID-19 pandemic the dangers of obesity became clearer; people with chronic conditions were getting sicker and dying more often than people without. Obesity is a risk factor for many chronic conditions including high blood pressure, high cholesterol, stroke, heart disease, type 2 diabetes, asthma, some cancers, and osteoarthritis. Alarming, these conditions are now appearing in adolescents and children. Chronic disease burden is also racialized, affecting citizens who identify as Black and Hispanic at much higher rates nationally than they affect non-Hispanic White citizens.

Currently, the percent of adults who are obese in Broome County is 30.7%, which is higher than the NYS Prevention Agenda target of 24.2%, higher than NYS average at 27.6%, and much higher than Broome's levels in 2016, 25.7%. The percent of children and adolescents who are obese in Broome County is 17.9%, which is higher the NYS Prevention Agenda target 16.4% and higher than the upstate NY average of 17.3% (NYS Prevention Agenda Dashboard). Although there is no data on obesity by race and ethnicity, the County Health Indicators by Race and Ethnicity dashboard does show that chronic disease burden in Broome is highly racialized. To reduce the incidence, prevalence, and burden of obesity and

chronic disease, it is necessary for public health workers and communities to work to create environments that make healthy choices the easier choices, especially for those who are most at risk. This involves mobilizing key stakeholders, decision makers, and community partners to collaborate across sectors to promote “health in all policies.” Focused efforts in this area include increasing healthy eating and food security, while collectively working to eliminate racial/ethnic and socioeconomic health disparities.

Overview and Measures

Goal 1.0: Reduce obesity and the risk of chronic disease

Objective 1.0.1: By 2024, reach a childhood obesity rate of 12.9% among the target demographic (children aged 2-4 participating in WICS’s SNAP program), a reduction from the baseline of 13.9%.

To accomplish this, the Broome County Health Department (BCHD) WIC Program will continue to promote their decreased fat WIC food package, they will provide education once a year for children ages 2-4 about healthy lifestyles including diet and exercise, and they will monitor children’s BMIs. Progress towards this objective will be evaluated in part based on self-report measures gathered from WIC participants regarding their knowledge and consumption of healthy foods and beverages. It will also be based on measurements obtained by WIC from the local healthcare providers.

Measures used to Assess WIC Obesity -1) Number of WIC participants receiving a reduced fat food package, percentage of children with obesity (among children ages 2-4 years participating in the Special Supplemental Nutrition Program for Women, Infants, and Children [WIC]) 2) Number of WIC participants receiving general nutrition education and active learning information and being assessed for height/weight every year.

2022 Partner updates:

- BCHD provides promotion of healthy lifestyle education and services of the WIC program. BCHD WIC has provided a total of 16,870 reduced fat WIC food packages as of June 2022. The percentage of children with obesity, among children aged 2-4 years participating in the WIC program has decreased from 15.3 to 8.7 based on the measurements obtained by WIC from the local HCP. The local agency has been working hand in hand with local HCP to obtain up to date measurements as we are not seeing participants in person. Lourdes continues to conduct Healthy lifestyle education about increased consumption of fruits and vegetables, decreased portions, and increased physical activity to all WIC children 2-4 years old once each year.
- LOURDES Continue (1) Parents and Children Together (PACT) and ImPACT home visiting programs promote breastfeeding and share information regarding healthy nutrition for infants, toddlers and youth. (2) PACT home visitors also share information regarding outdoor activities to do with children, local farmers markets, and healthy meal preparation.
- Both UHS and Lourdes will ensure communication to providers about referrals to the Broome County WIC program, for pregnant women, lactating women, post-partum women, infants and children up to 5 years of age.
- Continue to promote decreased fat WIC food package
- Healthy lifestyle education about increased consumption of fruits and vegetables, decreased portions, and increased physical activity for all WIC children once each year for 2–4-year-old.
- Volunteers Improving Neighborhood Program (VINES) will increase access to and number of community gardens and Farm Share opportunities, in high-risk neighborhoods.

- All WIC prenatal clients will be offered breastfeeding peer counseling and free breastfeeding classes once a month

Objective 1.0.2: By 2024, decrease the percentage of school age children with obesity by 1 % from 17.7% to the Prevention Agenda goal of 16.7%.

Several interventions will be used to reach this objective; they include: UHS - 1) UHS Stay Healthy Kids Coordinator continues to work with Head Start schools to provide monthly classes on site, to children age 3-5. Healthy eating and exercise tips are provided to children and their parents. The program is 18 classes per month. (2) The “Kids on Track” 8-week program continues in the Spring and Fall for children 5-13. This program covers exercise and nutrition appropriate to the age group. K-12 Schools - 1) School Wellness Programs/Policies - Establish and incorporate strong nutrition standards for food marketed, provided and sold in schools, provide healthy eating learning opportunities through rock on cafe, students using walking or biking to get to school, schools providing universal breakfast, grab and go options, breakfast in the classroom, incorporating smarter lunchroom strategies to increase access and promote healthy eating, participating in Farm to School.

Measures used to Assess School Age Obesity: 1) Number of students impacted by specific policies that address healthier nutrition standards for food and beverages sold in schools (2) Number of school districts adopting specific policies that address healthier nutrition standards for food and beverages sold in schools (3) Number of school district wellness policies that address free drinking water, 4) Number of school districts participating in Universal Breakfast 5) Number of students participating in Breakfast in the Classroom/Grab n' Go Breakfast, 6) Number of school districts participating in Breakfast in the Classroom/Grab n' Go Breakfast education classes 7) Percentage of children who are overweight [defined as having an age and gender specific BMI at >85th to 95th percentile] 8) Percentage of children who are obese [defined as having an age and gender specific BMI at >95th percentile] 9) Number of students using active transport methods to/from school.

2022 Partner Updates:

- UHS - provides a Stay Healthy Kids Coordinator who educates Headstart students, public school age children/parents on healthy eating and beverage consumption choices. The “Kids on Track” 8-week program covers exercise and nutrition appropriate to the age group (5-13 years). Latest Update: The UHS Stay Healthy Kids Program has dissolved as of 2021 due to COVID-19 and has not been re-established. As of September 2022, it appears that the Kids on Track program has been dissolved.
- Care Compass Network - innovation funding to UHS for Community based Nutrition Wellness (education to take place at Cornell Cooperative Extension of Broome County).
- BCHD - School Wellness Programs/Policies - Establish and incorporate strong nutrition standards for food marketed, provided and sold in schools, provide healthy eating learning opportunities through rock on cafe, students using walking or biking to get to school, schools providing universal breakfast, grab and go options, breakfast in the classroom, incorporating smarter lunchroom strategies to increase access and promote healthy eating, participating in Farm to School. Latest update: BCHD has worked with BT BOCES to assess and improve 5 school Local Wellness Policies - these policies all address various components of nutrition and physical activity before, during, and after the school day. BCHD is currently in Year 2 of the new Creating Healthy Schools and Communities grant, which will improve an additional 3 LWPs in Broome

County schools. Focus will remain on increasing access to better nutritional opportunities for school-aged children. In addition to improving LWPs, several school districts have built/expanded their school gardens, which have served as an educational opportunity for students to learn about where their food comes from, as well as incorporating the harvested vegetables into the school meals. This is done throughout the entire year in multiple school buildings due to hydroponic Tower Gardens that were purchased with CHSC grant funds. During the second cycle of the CHSC grant, BCHD is working with Family Enrichment Network to assess, adopt, and implement policies at childcare facilities in Broome County to increase access to improved nutrition and physical activity opportunities for students. Incorporate information re: Rock on Cafe, SNAP-Ed Nutrition Classes (can also be for 1.0.3), summer meals, and Farm-to-School programs.

- Cornell cooperative extension - SNAP-Ed is an evidence-based program that helps people lead healthy, active lives. In-school and afterschool programming at Binghamton, Johnson City, Maine-Endwell, Harpursville, Whitney Point, Susquehanna Valley, Windsor, Broome-Tioga BOCES, Saint James Elementary, Union-Endicott, Chenango Valley, and Chenango Forks. Afterschool programming at the Urban League, Boys and Girls Club, Fun Club at Binghamton, and Lee Barta Community Center. Summer programming at Binghamton Imagination Camp and Summer Fun Parks Programs. Youth programs are taught using the *CATCH Kids Club* curriculum. EFNEP youth programs are taught using the *Choose Health: Food, Fun, Fitness* (CHFFF) curriculum and *Teen Cuisine* curriculum. Series are a minimum of 6-weeks. Healthy Lifestyle Coalition. Youth programs (nutrition, physical activity, cooking and STEAM) are held in the form of 4–6-week series education at Roosevelt and Calvin Coolidge Elementary, Housing Connections, and Lee Barta Community Center. We also hold after-school enrichment programs 1-2 times per week at the Lee Barta Community Center. Community Nutrition. Community Nutrition is a program out of CCE Broome that offers nutrition programming in Broome County to programs that do not fit within the guidelines of SNAP-Ed, EFNEP, and HLC grants. Programs include nutrition education, physical activity, gardening, and food preservation.
- BCHD - 1) School Wellness Programs/Policies - Establish and incorporate strong nutrition standards for food marketed, provided, and sold in schools, provide healthy eating learning opportunities through rock on cafe, students using walking or biking to get to school, schools providing universal breakfast, grab and go options, breakfast in the classroom, incorporating smarter lunchroom strategies to increase access and promote healthy eating, participating in Farm to School.
 - Continue to provide universal breakfast and lunch for k-12 in all schools
 - Increase participation in summer lunch sites that serve families throughout Broome County
 - Promote and support screening of pediatric patients by healthcare providers, facilitate referral and support active connection to WIC and/or SNAP

Objective 1.0.3: By 2024, decrease the percentage of adults ages 18 years and older with obesity, from 25.7% to 23.7%.

Several interventions will be used to reach this objective: BCHD - Work with community-based organizations, worksites and recreation venues to create policies related to sugary drink reductions, healthy meeting guidelines and/or food procurement standards. Utilize NYSDOH, CDC, and locally developed messaging to garner earned media on healthy eating & promoting healthy beverages

LOURDES - Develop medical weight loss program to support people aged 18 years and above with a BMI >30 in achieving a decrease in their BMI and improvement in overall health.

Measures used to Assess Adult Obesity: 1) Percentage of adults ages 18 years and older with obesity 2) Percentage of adults who consume more than one or more sugary drink per day 3) Number of policies or food procurement standards adopted in worksites, community-based organizations, recreation venues and health care institutions.

2022 Partner updates:

- Lourdes - The Creating Healthy Schools and Communities grant is in the second 5-year cycle. During the first 5 years, the focus for nutrition policies was on healthy meeting guidelines and reducing sugary beverage consumption through vending machine policies. In this cycle, BCHD is partnering with community organizations to adopt and implement Food Service Guidelines policies within worksites and community settings, such as concession stands and food pantries with the end goal of creating a food environment that makes healthier choices easier for consumers.
- UHS - stated they have had Pressconnects articles published about healthy eating which they usually also post on their social media. UHS media contact stated that the Community Outreach Committee will put a plan together for future healthy eating outreach targeting the public.
- BCHD: continues to issue earned media items: social media posts, letters to the editor, news releases, news interviews and PSAs to increase public awareness around healthy eating/beverage consumption and obesity. The percentage of adults ages 18 years and older with obesity, increased from 25.7% to 30.7%. The Creating Healthy Schools and Communities grant will continue to partner with community organizations to share and post social media messaging focused on nutrition and physical health. The CHSC grant will also continue to distribute letters to the editor, news releases, interviews, and PSAs to promote improved nutritional opportunities and messaging to Broome County residents.
- Office for Aging - There are 8 senior centers in Broome County. All senior centers offer a variety of physical activity classes to their seniors for free, some specialty classes have a low price such as \$3.00. Classes include Chair yoga, gentle yoga, light weights class, line dancing, Zumba, low-impact aerobics, Tai Chi, drum exercise class, and more depending on the month. These classes are offered monthly with the schedule sent out at the beginning of each month. Classes are also offered to seniors in Broome online who cannot attend the in-person classes. Exercise equipment is available daily at four of the eight senior centers. The senior centers re-opened in June 2021 and had 6562 participants in their HP classes. As of October 2022, there have been 5,849 participants YTD.
- LOURDES - Develop medical weight loss program to support people aged 18 years and above with a BMI >30 in achieving a decrease in their BMI and improvement in overall health.
- Promote screening of older-adult populations for food insecurity, facilitate referral and support active connection to SNAP/ food banks
- LOURDES - Dieticians in Lourdes Primary Care practices offer referred patients' information on healthy eating habits and "coupons" to purchase fruits and veggies. (Lourdes Primary Care practices in collaboration with Rural Health Network and local farmers).

Goal 1.1: Increase access to healthy and affordable foods and beverages

Objective 1.1.1: By 2024, decrease the percentage of adults from 31.9% to 27.9%, who consume less than one fruit and less than one vegetable per day.

Several interventions will be used to reach this objective: Increase CHOW mobile markets in high risk neighborhoods, Cornell Cooperative Extension to provide nutrition education, menu and budget planning to SNAP recipients, Broome County Regional Farmers Market accepts SNAP/EBT, FreshConnects, Senior FMNP, ProduceRx, and Broome County Veterans Coupons, leftover produce at the end of each Saturday is donated to the Binghamton Food Rescue. OFA - Provide healthy meals & snack at Senior Centers and community events, increase redemption of Office for Aging and WIC participants farmer's market coupons, open grocery store on Northside of Binghamton (food desert) Volunteers Improving Neighborhood Program (VINES) will increase access to and number of community gardens and Farm Share opportunities, in high risk neighborhoods. Broome County Council of Churches - "Chop'n Chat" program held at senior centers where seniors are provided produce and ingredients to prepare a meal for a small contribution in a donation box (anonymous) with what they can afford. Participants then take the meal and produce home. Produce is supplied by the Council of Churches.

Measures used to Assess Increase access to healthy and affordable foods and beverages: 1) Percentage of adults who consume less than one fruit and less than one vegetable per day, 2) Number of SNAP recipients educated on nutrition, budget and meal planning, 3) Number of OFA Senior Sites providing healthy meals, 4) Number of Seniors participating in OFA's Healthy Meals on Wheels, 5) Sales revenue from WIC, EBT, and SNAP benefits for new grocery store on Northside Binghamton, 6) EBT, SNAP sales at Regional Farmer's Market, 7) Number of CHOW mobile markets serving high risk neighborhoods

2022 Partner updates:

- UHS Endicott (primary care site and walk-in in high-risk area) provides information to patients regarding community food pantry availability. Additionally, this site is in its 6th year of the FVRx (Fruits and Vegetables Prescription program, now known as PRx, Produce Prescription). There are eligibility requirements such as diet related disease, food insecurities and financial screening and over 18 years of age. When enrolled, patients are given the choice of being in the coupon shopping program or Vines (Volunteers improving neighborhood environments)/Farmshare (community supported agriculture program). Endicott will be enrolling 89 people again this year (2022) and is currently at 66. UHS Johnson City Family Care (primary care and walk-in clinic in high risk area) is in their second year of running the food RX program. There are 32 patients enrolled in the program and we hope to enroll 20 more at JC this year.
- Broome County Council of Churches Chop n'Chat program - Program held at 5-6 Senior Centers in Broome
- Office for Aging - Senior Centers in Broome distribute coupons for the local farmer's markets that value at \$25. Each senior (60+) is eligible for 1 per year. In 2022, OFA distributed 860 coupons to seniors.

- Johnson City (JC) Family Care UHS started a food pantry for patients. UHS JC have a partnership with VINES for approximately 20 spots for low-income patients to receive free farm share boxes.
- CHOW: SNAP Double Up - The Greater Good Grocery (Recently constructed in a food desert offering the only access to fresh food, located in a high-risk location) was chosen as one of the locations for the SNAP Double Up program, which allows customers using SNAP funds to double up purchases of fresh produce. Ex: If a customer purchased \$10 worth of produce, they could get another \$10 worth for free. Additionally, with a separate grant, the store was able to double up ALL SNAP purchases. We are working on another grant to continue that portion of the Double Up program. Shoppers that use cash, receive a \$5 coupon with each purchase. CHOW Mobile Markets – the hope is to get the Mobile Markets up and running again focusing on high-risk food deserts both within the city and in more rural areas in order to bring fresh fruits and vegetables to those places.
- BCHD CHSC - Working on developing a nutrition policy for the food pantry at the Addiction Center of Broome County. The food pantry serves between 350-400 individuals per month, or approximately 4500 individuals per year.
- Catholic Charities hosts two food pantries: Mother Teresa's Cupboard Pantry at St. Ambrose Church, Endicott, and Binghamton Food Pantry at 100 Main St. Binghamton (both high risk areas). These pantries assist people who are Medicaid eligible (but will not turn away anyone). Food comes from grants, donations, postal drive donations, Food Bank of the Southern Tier, and CHOW. (Waiting for measurables).

Goal 1.2: Increase skills and knowledge to support healthy food and beverage choice

Objective 1.2.1: By 2024, Increase by 10%, from 22% to 32%, the percentage of WIC infants who continue to be breastfed until 6 months.

To achieve this objective all WIC prenatal clients will be offered breastfeeding peer counseling and free breastfeeding classes once a month, once baby is delivered peer counseling services will be provided frequently and consistently to ensure increased duration.

Measures used to Assess WIC Breastfeeding Program: 1) Percentage of WIC infants breastfed for 6 months 2) Number of WIC prenatal clients linked with breastfeeding peer counselor, 3) Number of WIC prenatal clients attending breastfeeding classes.

2022 Partner update:

- UHS' current Lactation Consultancy program consists of 2 IBCLCs who do consults from NICU, NT5, L&D, NW4 and ED, or wherever a mother presents with breastfeeding needs. They also get referrals from primary care, OB, and pediatric outpatient sites. The LCs follow up with phone calls after discharge and arrange outpatient appts for those pts prior to leaving. For NYSDOH and for Joint Commission, UHS tracks # of deliveries as well as # of moms who exclusively breastfeed, # of moms who combo breastfeed and formula feed, and # of moms who exclusively formula feed. UHS also works directly with Mother's and Babies Perinatal Network on a referral basis. UHS refers new mothers to the WIC program at MBPN.

- BCHD WIC: WIC offers breastfeeding peer counseling via text and phone call, along with virtual infant feeding classes. The agency allows mothers to come in person have one on one sessions to help with latching and weight checks.

Objective 1.2.2: By 2024 LOURDES (Adults) Increase the number of adults by 100 (from 200 to 300) that improve their knowledge of and engagement in healthy eating habits by utilizing the Fruit and Veggie RX Program.

To accomplish this, Lourdes Primary Care practices offer referred patients' information on healthy eating habits and "coupons" to purchase fruits and veggies. (Lourdes Primary Care practices in collaboration with Rural Health Network and local farmers).

Measures used to Assess Increase skills and knowledge to support healthy food and beverage choices: Fruit and Veggie Rx Program: 1) Number of adult patients participating in the fruit and veggie RX program 2) Number of adult patients to redeem fruit and veggie Rxs 3) Number/percentage of adult patients who improve knowledge of and engagement in healthy eating by using Rx program.

2022 Partner updates:

- Lourdes Registered Dietitian at 303 Main Street primary care site (high risk location) is administering the PRx program in partnership with the Rural Health Network. Participants have been maxed out at 52 for the program, with a waiting list (mainly utilized at 303 Main Street, 1 Owego and 5 in Vestal). One specific scenario how the program has helped; "...one participant with prediabetes who was on metformin recently had her metformin discontinued and her A1C is within normal range, and she attributes much of this to greater access to fruits and vegetables." This year Rural Health Network has provided cooking incentives for PRx participants with each visit. Lourdes PR staff person plans to offer healthy eating promotions including employee newsletter, social media, paid/earned media, flyers, and posters in patient exam and waiting rooms.
- Cornell Cooperative Extension - SNAP-Ed is an evidence-based program that helps people lead healthy, active lives. Classes teach people how to stretch their SNAP dollars, how to shop for and cook healthy meals, and how to stay physically active. Programming at the Broome County Public Library, Johnson City Public Library, George F Johnson Memorial Library, Lee Barta Community Center, Achieve, all 8 Broome County Senior Centers, SEPP Housing, Metro Plaza Apartments, 110 Chenango, Saint Michael's Church, Outpatient Treatment Centers, American Civic Association, Volunteers of America, Produce Rx Participants, Community Centers, Central United Methodist Church, Careerbound, Mobile Food Pantries, Tioga DSS, Broome DSS, Big Apple, HCA Group Homes, Family Resource Center, WIC Clinics in Broome and Tioga County, Catholic Charities, STIC, YMCA/YWCA and Congregate Meals . Adult programs are taught using the *Eat Healthy, Be Active* curriculum, *Eat Smart, Live Strong* curriculum, *Cooking Matters* curriculum, and *Healthy for Life* curriculum. Healthy Lifestyle Coalition - adult programs (nutrition, physical activity, cooking, food preservation) are held as one-time and series education at the Lee Barta Community Center. Community Nutrition is a program that offers nutrition programming to programs that do not fit within the guidelines of SNAP-Ed, EFNEP, and

HLC grants. Programs include nutrition education, physical activity, gardening, and food preservation.

Goal 1.3: Increase food security

Objective 1.3.1: Decrease percentage of population who did not have access to a reliable source of food during the past year from 13.8% to 12.6%.

1) Promote and support screening of pediatric patients by healthcare providers, facilitate referral and support active connection to WIC and/or SNAP; 2) Promote screening of older-adult populations for food insecurity, facilitate referral and support active connection to SNAP/ food banks 3) Continue to provide universal breakfast and lunch for k-12 in all schools 4) Increase participation in summer lunch sites that serve families throughout Broome County.

Measures used to Assess Increase Food Security: 1) Percentage of population who did not have access to reliable source of food during the past year 2) Number of pediatric/primary care healthcare providers screening and providing referrals to WIC/and or SNAP, 3) Percentage of households receiving SNAP, 4) Percentage of population with low income and low access to grocery stores.

2022 Partner updates:

- OFA - Senior Center (8) meals are \$3.50 each. There is a box for contributions so it is anonymous, and they can pay what they can afford or use an EBT card. OFA referral program - When people call OFA for food, referrals are made to local food banks.
- Greater Good Grocery – the store which opened in January of 2021 continues to increase sales and bring a grocery store experience to a neighborhood that hadn't had a local grocer in nearly 25 years. The goal is to bring lower cost fresh food to this historic food desert. But it should be noted that the store is open to ALL customers, not just low income, or people who live in the Northside of Binghamton (food desert).
- CHOW – Greater Good Grocery and other local entities are served by CHOW's Broome Bounty Program. It is a food recovery program where they pick up and distribute food that is "past its sell-by date, but not past its use date." It would normally end up in a landfill but is completely edible and predominantly fresh produce, meat, and other perishable items. In 2021, over 1.8 million pounds of recovered food were distributed. In 2021, CHOW distributed nearly 2 million meals through their network of pantries and meal sites. And nearly 2.4 million pounds of food total was distributed in 2021; impacting hundreds of thousands of people.
- Catholic Charities holds a Summer Lunch Program located at St Ambrose Church, Endicott, and Binghamton Food Pantry, 100 Main street Binghamton (high risk areas). Specifically serves to kids. Previously, this program held activities and was structured, but with COVID-19 it became a "Grab n Go" lunch bag program which actually increased their numbers. In 2022 thus far, the Endicott location served 142 lunches, 31 unduplicated, Binghamton served 1444 lunches, 434 unduplicated.

Focus Area #2: Preventive Care and Management

The CDC estimates that six out of ten Americans have at least one chronic disease, and four out of ten have two or more. The productivity and quality of life for people living with a chronic disease such as diabetes, heart disease, stroke and cancer is limited which in turn impacts their families as well. Most chronic diseases are preventable and can be managed successfully with healthy behavior changes. In Broome County, some populations suffer disproportionately from preventable chronic disease conditions. Non-Hispanic and Black populations have significantly higher levels of mortality and hospitalizations associated with heart/stroke and diabetes indicators. In addition, other health determinants such as poverty and lower education status increase the need for chronic disease management models, especially for many enrollees of Medicaid Managed Care plans who consistently rely on hospital emergency rooms for emergent care of preventable health conditions. It is critical that the Delivery System Reform Incentive Program (DSRIP) focuses on helping Medicaid members reduce their risk and help manage chronic diseases and their risk factors. Chronic diseases need to be appropriately diagnosed and managed in order to reduce the complications, burden of morbidity, hospitalizations, poor function status and mortality that comes with chronic disease. Necessary collaborations with healthcare systems and other community sectors need to ensure that successful strategies exist for chronic disease management opportunities, especially where the most vulnerable and high risk populations are concerned.

Overview and Measures

Goal: 2.0 Increase cancer screening rates

Objective 2.0.1: By 2024, increase the percentage of adults by 5% who receive a colorectal cancer screening based on the most recent guidelines (ages 50 to 75 years) from 72% to 78%

Interventions include: Removal of structural barriers to cancer screening such as providing flexible clinic hours, offering cancer screening in non-clinical settings (mobile mammography vans, flu clinics), offering on-site translation, transportation, patient navigation and other administrative services and working with employers to provide employees with paid leave or the option to use flex time for cancer screenings, work with CSP to enhance marketing and communication efforts around colorectal cancer screening in the priority population.

2022 Partner Update:

UHS has started using the Bulk Outreach capabilities in Epic which allows us to do a mass message communication. Communication to patients is through their selected preferred method. Reminder messages are sent through either MyChart, phone call, or physical letter. UHS Providers receive a BPA (best practice advisory) on EPIC when seeing a patient. This BPA suggests tests, labs, etc. that are due for the patient as well. In March 2021, a bulk outreach of 10,000 colorectal cancer screening notifications were sent out to the local region reminding patients of the importance of regularly staying on top of this clinical measure. UHS has embraced the approach of Colonoscopies, Cologuard, and Fit Kits for colorectal cancer screening. UHS offers translation services at all locations across our continuum of care. UHS has a Transportation Coordination service that we offer in conjunction with payers and community-based organization (Rural Health Network's GetThere program). UHS has participated in the Southern Tier Cancer Services Program for 20+ years which encourages NYS residents who are uninsured to receive breast, cervical, and colorectal cancer screenings per guidelines.

Lourdes and Endwell Family Physician also have a reminder system on their patient portal as well as EMR chart flags.

Goal 2.1: Increase early detection of cardiovascular disease, diabetes, prediabetes, and obesity

Objective 2.1.1: By 2024, increase the percentage of children and adolescents ages 3 -17 years with an outpatient visit with a primary care provider or OB/GYN practitioner during the measurement year who received appropriate assessment for weight status during the measurement year by 5% (baseline 75%).

Intervention to achieve this objective is based on utilizing the US Preventive Service Guidelines and HIT, to consistently implement screening practices/policies to identify children at risk for overweight or overweight and refer to behavioral and nutritional education programs.

2022 Partner Update:

8/2/22 Lourdes Update:

BMI screenings completed

Total BMI Screenings Completed: 86,670

15.0% - Children Ages 3-17

56.4% - Adults Ages 18-64

28.6% - Adults Ages 65+

UHS: There were 402,064 BMI Screenings from 1/1/2022-11/9/2022.

9%- Children ages 3-17

57%-Adults Ages 18-64

Adults Ages 65+-34%

Objective 2.1.2: By 2024, promote at least 3 strategies that improve the detection of undiagnosed hypertension in health systems. The evidence-based intervention that will be used to promote strategies that improve the detection of undiagnosed hypertension in health systems is the CDC Million Hearts Program.

2022 Partner Update:

As of August 2022, UHS does not have any involvement in the Million Hearts Campaign as the campaign has dissolved. American Heart Association hopes to work with both UHS and Lourdes in the future to implement the "Lower the Pressure" initiative.

Goal 2.2: Promote evidence-based care to prevent and manage chronic diseases including asthma, arthritis, cardiovascular disease, diabetes and prediabetes and obesity

Objective 2.2.1: By 2024, decrease the percentage by 5% of adult Medicaid members, identified through DSRIP with diabetes whose most recent HbA1c level indicated poor control (>9%).

Interventions employed for this objective include: UHS and Lourdes Primary care network offices to work closely with the diabetes centers to implement standards of medical care in diabetes, work with HIT to implement/modify EMR to include reminder system for screening, follow up and case management activities.

2022 Partner Update:

UHS Update 8/2/22: Diabetes Education is currently in the process of rebuilding the program due to educator turnover. Currently, Diabetes education is not focused on any particular population, rather it's

just made sure all of our patients have what they need and that education is provided to keep them compliant with their meds and monitoring their blood sugars.

8/2/22 Lourdes Update: Lourdes Prediabetes Project: >6,000 patients now being tracked and monitored by their PCP to prevent onset of DM; led by Lourdes Endocrinology. 3.2% rate of patients who have become diabetic vs. ADA national rate of 5-10%. Lourdes Data and Endocrinology Departments currently working on a Risk Stratification Tool to identify prediabetics at highest risk for Diabetes conversion based on clinical and behavioral factors.

Rural Health Network is piloting a "Walk With Ease" evidence-based program to combat Arthritis. The program will be implemented in the beginning of next year.

Office For Aging offers a walk-with-ease class using the Arthritis Foundation model. Class is currently maxed at 15 participants with a waiting list. The class runs for 6 weeks meeting 3x per week. Another class at the same capacity will begin in January.

Goal 2.3: In the community setting, improve self-management skills for individuals with chronic diseases, including asthma, arthritis, cardiovascular disease, diabetes and prediabetes and obesity

Objective 2.3.1: By 2024, increase from 225 to 325 the number of adults with chronic conditions (arthritis, asthma, CVD, diabetes, CKD, cancer) who have been identified and referred to take a course or class to learn how to manage their condition.

Both hospital systems will provide standards of care to identify and assist with management of diabetes by: 1. Promote testing for prediabetes, and risk for future diabetes in asymptomatic people in adults of any age with obesity and overweight (BMI 25 kg/m² or 23 kg/m² in Asian Americans) and who have one or more additional risk factors for diabetes, including first degree relative with diabetes, high risk race/ethnicity, and history of cardiovascular disease. 2. Promote testing for all other patients beginning at 45 years of age. 3. Promote repeat testing at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status 4. Refer patients who are diagnosed with obesity, CVD, or diabetes to community chronic disease self-management program (Stamford Evidence Based Chronic Disease Self-Management Program)

Measures for these objectives include:

Cancer screening: 1) Number of health systems that implement or improve provider and patient reminder systems 2) Number of patients reached through patient reminder systems 3) Compliance with screening guidelines among patients reached through patient reminder systems/among patients of health systems that adopted systems 4) Provider, clinic or insurer breast and colorectal cancer screening rates,

Early detection of chronic diseases- obesity: 1) Percentage of children who are overweight [defined as having an age and gender specific BMI at ≥ 85 th to 95th percentile] 2) Percentage of children who are obese [defined as having an age and gender specific BMI at ≥ 95 th percentile] 3) Number & Percent of children screened 4) Number of primary care providers conducting BMI screening 5) Number of hospital systems implementing childhood BMI screening policy/system change.

Early detection of chronic diseases-hypertension: 1) Number of health systems with policies/practices to identify patients with undiagnosed HTN 2) Number/percentage of patients served by health systems with policies/practices in place 3) Number of patients identified with undiagnosed HTN.

Promote evidence-based care to prevent and manage chronic diseases- diabetes: 1) Screening rate for diabetes and pre-diabetes among adults age 45+ 2) Number of patients identified as having diabetes or pre-diabetes who receive follow-up by Stay Healthy Center 3) Number of patients receiving diabetes education 4) Percentage of adults (age 45+) diagnosed with pre-diabetes or type 2 diabetes who are referred to diabetes self-management training (DSMT) 5) Number of rural residents participating in chronic disease self-management 6) Number of rural residents participating in chronic disease self-management, 7) Percent of adult Medicaid members with diabetes identified through DSRIP with controlled HbA1c

Chronic disease management in the community setting: 1) Number of health systems with policies/practices to identify, refer patients with diabetes or prediabetes, obesity, CVD 2) Number/percentage of patients served by health systems with policies/practices in place 3) Number of patients identified with diabetes/prediabetes 4) Number of patients referred to community based chronic disease self-management programs like Stamford Chronic Disease Self-Management Program or National Diabetes Prevention Program.

2022 Partner Update:

UHS participated in the Medicaid Health Home from 2013 through to April 2021 when we sunset our program and transferred several hundred patients to other care coordination programs in our community. UHS used a network of Care Management Agencies (CBOs) who rendered Care Management for Medicaid beneficiaries with chronic illnesses, SUD, SPMI, or a diagnosis of HIV/AIDS. At our program's max, we had just shy of 1,000 enrollees.

Lourdes identified pre-diabetic patients and based on attributes, patients are ranked for risk to conversion to DM. PCPs plan care for identified high-risk prediabetics based on risk score and clinical and behavioral factors to prevent onset of DM.

Rural Health Network has re-implemented the CDSMP program using Stamford Chronic Disease self-management model. RHN offers a 7–8-week workshop focuses on healthy eating, medication compliance, a chronic disease management. These are held in person and virtually. There are 8 participants in the 7-8 week in person workshop. A total of 15 other participants have attended various one-session workshops. Program is advertised via mailing, internal, and through healthcare providers. In 2022, 8 people attended in person and 5 attend virtually. RHN also offers a "one topic" workshop that

focuses on a specific topic for those who do not want to participate for the full 7-8 weeks. RHN will be implementing a Chronic Pain Management portion in their workshops in 2023.

Priority Area #2: Promote Mental Wellbeing and Prevent Mental & Substance Use Disorders

Focus Area #1: Prevent Mental and Substance User Disorders

In the United States, age adjusted mortality rates related to prescription opioids have increased contemporaneously with heroin drug poisoning over the past decade. A similar pattern is evident in NYS with mortality rates increasing simultaneously with heroin drug overdose. The increase in opioid-related deaths has not been evenly distributed across age groups nor concentrated primarily among youth. In fact, middle-aged adults (25-34, 35-44, and 45-64 years of age) have experienced a disproportionate share of this epidemic. Opioid-related emergency department visits and inpatient hospital admissions have across the state. Counties within NYS with core urban areas are in the worst quintile. Broome County has one of the highest opioid overdose death rate in NYS. The Steering Committee recognizes the opioid epidemic as an emerging threat to the health and well-being of Broome County residents. A task force, the Broome Opioid Abuse Council (BOAC), was formed in December of 2014 to formally coordinate efforts directed toward addressing the opioid abuse crisis. The coalition is led by the Director of the Broome County Health Department and comprised of multi-disciplinary team members who serve on four subcommittees: community education, treatment and prevention, law enforcement, and education of medical professionals. They are tasked with identifying critical priorities, developing a unified plan, and implementation solution-oriented strategies that will have a substantive impact. BOAC reports are available on the Broome County Health Department website. Issues associated with substance disorders are closely connected to that of mental well-being, and adverse childhood experiences. Broome County is seeing a substantial need for mental health and suicide prevention interventions. Destigmatizing mental health and substance use disorders is critical in developing community resilience. Building capacity for improved mental health diagnosis, treatment and recovery is something that the Broome County community has clearly demanded attention of. The 2019-2024 Community Improvement Plan has dedicated the next section to improving our community's mental health and substance use disorders needs.

Overview and Measures

Goals: 1.0 Prevent opioid overdose deaths

Objective 2.2.1 By December 31, 2024, reduce the age-adjusted overdose deaths involving any opioid from 32.1% to 22.1% per 100,000 population.

Intervention: UHS and Lourdes: Initiate Medication-Assisted Treatment in Binghamton General Hospital Emergency and Lourdes Hospital Emergency Rooms

2022 Partner Update: UHS: Medication Assisted Treatment at Binghamton General Hospital Emergency Room protocols have been developed and implemented for inductions of Bupinorphine in the ED, and we are working on strategies for increasing utilization and practice. We have peers in the ED 7 days a week to assist in connecting patients to community resources and to improve engagement.

Lourdes: Lourdes: At this time, Medication Assisted Treatment has not been implemented at Lourdes Hospital. Patients who have SUD are dispensed Narcan at the time of discharge.

Intervention: UHS: Medication Assisted Treatment (MAT) in the Broome County Sheriff's Correctional Facility. Counseling in the jail to engage inmates in treatment after their release, the continuing of patients on MAT if they were on MAT at the time of their arrest, detoxification protocols for inmates with OUD, same day access to MAT for inmates leaving the jail, MAT maintenance program

2022 Partner Update: UHS reported this is taking place currently in the Broome County Jail but did not have numbers at this time to provide. Additionally, during the months of September - November a total of 103 inmates were trained in Narcan during their release from jail.

Intervention: Care Compass Network (DSRIP), LOURDES, Addiction Center Broome County, Fairview Treatment and Recovery Center, Helio Health, Broome County Schools, Mental Health Association of the Southern Tier and UHS:

Adopting evidence-based substance use screening tools for early identification, intervention, and referral to resources and treatment (Alcohol Use Disorders Identification Test-AUDIT, The Drug Abuse Screening Test - DAST, Screening Brief Intervention to Treatment-SBIRT)

2022 Partner Update:

This intervention continues to evolve, and all partners are currently using evidence-based tools for screening, intervention, referral to resources and treatment protocol for healthcare, education, and community-based organizations. 2 hospital systems are using screening tools and 6 treatment provider and or Mental Health organizations are using a tool including ACBC, Helio Health, Greater Binghamton Health Center, Family and Children Society, Fairview Recovery and STAP.

Intervention: Expansion of Inpatient Recovery and Rehabilitation Services through Helio Health.

2022 Partner Update:

1,371 unique clients served as of 12/8/22. This number does not include repeat clients

1,579 referrals placed

-710 referrals placed for inpatient level of care

-514 referrals placed for outpatient level of care

-91 referrals for aftercare services (Voices Recovery, etc)

177 patients refused any referrals

30 current detox beds

20 current inpatient beds

50 future part 820 residential beds (2024?)

108 future units for ESSHI affordable housing (still in development stage, expected to be completed 2025)

Intervention: Expansion of Outpatient Recovery and Rehabilitation Services through the Addiction Center of Broome County at second facility in Endicott.

2022 Partner Update:

ACBC continues to operate at both locations for rehab and recovery services.

Intervention: Compass Network Innovation funding to Truth Pharm, Inc.: Administration and evaluation of Clearing the Confusion education program- in process seeking accreditation from OASAS and SAMHSA.

2022 Partner Update:

The application process was started for accreditation, but due to COVID-19 was put on hold. The program has resumed activity since the pandemic and is offered 3 times a year throughout the fall, winter, and spring.

Intervention: UHS and Lourdes: Initiate Medication-Assisted Treatment in Binghamton General Hospital Emergency and Lourdes Hospital Emergency Rooms

2022 Partner Update:

UHS: Medication Assisted Treatment at Binghamton General Hospital Emergency Room protocols have been developed and implemented for inductions of Buprenorphine in the ED, and we are working on strategies for increasing utilization and practice. Peers are available in the ED 7 days a week to assist in connecting patients to community resources and to improve engagement.

Lourdes: At this time, Medication Assisted Treatment has not been implemented at Lourdes Hospital. Patients who have SUD are dispensed Narcan at the time of discharge.

Objective 2.2.2: By December 21, 2024, increase the number by 10 per year of providers attending Buprenorphine trainings.

Intervention: Collaborate with Care Compass Network (DSRIP), UHS and LOURDES Health Care Systems to promote trainings, recruit providers and conduct trainings.

2022 Partner Update: Care Compass Network piloted a regional trauma-informed care (RTIC) school-based transformation at two local schools, Whitney Point Caryl E. Adams Primary School, and The Children's Home of Wyoming Conference. This program consisted of an enhancement in TIC policies and procedures, improving culture, adding 6 core TIC trainings for employees, as well as in-service sessions for employees. RTIC includes curriculum enhancements for students, as well as trauma screenings and additional interventions. Results at Whitney Point: 23.1% improvement in governance & leadership, 13.8% improvement in policy, 9.1% improvement in physical environment, 3.5% improvement in engagement, 12.1% improvement in screening, assessment, and treatment, 44% improvement in training/workforce development, 27.6% improvement in progress monitoring and quality assurance. 78 out of 92 staff were trained on TIC. The Children's Home of Wyoming Conference (CHOWC) results: CHOWC used a 1-5 star ranking system when evaluating results. CHOWC showed that all measurables listed above went from 1-3 stars to 3-4 stars when reevaluating the organization after 7 months. Staff also reported that they are better equipped and more compassionate with each other and students.

Objective 2.2.4: By December 31, 2024, expand Peer Support Services by increasing engagement of priority population from 50% to 80% .

Intervention: Recruit, train, and retain peers and coordinate peer response efforts for hospital ERs, law enforcement agencies, and first responders, and engage additional first responders to develop and implement protocol for peer referrals to patients who want services, enhancing and/or updating peer response model/language protocol.

2022 Partner Update:

The Peer Response Program at ACBC continues to recruit, train, and retain peers to work with local law enforcement and first responder agencies. As of October, ACBC was fully staffed for peers and now offer peer support on off-hours and weekends.

Objective 2.2.4: By December 31, 2024, expand Peer Support Services by engagement of priority populations in emergency departments from 0 to 10%

Intervention: Engage and work with local hospitals to develop protocol for referrals to peers in emergency departments.

2022 Partner Update:

Lourdes is currently working on a referral pathway for patients in need of (and actively seeking) mental and behavioral health/SUD services. The pathway would allow the Lourdes Center for Mental Health to take direct referrals from primary care.

UHS New Horizons peers continue to engage ED patients providing referrals to services and Narcan trainings upon discharge.

Objective 2.2.5 By December 31, 2024, implement 2 prevention and response strategies by establishing 1) linkages to care and 2) working with grassroots organizations and agencies to increase harm reduction education projects

Intervention: Link community members and agencies who provide Narcan training and education

2022 Partner Update:

This is ongoing and community partners provide Narcan trainings. There was an estimated 1,930 trained in Narcan and approximately 1,511 packages of Narcan distributed in 2021. Data came from 5 out of 8 OOPPs surveyed. The Broome County Health Department staff continue to provide community members with referrals to where to get trained in Narcan and the NCAP program.

Objective 2.2.6 By December 31, 2024, institute one county wide public opioid overdose spike alert protocol.

Intervention: Work with Broome County EMS, District Attorney, Coroners, UHS, LOURDES, EMS, HIDTA and City of Binghamton Police Intelligence Center to update the alert protocol that will be implemented when more than X fatal/X nonfatal occur in a 24 period.

2022 Partner Update:

Broome County has a spike alert communication plan but is looking to revise the plan. Revisions to the plan are done through the Peer Response subcommittee, which was on hiatus for a while in 2022. This is an activity the Health Department Overdose Prevention staff would like to revisit in 2023.

Objective 2.2.7 by December 31, 2024, build capacity for a more effective, comprehensive, and sustainable local prevention and response effort by strengthening the infrastructure of the Broome Opioid Overdose Awareness Council (BOAC)

Intervention: Recruit, hire, a strategic planner to create a strategic plan with priority areas for BOAC that will be used in the 3 years.

2022 Partner Update:

BOAC sent out a RFQ for the strategic planner and Karel Kurst-Swanger was chosen to facilitate the strategic planning. BOAC staff has developed and are finalizing a survey to distribute to the BOAC stakeholders. The anticipated strategic planning session will be in 2023 with the goal of having a finalized strategic plan by Spring.

Goal #2: Prevent and address adverse childhood experiences (ACES)

Objective 2.3.1: By December 31, 2024, (developmental objective) Increase communities reached by opportunities to build resilience by at least 10 %.

Intervention: Care Compass Network (DSRIP) conducting ACE's and Youth Mental Health Fist Aid trainings in schools.

2022 Partner Update:

BC SAFE continues to offer and provide workshops, presentations and trainings to both staff and students in all 13 school districts in Broome County. This includes Suicide Safer for teachers and staff, It's Real-Teens and Mental Health, Helping Students at Risk for Suicide, Talk saves Lives and other evidence informed best practices. During 2022 a total of 1600 individuals were reached.

Goal #4: Reduce the prevalence of major depressive disorders

Objective 2.3.1: By December 31, 2024, (developmental objective) Increase communities reached by opportunities to build resilience by at least 10 %.

Intervention: Prevention Coalition conducting Prevention Needs Assessment Survey in Broome County schools to determine risk and protective factors, using data to develop evidence-based action plans

2022 Partner Update:

The Prevention Coalition of Broome County is currently finalizing their PNA and recruiting schools to participate. The survey is being administered this school year. There were 10 additional questions added by Broome County this year to address Mental Health in students and questions on recreational marijuana and vaping. In 2020 4 suicide questions were added that continue to stay on the survey. A total of 10 school districts will be completing the assessment in 2023 all 10 districts will have a presentation to share data and results with both the school community and the general community. This assessment is done every 2 years with 5,000 students and data is also shared across Broome County in all districts that participate.

Objective 2.4.1: By December 31, 2024, reduce by 5% the past year prevalence of major depressive episode among adults aged 18 or older. Baseline TBD ICD 10 codes

Intervention: Execution of Care Compass Network (DSRIP) projects related to integration of behavioral health (BH) in LOURDES and UHS primary care sites (3ai, behavioral health/ substance use screens 4.a.ii. and crisis stabilization 3.a.ii.) Adopting evidence based behavioral health screening for early identification, intervention, and referral to resources/treatment. Focusing on Medicaid and uninsured) ages 18-64 with a Patient Health Questionnaire (PHQ) -9 score of 10 and above. Ensure sound referral process to a behavioral health consultant for those screened at high risk. Recruit and train behavioral health consultants, social workers who are trained in Eye Movement Desensitization and Reprocessing (EMDR) evidence-based recovery and the medical model. A uniformed approach to provider education and patient education. The development of tools to engage patients. Addressing social determinants with an emphasis on transportation.

2022 Partner Update:

Lourdes reported PHQ2/9 assessment tool utilization is being standardized across all Lourdes PC, Pediatrics and Walk-in locations. In CY2021, over 32,000 unique patients were screened.

Intervention: 1) Adapt integration model of BH in UHS and LOURDES primary care clinics for use in pediatric and family care: Adopt evidence based behavioral health screening for early identification, intervention, and referral to resources/treatment specifically for adolescents 2) Implementation of Recovery High School Model at Broome Tioga BOCES

2022 Partner Update:

Lourdes Youth Services continues to offer primary prevention services in schools throughout Broome County. Lourdes Youth Services' staff complete screenings for mental health and substance use including the PHQ 2 and 9 and refer youth and families to services as needed.

Goal #5: Prevent suicides

Objective 2.5.1: By December 31, 2024, reduce suicide attempts by Broome County adolescents (youth grades 9 to 12) who attempted suicide one or more times in the past year Baseline TBD ICD 10 codes

Intervention: Integrate use of Zero Suicide evidence-based intervention, Dialectic Behavioral Therapy, suicidal ideation workflows adoption and safety planning in primary care and Cognitive Therapy Programs for at risk youth and families in primary care settings

2022 Partner Update: BC Safe continues to host monthly meetings and participates/hosts many community events. BC Safe has partnered with BOAC and the Prevention Coalition to co-host the DEA Drug Take Back Days in the Spring and Fall. A total of 1500 pounds of medication was collected at these events in 2022 and thousands of sharps and syringes were collected. BC Safe continued Chalk the Walk in Sept. 2022 and hosted a suicide prevention walk in Sept. An awareness campaign is done to offer education and reduce stigma with an ultimate goal to be comfortable talking about mental health. Approximately 8,000 community members were engaged or educated during the week of action during events, social media, earned media, newsletter, and the community action event. A newsletter is also sent out quarterly that reaches 60 agencies and organizations of which about 2000 community members reads. Also, education, resources, and activities are sent out regularly to the coalition to about 35 partner agencies that then gets sent to about 1000 community members.

Intervention: Address compassion fatigue with specialized mental health trainings targeting mobile crisis team members, primary care and behavioral health providers, ER staff, law enforcement

Objective 2.5.1: By December 31, 2024, Reduce Age-adjusted suicide death rate per 100,000 population from 11.8% to 8.0%

Intervention: Address compassion fatigue with specialized mental health trainings targeting mobile crisis team members, primary care and behavioral health providers, ER staff, law enforcement.

2022 Partner Update:

Lourdes Psychiatric Nurse Practitioner offered compassion fatigue and stress first aid programs: completed by 81 inpatient and diagnostic imaging RNs and >15 additional staff members. In addition, this PNP offers support groups for nurse managers, ICU and 1 Medical (oncology unit) staff regarding stress, compassion fatigue, and resiliency attended by >11 staff members.

Intervention: Broome County Suicide Awareness for Everyone (BC SAFE) presence in the community at events to advocate for Suicide awareness and education.

Objective 2.5.1 By December 31, 2024, Reduce Age-adjusted suicide death rate per 100,000 population from 11.8% to 8.0%

Intervention: Broome County Suicide Awareness for Everyone (BC SAFE) presence in the community and at events to advocate for Suicide Awareness and education.

2022 Partner Update:

BC Safe continues to host monthly meetings and participates/hosts many community events. BC Safe has partnered with BOAC and the Prevention Coalition to co-host the DEA Drug Take Back Days in the Spring and Fall. A total of 1500 pounds of medication was collected at these events in 2022 and thousands of sharps and syringes were collected. BC Safe continued Chalk the Walk in Sept. 2022 and hosted a suicide prevention walk in Sept. An awareness campaign is done to offer education and reduce stigma with a goal to be comfortable talking about mental health. Approximately 8,000 community members were engaged or educated during the week of action during events, social media, earned media, newsletter, and the community action event. A newsletter is also sent out quarterly that reaches 60 agencies and organizations of which about 2,000 community members areas. Education, resources, and activities are sent out regularly to the coalition to about 35 partner agencies that then gets sent to about 1000 community members.

Priority Area #3: Prevent Communicable Diseases

Focus Area #1: Vaccine Preventable Diseases; COVID-19 Response Plan

Goal #1: Reduce cases of COVID-19**Objective: 6.1.1 For as long as necessary attempt to complete at least 90% of case investigations to limit spread of COVID-19****6.1.2 Reduce the cases of COVID-19 by 80% from 163/100,000 to 33/100,000**

Intervention: 1) Conduct Case Investigations through use of Commcare, and recently through the use of an online Do It Yourself Case investigation link created to increase efficiency of trying to reach people.

2022 Partner Update:

While BCHD stopped COVID-19 contract tracing, we still worked to identify clusters, provided guidance to community members and organizations, and provided documentation necessary for COVID paid leave. Staff also maintained the COVID-19 dashboard which provides the community with information to make decisions on their risk and to determine precautions they wished to take.

Goals #2: Improve Vaccination Rates**Objectives: 1.1.1 Increase percentage of COVID-19 completed vaccine series for Broome County residents aged 5-11 from 16% to 80%****1.1.2 Increase percentage of COVID-19 completed vaccine series for Broome County residents aged 12-17 from 51% to 80%****1.1.3 Increase percentage of COVID-19 completed vaccine series for Broome County residents aged 12-17 from 51% to 80%**

1.1.4 Increase percentage of COVID-19 completed vaccine series for Broome County residents aged 18-25 from 44% to 80%.

1.1.5 Increase percentage of COVID-19 completed vaccine series for Broome County residents aged 25- 54 from 65% to 80%

1.1.6 Increase percentage of eligible Broome County residents who have received booster dose from 88%to 95%

Intervention: 1) Establish and conduct vaccination pop up PODS, a mass vaccination site and create a to ensure health equity in rural areas, faith-based communities, schools, businesses 2) Conduct public messaging to increase vaccine uptake and decrease vaccine hesitancy.

2022 Partner Update:

To date BCHD has provided over 38,000 COVID vaccines.

Since 10/2021 we have hosted 160 community-based vaccine clinics and have provided 2,583 vaccines. Of these clinics 60 were intended to reach the underserved population at sites including community meals, food pantries, senior centers and homebound. A total of 489 vaccines were for the underserved population.

The Children's Home of Wyoming Conference reported: 155 vaccines given to residential members living on their campus, 266 to staff employed at CHOWC and 253 vaccines given to the local community. Vaccine distribution reported does not represent pharmacies or hospitals in Broome County.

Goal #3: Increase active surveillance and early detection of COVID-19

Objective 7.1.1 Increase testing capacity of COVID-19 tests administered to assist with mitigation of COVID-19 spread

Intervention:

- 1) Create multiple testing access opportunities and options through health care facilities, schools and BCHD to ensure equity for those who do not have access to testing sites.
- 2) Implement Test to Stay in all 12 Broome County school districts in 2022.
- 3) Broome County Health Department is partnering with schools to conducting home testing for families do not have access to testing due to transportation, reside in rural areas, and other social/demographic factors.

2022 Partner Update:

UHS continues to use the drive through facility for COVID-19 testing for symptomatic patients as well as COVID-19 testing for pre-operative patients to minimize exposure in the hospital setting to COVID-19. BCHD no longer offers PCR testing to the public at their location but offers free at-home COVID-19 tests to the public and community organizations that are in need. *Pharmacies not included in measures* BCHD continues to support COVID-19 testing in school districts.

COVID-19 Background

In the last months of 2019, a respiratory virus was spreading among humans. It was first identified in Wuhan, Hubei Province, China, in November, but by spring of 2020 the novel virus had caused a devastating global pandemic. It is still a global threat today in the fall of 2022. The virus is a coronavirus, called SARS-CoV-2, and the disease is COVID-19.

Many people infected with SARS-CoV-2 do not notice any changes in their health. Others develop an illness where they have trouble breathing, cough, have fevers/chills, diarrhea, headaches, congestion, fatigue, and/ or lose their senses of taste and smell. Most people experience COVID-19 as a disease event that passes. For some, illness lingers indefinitely, causing chronic disability. This condition is often known as “Long COVID-19.” For others, especially those with preexisting health conditions, COVID-19 causes life threatening acute illness from respiratory distress or organ failure. Millions of people worldwide have died because of COVID-19.

The pandemic has had direct and indirect effects on human wellbeing. This pandemic has brought awareness to inequities (i.e. racial/ethnic, socioeconomic, having to do with abilities, etc.), the importance of media and communication, the impacts of environmental destruction, the importance of community resilience, and the impact they have on health outcomes. This section addresses the effects of the pandemic in Broome County. It specifically focuses on how healthcare facilities met the challenges of the period and how local healthcare has changed because of it.

Timeline

- January 21, 2020 - The first case of COVID-19 is identified in the United States
- January 24, 2020 - Broome County flies first specimen to the CDC in Georgia for testing
- March 1, 2020 - 1st case is identified in New York State
- March 18, 2020 - 1st case is identified in Broome County
- March 19, 2020 - 1st death of a Broome County resident due to COVID-19
- March 12, 2020 - Broome County’s Emergency Operations Command Center (EOC) is activated
- March 14, 2020 - Broome County had declares a state of emergency
- March 14, 2020 - Broome County initiates 2x daily specimen transportation to NYSDOH’s Wadsworth lab in Albany
- March 21, 2020 - NYS adopts “NYS on Pause” policy closing all nonessential businesses
- April 2020 - Ascension Lourdes scales up testing capacity including drive-through.
- April 2, 2020 – UHS begins testing community members
- April 24-25, 2020 - Broome County distributes 68,000 masks to the community
- May 1, 2020 - NYSDOH opens a testing site was opened at Binghamton University
- May 22, 2020 - Broome County surpasses 500 cases
- July 30, 2020 - Broome County surpasses 1,000 cases
- October 2, 2020 - Broome County opens mobile testing site “Lab Bus”
- November 23, 2020 - Broome County surpasses 5,000 cases
- December 11, 2020 - Pfizer vaccine is approved under emergency use authorization
- December 14, 2020 - 1st COVID vaccine is given in New York State

- December 18, 2020 - Moderna vaccine is approved under emergency use authorization
- January 15, 2021 - Broome County opens mass vaccine site at SUNY Broome Community College Ice Center
- Spring of 2021 - Broome County closes mobile testing site
- June 9, 2021 - Broome County closes community mass vaccine site
- August 2021 - Broome County works with local K-12 school districts to ensure access to testing via traveling testing staff and testing supply distribution
- August 2021- Testing site opens via tent in Broome County Health Department parking lot

Broome County Government Response

Broome County Health Department is responsible for controlling the spread of communicable diseases through the means of several actions. Laboratory reports are received by health department communicable disease staff which conduct follow-up via case investigations with the individuals, and they determine preventative measures necessary to contain the spread of illness. Additional measures are dependent on the virus and can include isolation orders (cases), quarantine orders (contacts), vaccination (contacts), risk reduction education and/or medications/post-exposure prophylaxis (contacts). All of these measures play a role in preventing the spread of communicable disease, reducing the burden of illness and avoidable deaths.

Broome County Health Department staff monitored the situation as more information was available about the spread of the COVID-19 virus. Pandemic plans were reviewed, updated and pre-planning activities were quickly underway. While health department staff were well-versed on communicable diseases and outbreak management, the COVID-19 pandemic quickly evolved into a multi-agency response event.

This response effort was operated under the Incident Command Structure and in collaboration with many community agencies and partners. For this countywide response effort, Broome County Executive lead the response as Incident Commander, with the role of coordinating resources, communicating to the public, ensuring the provision of services and upholding emergency orders.

Broome County Office of Emergency Management played a significant role in the logistics function by ensuring that resources were obtained and made available to the community. An early function was the coordination of transportation of specimens to NYSDOH Wadsworth laboratory. Continued logistics activities evolved to include the movement of supplies and resources such as facemasks, hand sanitizer and test kits, to the set-up of COVID testing and vaccine points-of-distribution (PODs). The Logistics unit also supported resources to local school districts through the distribution of supplies and materials.

In addition to conducting case investigations and contact tracing, Broome County Health Department managed their role in ensuring access to COVID-19 related services. Health department staff coordinated housing and food resources for COVID-19 cases and contacts experiencing housing insecurity. With the assistance from Department of Social Services, Catholic Charities and area hotels, the ability to house individuals helped to limit the virus' spread in congregate shelters and housing units.

The health department also functioned under the operations arm of the response in ensuring distribution of COVID-19 testing and vaccine administration. This too was a multi-agency effort with county agencies, healthcare partners and community organizations. Initial testing plans were designed to address disparities and access to testing barriers. By ensuring testing resources beyond what was already in place, ensured that community members had equitable access to free testing. This too was a consideration when deploying the COVID-19 vaccine to the public. Initial efforts were on a large-scale with several hundred people per day receiving vaccination but there were also measures taken to address barriers. By limiting vaccine registration to special populations, holding “pop-up” PODs in trusted community locations, and bringing vaccines to the homebound, the county was able to ensure equitable access.

A significant function of the response was in the relaying of information to the public and community organizations. From early in the pandemic, case numbers and death tolls were a source of interest to the public. From the first COVID dashboard maintained and published by John Hopkins, the world watched as COVID-19 cases moved globally, then state by state to finally when they were identified in one’s community. Broome County quickly responded to the public’s need to know COVID-19 related statistics. Thus, the Broome County COVID-19 dashboard was created. The public dashboard was created and updated through collaboration with the county’s GIS and health department. County Executive also provided ongoing COVID-19 updates through local media networks and social media.

Another function of communication was the delivery of information and guidelines to businesses, local school districts and healthcare partners. Broome County coordinated regular meetings to discuss and review current guidelines, pending changes and the current state of the pandemic in the community. County staff also worked with local businesses on their re-opening plans and in the clarification of guidelines.

While the COVID-19 virus is still circulating and is yet to be deemed an endemic, Broome County has transitioned to post-pandemic functions. Schools and businesses are open, the public’s mask utilization is sparse, and the public’s attention has shifted to other pressing topics. Broome County has conducted a review of its pandemic response through the Strengths, Weaknesses, Opportunities and Threats (SWOT) process and have identified areas in which the county excelled and others where more pre-planning needs to occur.

Broome County faced several challenges when responding to COVID-19. BCHD experienced staff shortages resulting in significant evening and weekend hours for existing staff. To address this challenge, Broome County staff were utilized from other departments and new staff were hired. Additionally, SUNY Broome, Binghamton University Nursing and EMS programs, and Medical Reserve Corps volunteers assisted with staffing at vaccination and testing sites. Another barrier was outside communication being inconsistent with misinformation and disinformation. This made it difficult to process the information and relay it to internal partners. Information changed rapidly and quickly became obsolete if it was not acted upon immediately. Staff conducting investigations and providing information to the public had to be continuously up to date on the current guidance and status of the pandemic. In order to address transportation barriers, BCHD opened a mobile testing site that was set up in a dozen locations and tested thousands of community members free of charge. The testing site transformed into a stationary one capable of testing 250+ people/per 8-hour day, 5 days/week.

Additionally, Broome County operated a mass vaccination site at SUNY Broome Ice Center for almost 6 months and then transitioned to providing mini-PODs at schools and businesses in the community.

Broome County remained resilient and highly collaborative between county departments and community partners. Broome County OFA provided services to the aging population and connected those that struggled with technology to access all of the services that were being provided through the internet during the pandemic. Broome County EMS provided essential services and found providers for testing and vaccinations. Furthermore, case investigation evolved throughout the response and staff were continuously added as case investigators throughout the pandemic. Simultaneously the protocols and guidelines were constantly changing. This presented a significant challenge for those taking on the role that was initially only held by physicians and select nurses. In the end lay people with no medical background were conducting case investigations were able to successfully conduct thousands of investigations. Lastly, in order to help schools meet testing and exclusion requirements, BCHD administered an in-home COVID-19 testing program for students, staff, and their families. This program enabled school-related individuals without access to transportation or healthcare to receive tests.

Many of the initiatives started earlier in the pandemic, such as housing for COVID positive residents who are unable to isolate, have proven effective and remained in place throughout the pandemic. Many new initiatives have begun, like the new PAVE grant, which focuses vaccination efforts moving forward on reaching under-vaccinated populations, including rural White and urban Black Broome residents. With an attentive eye towards new variants, and ongoing efforts to vaccinate the county, we are now also dealing with the damage that the illnesses, deaths, traumatic working experiences, isolation, and economic hardships created. The County Health Assessment and Improvement Plan have identified gaps for future action.

Local Hospitals

Broome County is home to three hospitals from two hospital systems. Wilson and General Hospital part of the UHS hospital system and Lourdes hospitals from Ascension. From the beginning, there was collaboration between the hospital systems and Broome County. Frequent meetings and sharing of information allowed for a better operational picture for both the county and the hospitals. This relationship has continued and is being utilized to coordinate other responses beyond COVID-19.

The pandemic's first impact on the hospitals was the availability of PPE. There was very quickly a shortage in numerous items including N95 masks which were being required to decrease transmission. There was a nationwide and international shortage of PPE supplies. Both hospitals explored options to extend existing PPE life through re-using or cleaning the PPE. Some PPE items were manufactured by private groups and individuals in the community to fill the gaps.

The two local hospital systems worked well together to coordinate their response. Both hospital systems established the same visitation policies so that all hospitals in the area were consistent. Early in the pandemic NYS restricted elective surgeries. The cancellation of the elective surgeries coupled with individuals not seeking routine care/treatment caused a very low census at local hospitals throughout much of the early response to COVID-19. Hospitals were required to prepare for a significant surge by increasing their bed capacity by %50. This capacity was not utilized during the response.

The limiting factor for hospitals was not space and beds, but staffing. Hospitals were responsible to perform contact tracing for employees and patients within their facility. Employees who were exposed or tested positive for COVID-19 were required to isolate or quarantine which caused a significant impact on how many patients hospitals could treat. Both hospital systems became heavily reliant on traveling nurses to bridge the gap to maintain staffing. Testing was a challenge at the onset of COVID. Both hospital systems quickly ramped up their testing capability and included drive through testing which was not previously a service offered. When vaccinations became available UHS was designated as the HUB organization to coordinate the vaccine response. UHS was responsible for ensuring proper vaccine distribution and administration. UHS also provided a high-risk vaccine clinic for those with concerns of severe reactions to the vaccine. Both hospitals provided vaccines for their employees and clients.

Educational Institutions

Binghamton University

Binghamton University (BU) is a mid to large-sized public university whose campus is situated in Vestal. Of the estimated 18k undergraduate and graduate students attending the school, about half are on-campus residents, with the other half living mostly in Binghamton's downtown and West Side and the surrounding Vestal neighborhoods. BU also employs a large number of individuals as instructors, administrators, facility maintenance staff, and food service workers to keep University operations running smoothly. Prior to the onset of the pandemic, BU had preparedness plans and was well equipped with a PPE stockpile. The university's PPE was able to be distributed within the county and local hospitals where resources were lacking. Additionally, BU staff had previously participated in multiple tabletop exercises to further prepare for emergencies such as disease outbreaks.

A major challenge that BU experienced throughout the pandemic was the capacity to monitor the large student and staff populations for illness and keeping sick campus-members separate from non-sick students while being able to ensure the continuity of classes. In March of 2020, classes were abruptly moved to online instruction, and in the fall of 2020 most classes remained online. For those returning to in-person classes, weekly surveillance testing was required, with harsh consequences for those not following guidance, including disenrollment from courses. Students were also required to test negative prior to the start of each semester.

Contact tracing also proved difficult for BU staff. BCHD handled contact tracing and Q/I orders, relying on positive case reporting from the BU testing sites. Because of this, there were multiple instances when students knew they were positive and did not know what to do since there was a lag in the time it took to call them during surges in cases. Regarding positive tests among staff members, BU was required to get in contact with their HR division, adding another layer of reporting requirements that sometimes slowed down response times.

An additional challenge was posed by the high level of mobility among students. BU's campus community is made up of students from all over not just New York State, but the world. One weakness that BU staff identified was their lack of a formal travel registry. While they were able to determine which students were international, they did not have a centralized list of students studying or traveling

abroad. Another challenge is that students residing in Binghamton during the school year often continued to use their home address for medical forms, which caused contact tracing information to be routed to their home counties, not to BCHD. These challenges were overcome through internal development of systems for keeping track of student Covid vaccine and testing status. Q/I protocols and enforcement of on-campus students was run efficiently and helped control on-campus spread of Covid.

K-12

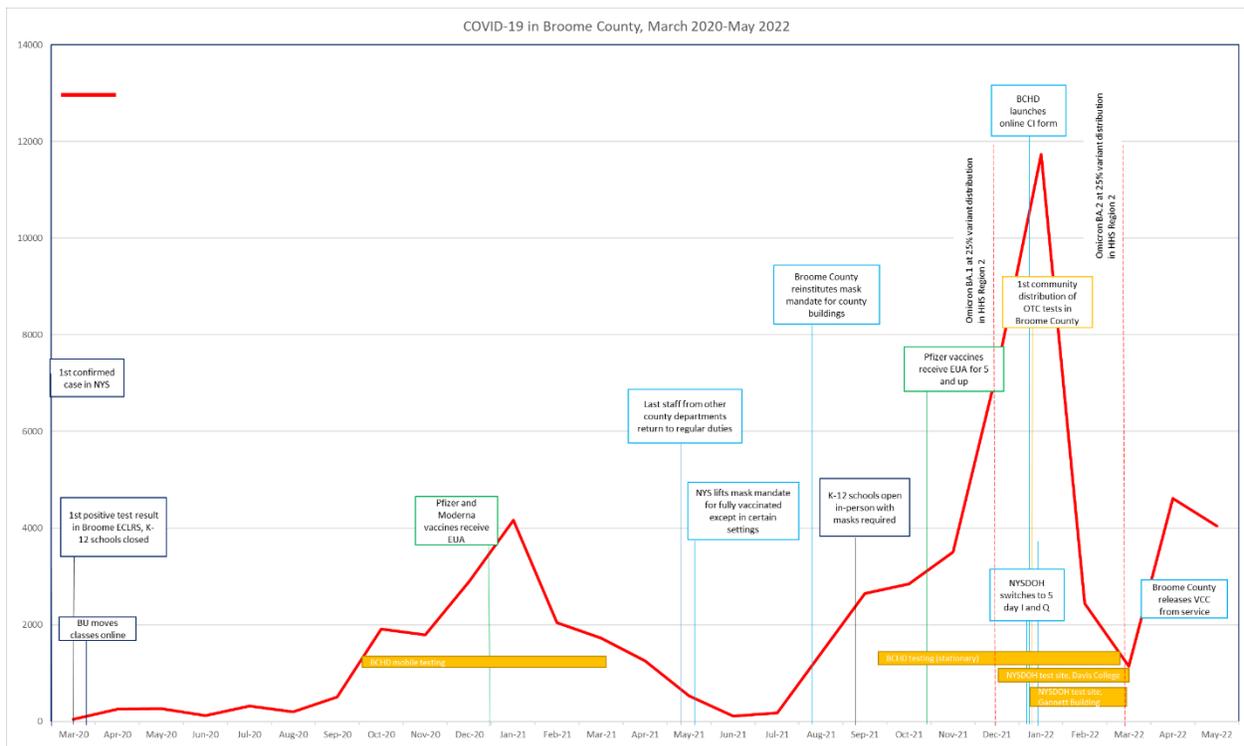
COVID-19 had a significant impact on the local school districts within the area. Most schools have developed a health and safety exposure plan for infectious diseases, but no one could have determined the scope of COVID-19. Therefore, it was a challenge for the school districts to adequately prepare for COVID-19 early on (March to June 2020) in terms of student attendance, online education, training teachers to deliver content electronically to students, etc. As the pandemic continued, another weakness that was identified was that students were missing out on education due to all of the quarantine and testing protocols that were being implemented. Subsequently, there was no uniformity between the quarantine and contact tracing guidelines that were being administered at the school districts. As a result, there was confusion surrounding what the current best in practices and requirements should be at each of the schools. An additional challenge was the public's perception based on the caseload being reported per school. Without a standardized plan for all of the districts, certain schools were reporting higher cases of COVID-19 due to increased testing capabilities. Lastly, there was a drastic uptake in staff turnover as a result of COVID-19. There was an insufficient number of staff to adequately sustain operational needs at the schools over an extended period of time. It was also difficult to stay competitive in hiring similar clerical and administrative positions that would overlap with the private sector.

Despite these obstacles, the school districts continued to excel in terms of ingenuity and their relationship with the community. There were strong communications plans developed between the district, local county government and parents. Over the course of COVID-19, the schools have been in constant communication with Broome County Health Department to address questions or changes in safety protocols. Information and case statistics from the schools were disseminated to parents through multiple forms of media to ensure they were up to date with current findings. The schools have had a strong role in terms of testing for COVID-19 in their community as they became licensed testing sites. A lot of their internal staff were trained to be competent in COVID-19 testing and utilized the Electronic Clinical Laboratory Reporting System (ECLRS) to document COVID-19 cases. With COVID-19, the schools have upgraded their IT capabilities to conduct remote learning as needed. The infrastructure is now in place to easily alternate between remote and in-person learning with teachers being sufficiently trained to conduct lessons through electronic methods. Lastly, with support from the state, there is an ample supply of at-home COVID-19 tests that the schools can request or be reimbursed for.

Timeline of events

The following figure represents the Broome County response, detailed above, in graphic format. The red line represents case numbers.

Figure 1. COVID-19 in Broome County, March 2020-May 2022



The following figures represent information available on Broome County’s COVID-19 dashboard:

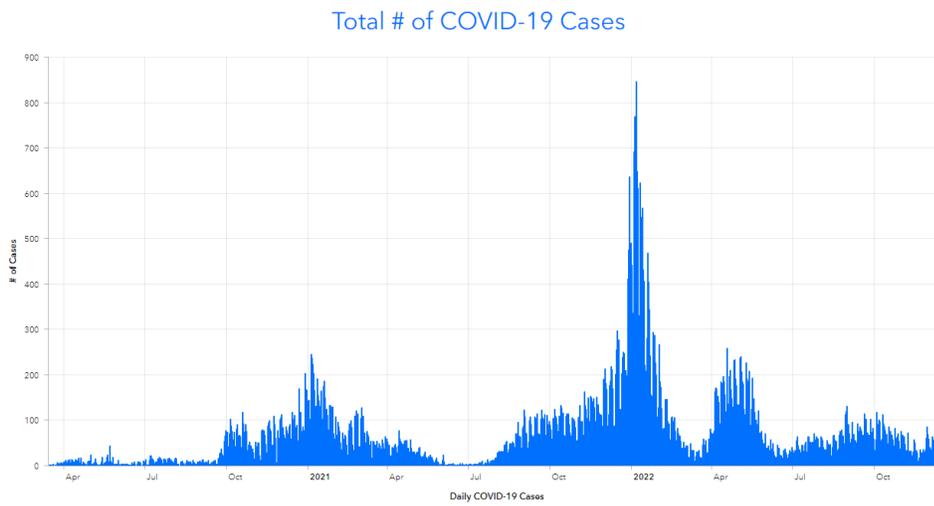
Figure 2: COVID – 19 Cases

Daily Number of Newly Reported COVID-19 Cases	46
Number of Newly Reported COVID-19 Cases in the Last 5 Days	202

Number of Patients Hospitalized in Broome County with COVID-19	46
Total Number of COVID-19 Deaths in Broome County	591
Total Number of Reported COVID-19 Cases in Broome County	70,387

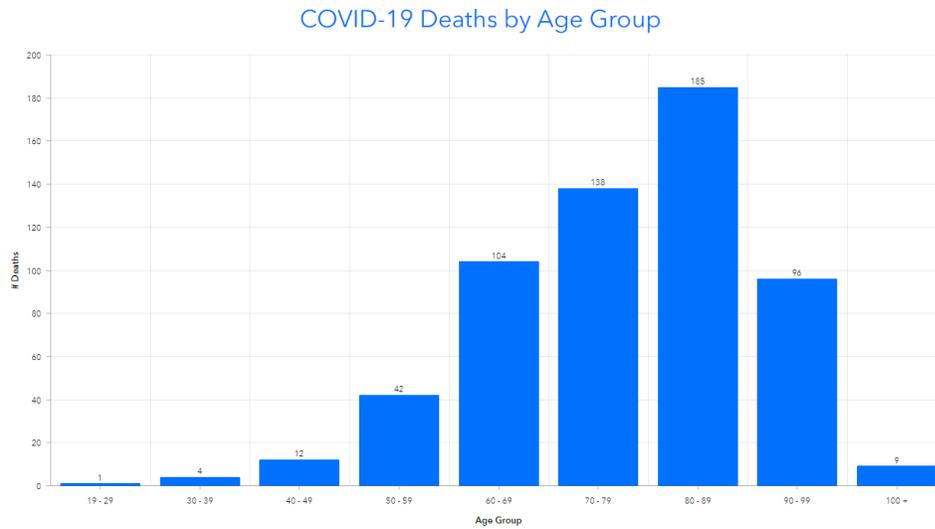
* Data current as of: December 20th, 2022.

Figure 3: Total Number of COVID-19 Cases March 2020-December 2022



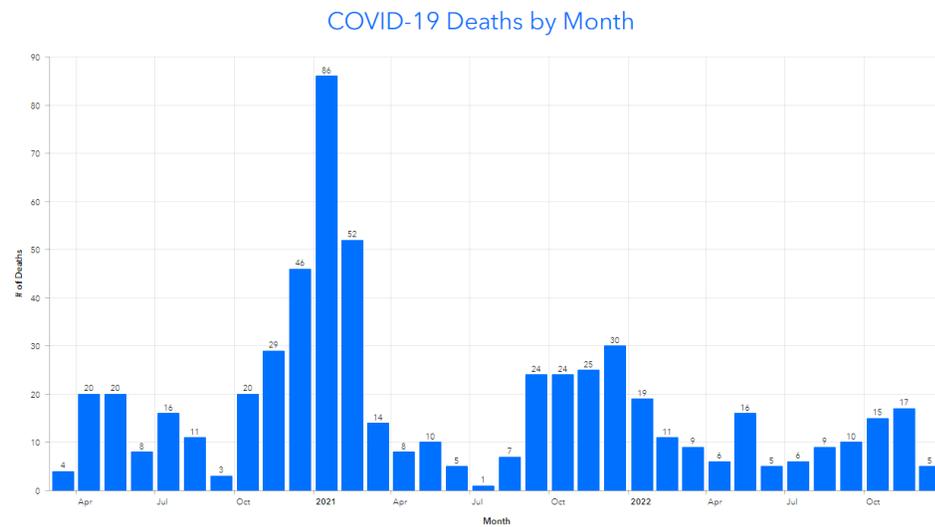
* Data current as of: December 20th, 2022.

Figure 4: Total Number of COVID-19 Deaths by Age Group March 2020-December 2022



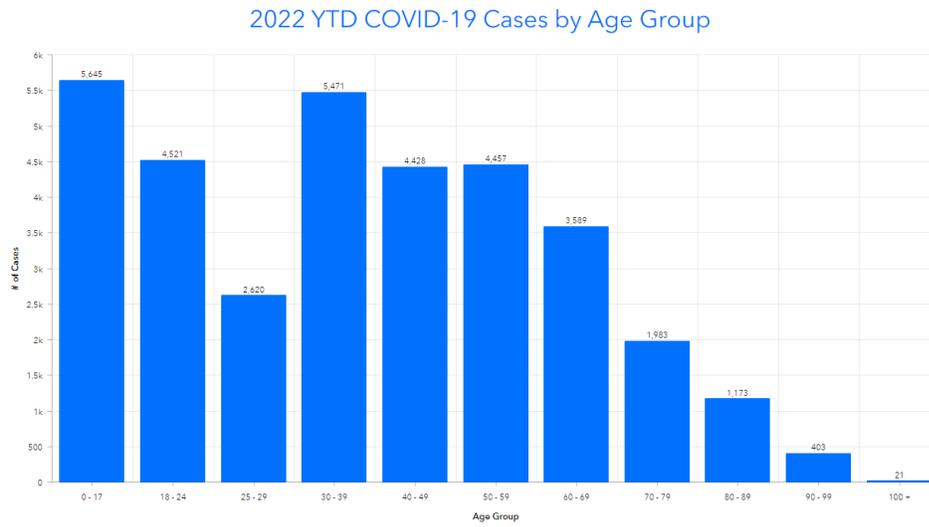
* Data current as of: December 20th, 2022.

Figure 5: Total Number of COVID-19 Deaths by Month March 2020-December 2022



* Data current as of: December 20th, 2022.

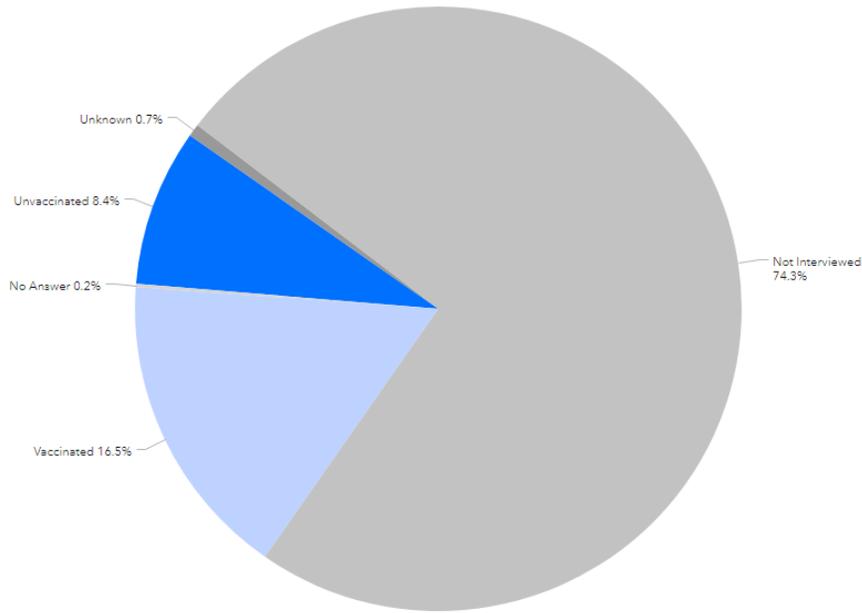
Figure 6: 2022 COVID-19 Cases by Age Group



* Data current as of: December 20th, 2022.

Figure 7: 2022 Year to Date COVID-19 cases by Vaccination Status

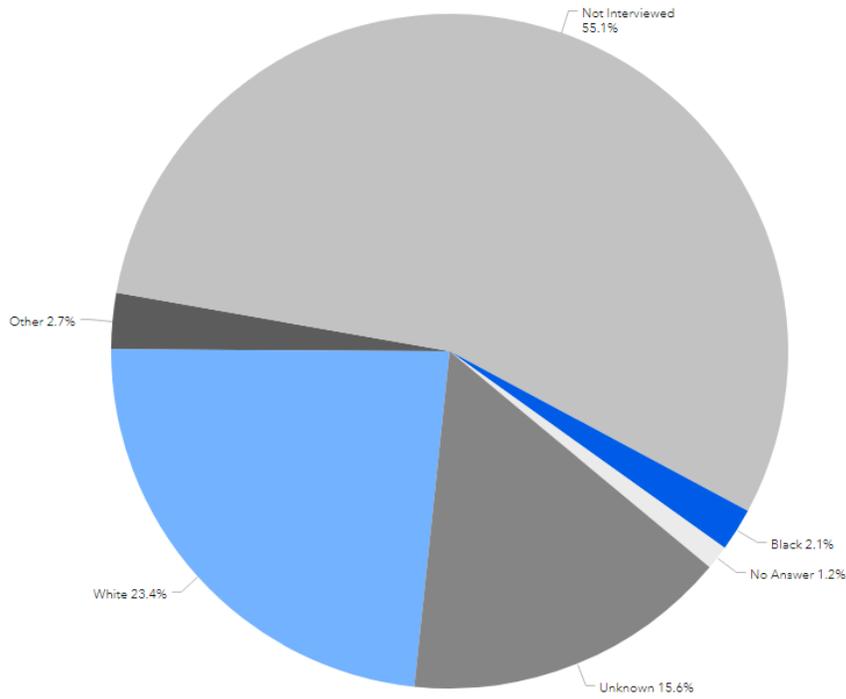
2022 YTD COVID-19 Cases by Vaccine Status



* Data current as of: December 20th, 2022.

Figure 8: 2022 Year to Date COVID-19 Cases by Race

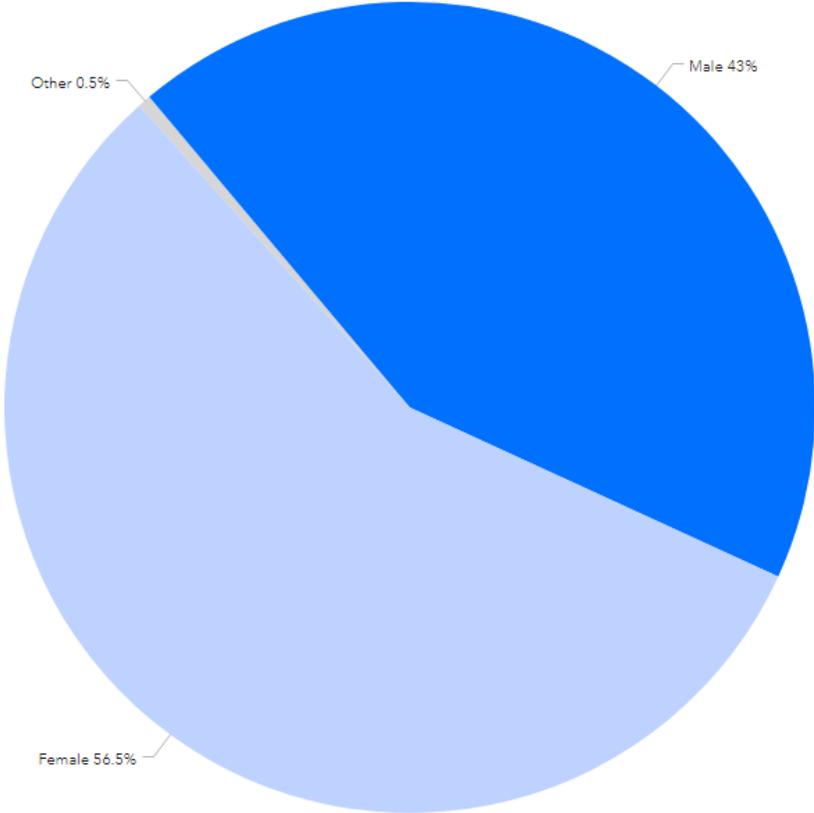
2022 YTD COVID-19 Cases by Race



* Data current as of: December 20th, 2022.

Figure 9: 2022 Year to Date COVID-19 Cases by Gender

2022 YTD COVID-19 Cases by Gender



* Data current as of: December 20th, 2022.

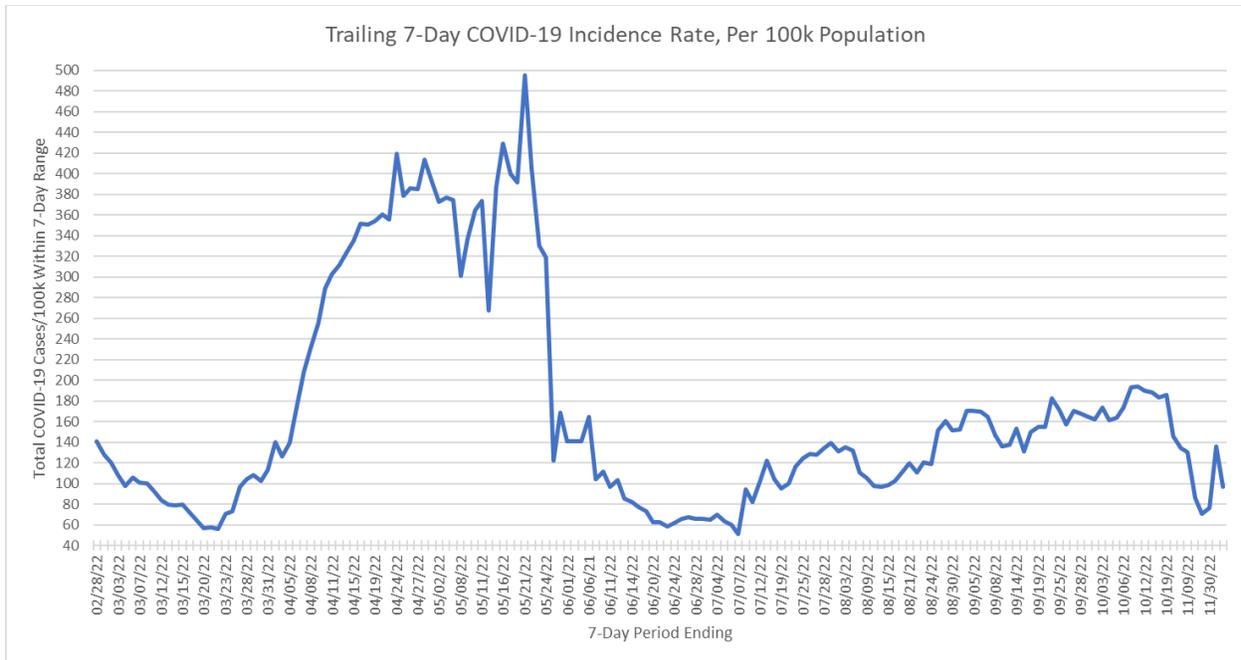


Figure 10: Broome County 7-Day Incidence Rate from the CDC’s Community Level Reports

Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022. <https://covid.cdc.gov/covid-data-tracker>

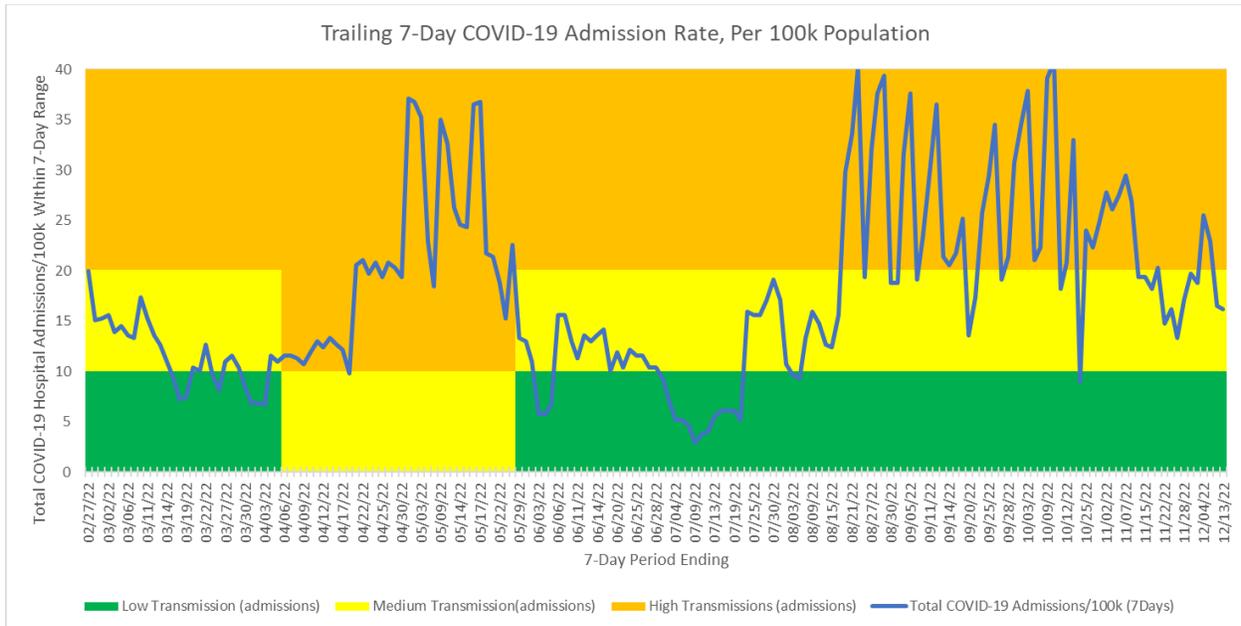


Figure 11: Broome County 7-Day Admission Rate from the CDC’s Community Level Reports

Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022. <https://covid.cdc.gov/covid-data-tracker>

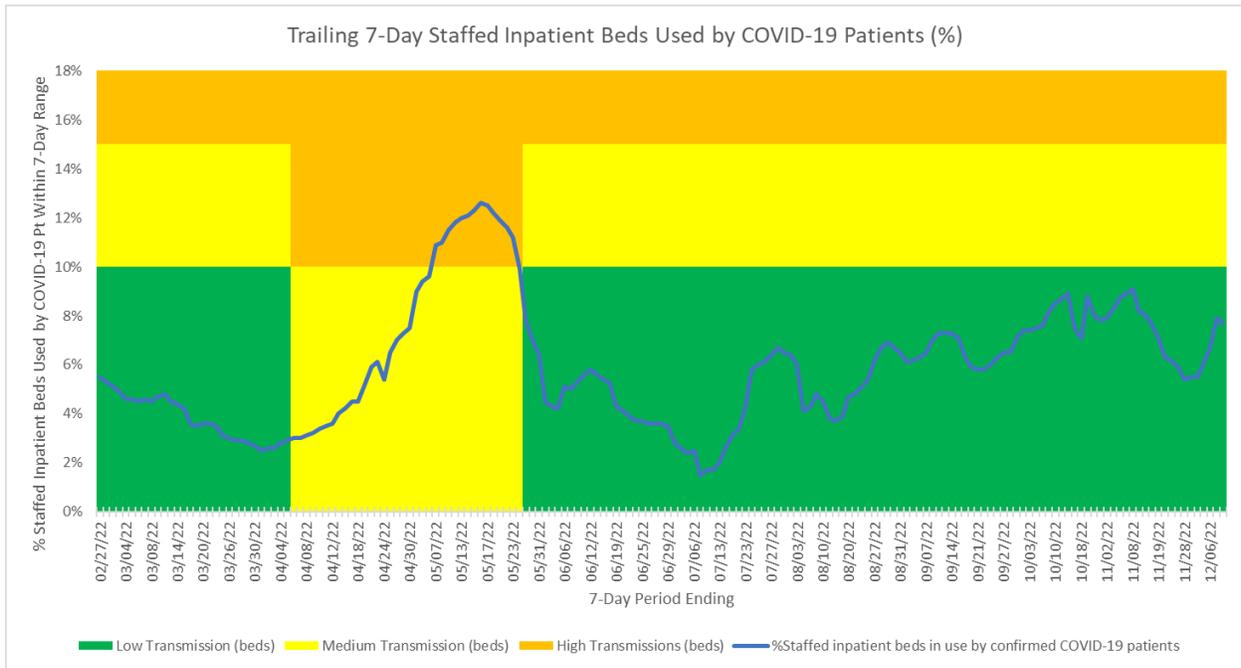


Figure 12: Broome County 7-Day Inpatient Bed Use Percentage from the CDC’s Community Level Reports

Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022. <https://covid.cdc.gov/covid-data-tracker>

Updated Community Resource Guide - Double Click the Text Below to Open

[Broome County Community Resource Guide](#)

BROOME COUNTY 2019 COMMUNITY HEALTH ASSESSMENT RESOURCE GUIDE (UPDATED MARCH 2022)

A linked book outlining, explaining, and providing contact information for community resources related to:

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Hotline Numbers.....	12
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