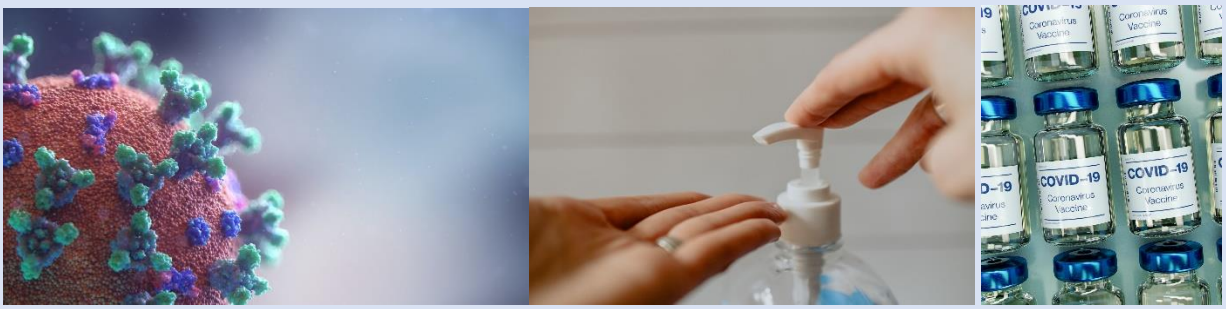

Coronavirus Disease 2019 (COVID-19) in Montgomery County, Maryland

2020 - 2022

Department of Health and Human Services
Public Health Services
Office of Health Planning and Epidemiology

Office of Planning and Epidemiology

COUNTY EXECUTIVE
Marc Elrich

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Raymond L. Crowel, Psy.D.
Director

PUPLIC HEALTH SERVICES
James C. Bridgers, Jr., PhD, MBA
Acting Health Officer and Chief

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

401 Hungerford Drive, Rockville, Maryland, 20850
(240) 777 – 1872
Email: Chunfu.liu@montgomerycountyMD.gov
Web: http://www.montgomerycountymd.gov/hhs/

June 2022

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PREPARED BY

Office of Health Planning and Epidemiology
Sara Hilsabeck, MPH, *Planning Specialist III*
Drew Burk, *Data Specialist*
Chunfu Liu, ScD, *Chief Epidemiologist*

University of Maryland
Gelila Haile, MPH

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Sean O'Donnell, Program Manager
Betsy Rebert, Emergency Management Specialist

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State and U.S. Data: CDC COVID Data Tracker

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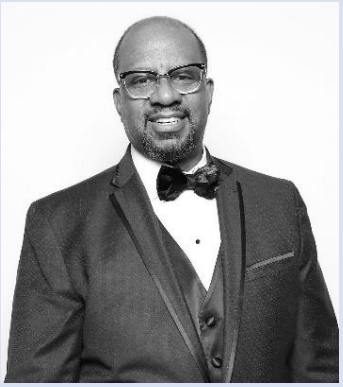
HEALTH OFFICER'S MESSAGE

Dear Residents,



Disease surveillance is a fundamental component of public health practice. Our task is to disseminate this information in a clear, digestible manner, so that the data can be used to drive practice innovation, policy analysis, preventative methods, health promotion messages, and planning activities related to public health. This report highlights the epidemiology profile of Coronavirus Disease 2019 (COVID-19) in Montgomery County, as well as how Department of Health and Human Services (DHHS) programs and efforts that play a significant role in combating and responding to COVID-19 pandemic through surveillance, prevention, and control.

It has been more than two years since the first three cases of COVID-19 were confirmed in Maryland among Montgomery County residents on March 5, 2020. In addition to the morbidity and mortality associated with the disease, examples of the pandemic's profound impacts on the community include burnout seen in health workers, remote learning in schools on students, parents and teachers, and businesses having to adapt with workers having to isolate, etc. The important role of social determinants has been greatly amplified throughout this pandemic, where vulnerable communities and populations are disproportionally impacted. While we have gone through a lot in this pandemic, we also gained tremendous amounts of experiences on how we can be better prepared and respond in the future. There is still much work to be done, but our continued efforts on public health surveillance and evidence-based data-driven approach would help inform future intervention, resources allocations, and policy making in the County.

Sincerely,

James C. Bridgers, Jr.

James C. Bridgers, Jr., Ph.D., M.B.A.

Acting Health Officer and Chief, Public Health Services

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EXECUTIVE SUMMARY OF COVID-19 IN MONTGOMERY COUNTY

The current COVID-19 Community Level of Montgomery County is in the "Medium" category of the CDC COVID-19 Community Levels map, as of June 2022. However, this may likely change as the new variants and sub-lineages continue to evolve over time. In general, the rates in Montgomery County followed a similar trend to Maryland since the start of the pandemic. However, the County experienced a greater impact during the first wave of the pandemic compared to the state of Maryland and the rest of the country. Until the Omicron surge, the County continued to perform better than the rest of the country since the end of the first wave. Nevertheless, disparities exist among population subgroups and communities. These highlighted areas can be used to inform resource allocation and target efforts to continue to combat the spread of the virus. Major findings from the Montgomery County, Maryland COVID-19 Surveillance Report, with data up to March 2022, are summarized below.

Demographic and Social Determinants

1) The County's population is becoming more diverse over time. The NH-Black and Hispanic populations have increased while the NH-White population is decreasing.

2) From 2018 to 2019, there was an increase in the percentage of individuals living in poverty in the County. However, the County's overall level in 2019 (7.4%) is lower than Maryland's (9%) and much lower than that of the U.S. (12.3%). Hispanic and Black race/ethnicity subgroups had the highest percentages of residents living in poverty between 2015 and 2019.

3) The health burden of COVID-19 varies by age, sex, race, and ethnicity. Specific subpopulations are known to be disproportionately impacted by COVID-19, including older individuals, males, and racial and ethnic minority groups.

Cases and Infections

1) There were 161,633 total confirmed cases in Montgomery County since the start of the pandemic, with the highest number of monthly cases occurring in December 2021 and January 2022.

2) Overall, the highest cumulative case rates were among the following subgroups: female residents aged 20 to 34 years, non-Hispanic black residents aged 20 to 24 years, and Hispanic residents aged 20 to 64 years.

3) When examining trends over time, Hispanic residents experienced the highest case rates during the first and second waves of the pandemic, followed by their non-Hispanic black, white, and Asian counterparts, respectively. During the Omicron surge, Hispanic and non-Hispanic black residents experienced similar case rates. The case rate among residents aged 85 years and older during the first wave of the pandemic was substantially higher compared to other age groups.

Testing

1) There were 3.6 million tests administered since the start of the pandemic, with peaks occurring from November 2020 to January 2021 and December 2021 and January 2022.

2) Test positivity rates were highest for the first and third waves of the pandemic. Throughout much of the pandemic, Hispanic individuals had higher rates than other race/ethnicity subgroups.

Hospitalizations

1) There were 8,088 confirmed COVID-19 hospital admissions among Montgomery County residents since the start of the pandemic.

2) Residents aged 85 years and older experienced much higher rates of hospitalization during each wave of the pandemic than other age groups. Males experienced slightly higher hospitalization rates than females during the first wave of the pandemic. Hispanic residents and non-Hispanic black residents experienced substantially higher hospitalization rates during the first wave of the pandemic than their non-Hispanic white and Asian counterparts. During the third wave, non-Hispanic black residents had the highest hospitalization rates.

Deaths

1) There were 1,949 confirmed COVID-19 deaths in Montgomery County since the start of the pandemic, with the highest number of monthly deaths occurring in April and May 2020.

2) Males had substantially higher cumulative death rates than females. Death rates were highest among residents aged 85 years and older. Across all age groups, Hispanic residents experienced the highest death rates compared to other racial and ethnic groups, except for residents 85 years and older. In this age group, non-Hispanic black residents had the highest cumulative death rate.

3) Residents 85 years and older experienced high death rates during all waves of the pandemic. By race and ethnicity, a small uptick in the death rate among non-Hispanic black residents was observed during the first wave of the pandemic, compared to other racial and ethnic groups.

Vaccinations

1) Nearly 1.9 million doses were administered in the County, with approximately 81% of doses administered to County residents.

2) It is estimated that at least 95% of County residents received at least one COVID-19 vaccine. Most residents received the Pfizer vaccine as their first dose. Of the County population 5 years and older, 91.5% are considered fully vaccinated. Of the fully vaccinated County population 12 years and older, 56.3% received a booster dose.

3) Potential target areas to increase the percent fully vaccinated include: all residents 5 to 9 years of age; Hispanic residents aged 10 to 14; non-Hispanic black, white, and Asian residents aged 25 to 34 years; and non-Hispanic Asian residents aged 35 to 44. Residents 45 years and older comprise a greater proportion of boosted residents relative to their population size, compared to younger age groups.

Public Health Services Response to COVID-19

1) The County's Public Health Emergency Preparedness and Response Program (PHEPR) provides Incident Management and response coordination to the novel strain of the coronavirus. PHEPR manages the county's emergency operations center; develops Public Health Incident Action Plans; manages the coordination and allocation of emergency Personal Protective Equipment (PPE) and other scarce medical resources; established and directs community testing operations and mass vaccination operations; established and directs a Public Health Call Center; provides disease surveillance reports; coordinates

information sharing and guidance with county agencies; and supports the development of increased medical screening and treatment capacity with county health care partners.

2) The County's Disease Control Program coordinates the County's contact tracing, outbreak investigations, management of vaccine and immunization guidance; and provides overall direction in emergency disease control measures with state and community partners.

3) The County's School Health Services (SHS) provides student health screenings, symptomatic student COVID-19 testing, support for student outbreak investigations and contact tracing, and guidance on precautions including isolation and quarantine. During school closures, SHS staff were instrumental in providing leadership and response teams in establishing and operating the County's testing, vaccination, contact tracing, outbreak investigations, and call center operations.

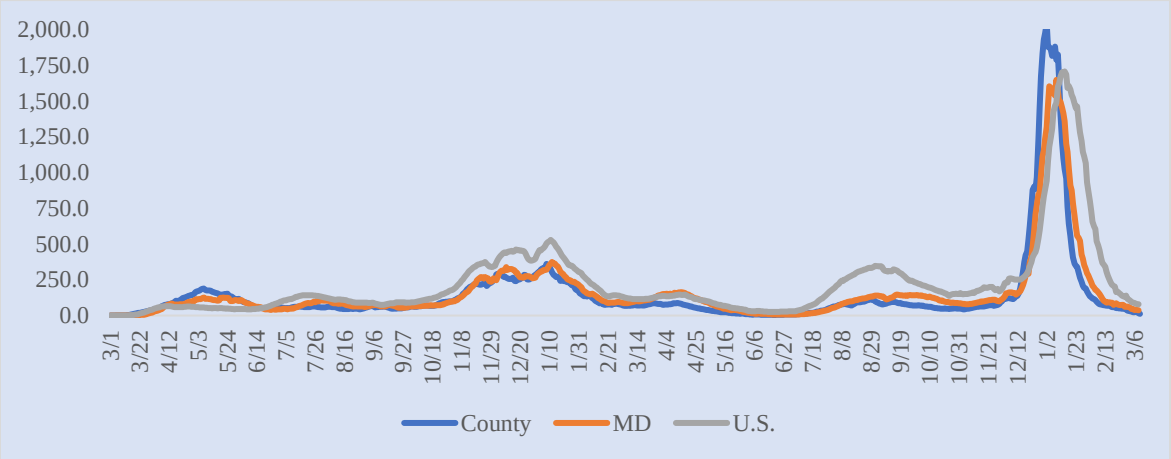
4) The County's Licensure and Regulatory Services (L&R) provided initial oversight of outbreak investigations with nursing homes and large assisted living facilities, providing regulatory and public health guidance to help facilities control the spread of COVID-19 and coordinating essential resource support in PPE and testing supplies. L&R has developed and disseminated timely guidance to a range of community groups supporting consistent and safe operations during COVID-19.

5) Major milestones of the COVID-19 response include developing and implementing a comprehensive testing plan and a series of vaccination plans (general, pediatric, and booster doses); increasing community awareness and access to services through public information and call center initiatives; coordinating and providing resources to private sector and non-profit health care providers to increase county capacities; and developing and implementing an Equity Framework to ensure equitable access to COVID-19 resources for all residents of the county.

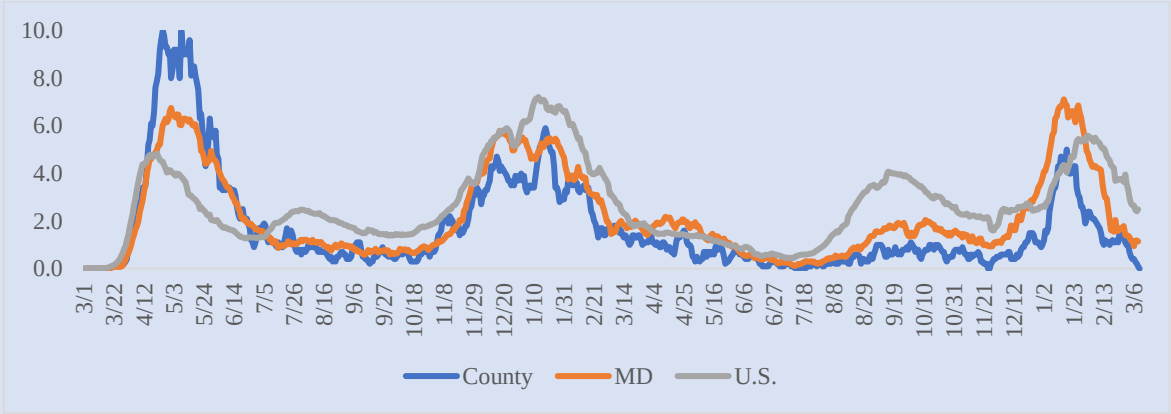
6) Recent efforts include continued partnerships with public and private sector groups to reduce transmissions and increase access to vaccinations and testing; increasing community access to therapeutics; updating outreach initiatives; and revisions in plans to provide resiliency to the changing levels of resources from federal and state partners and evolving threat from COVID-19 variants.

Highlighted Figures

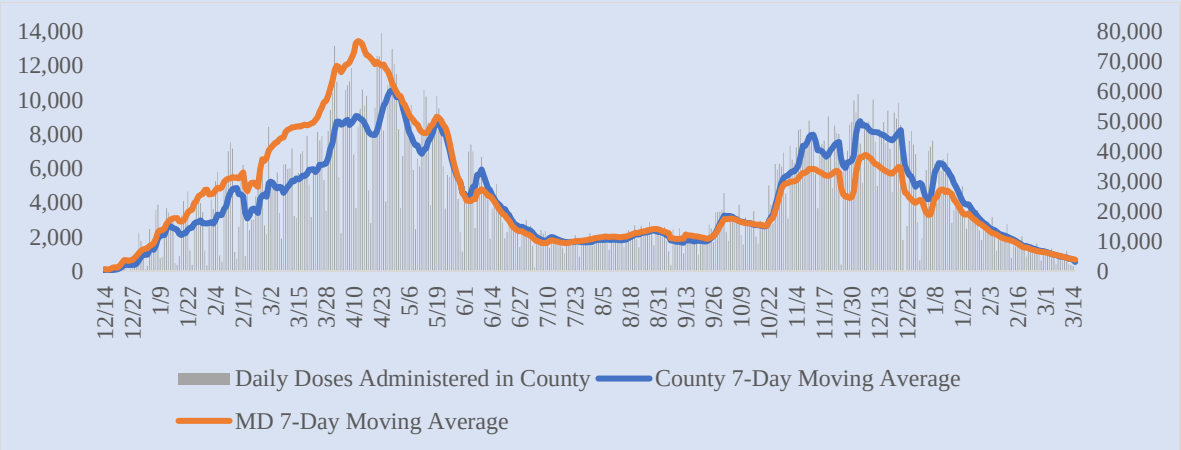
Executive Summary Fig. 1. 7-day COVID-19 Case Rate, per 100,000, Montgomery County, MD, March 2020 – March 2022



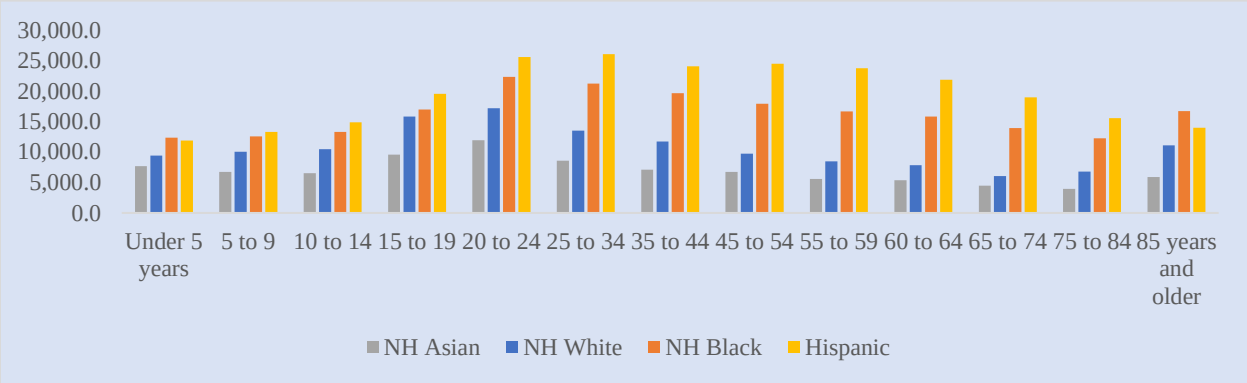
Executive Summary Fig. 2. 7-day COVID-19 Death Rate, per 100,000, Montgomery County, MD, March 2020 – March 2022



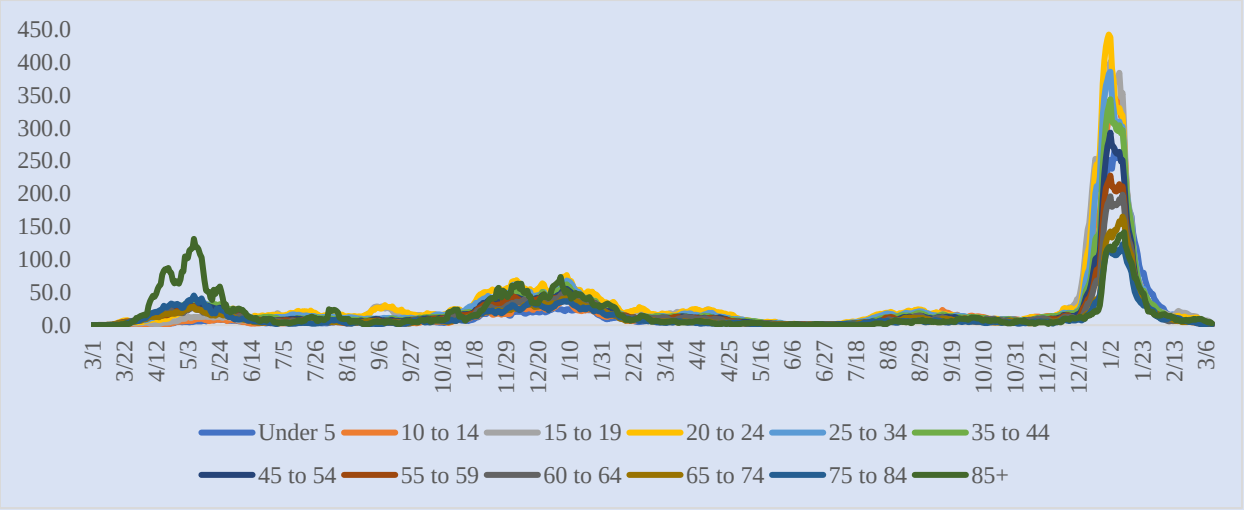
Executive Summary Fig. 3. Daily Count of Doses by Date of Vaccine Administration, Montgomery County, MD, December 2020 – March 2022



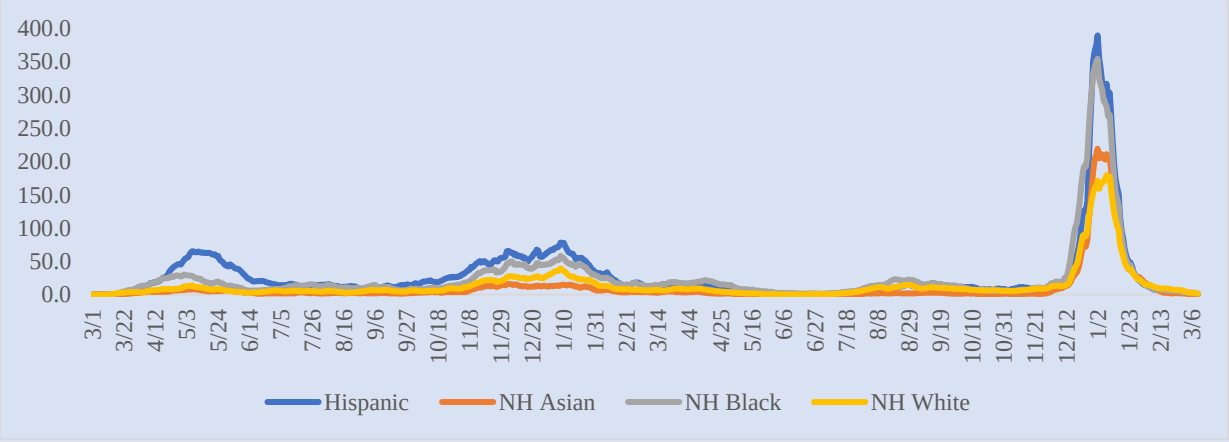
Executive Summary Fig. 4. COVID-19 Case Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022



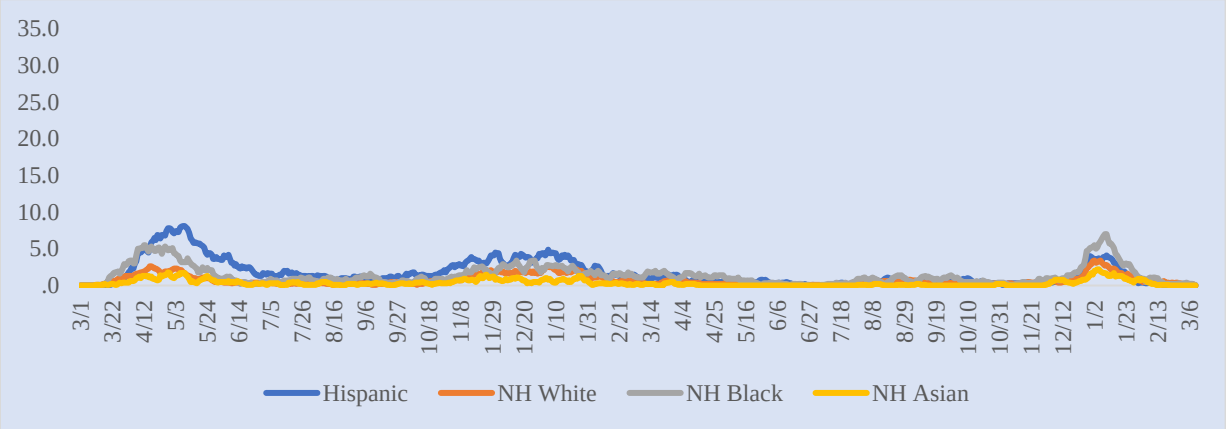
Executive Summary Fig. 5. 7-day Moving Average COVID-19 Case Rates by Age Group, per 100,000, Montgomery County, MD, March 2020 – March 2022



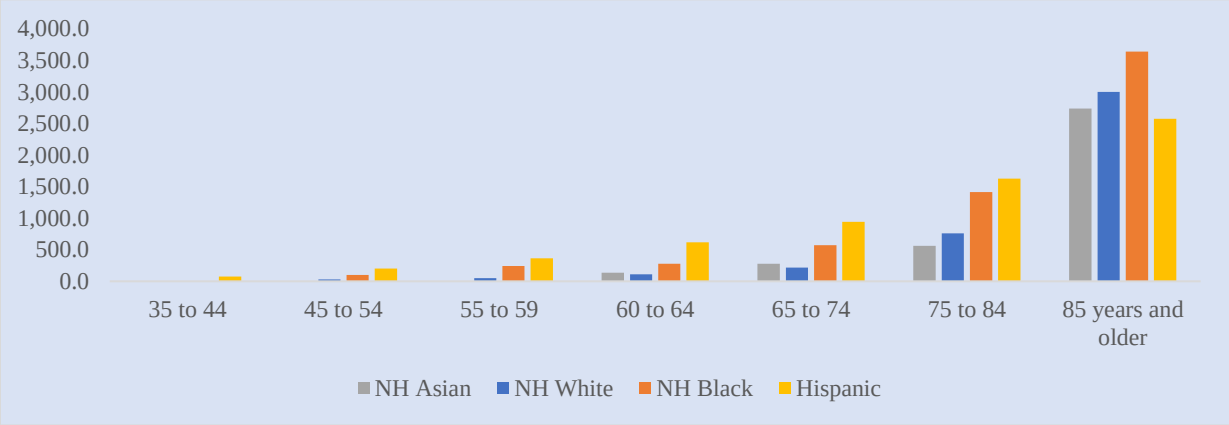
Executive Summary Fig. 6. 7-day Moving Average COVID-19 Case Rates by Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



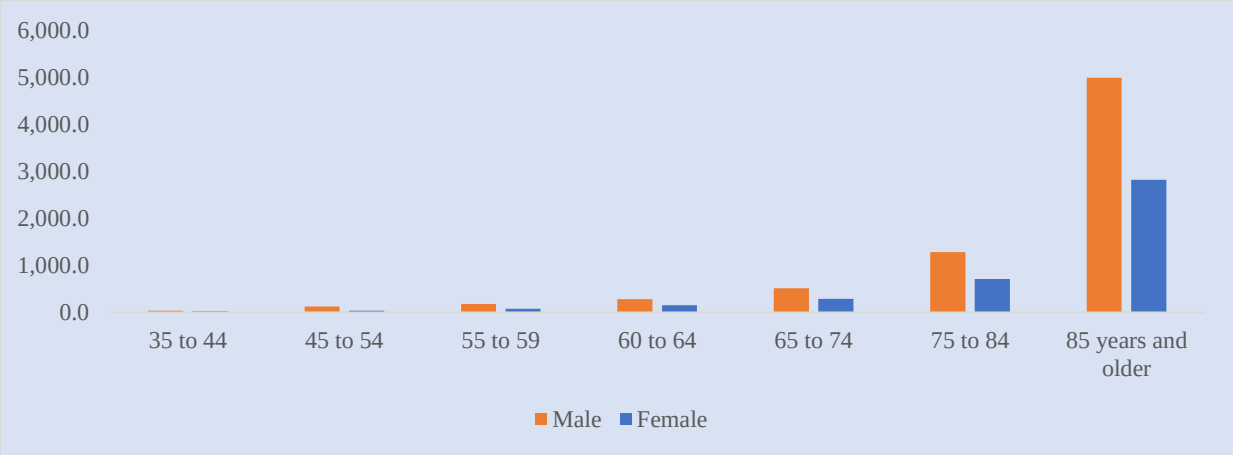
Executive Summary Fig. 7. 7-day Moving Average COVID-19 Hospitalization Rates by Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



Executive Summary Fig. 8. COVID-19 Death Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022



Executive Summary Fig. 9. COVID-19 Death Rates per 100,000, Age and Sex Specific, Montgomery County, MD, March 2020 – March 2022



INTRODUCTION

Montgomery County is a highly populated and diverse county adjacent to Washington, DC. According to 2019 estimates, approximately 1.05 million individuals reside in Montgomery County, making it the most populated county in Maryland (United States Census Bureau, 2019). The racial-ethnic distribution of County residents is as follows: 42.6% non-Hispanic white, 18.6% non-Hispanic black, 14.8% non-Hispanic Asian, and 20.1% Hispanic or Latino (United States Census Bureau, 2019). Approximately 1 in 3 County residents were born outside the country. Montgomery County has the highest percentage (31.8%) of residents over 25 years of age who hold post-graduate degrees of all counties in Maryland. It is among the most affluent counties in the country, with a median household income of $110,389 (United States Census Bureau, 2019). Montgomery County also holds the highest overall health outcomes ranking in Maryland since 2014, based on the County Health Rankings by the Robert Wood Johnson Foundation (University of Wisconsin Population Health Institute, 2022).

This report constitutes the COVID-19 Surveillance Report released by Montgomery County Government, Department of Health and Human Services, Office of Health Planning and Epidemiology. The report is organized into three major sections: (1) the summary of COVID-19 in Montgomery County; (2) chapters of individual metrics; and (3) appendices.

Department of Health and Human Services

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

Office of Health Planning and Epidemiology

DHHS Public Health Services entail Cancer Screening Programs, Communicable Diseases and Emergency Preparedness, Community Health Services, Health Care for the Uninsured, Planning and Epidemiology, Licensure and Regulatory Services, and School Health Services. The Office of Health Planning and Epidemiology serves as the expert in planning and analytic epidemiology within DHHS and is responsible for the community health needs assessment, program evaluations, disease surveillance and outbreak investigations, health statistics and data management, epidemiology and biostatistics, ongoing development and maintenance of a population data warehouse, and special research projects in collaboration with internal and external partners and academic institutions.

PREVENTION

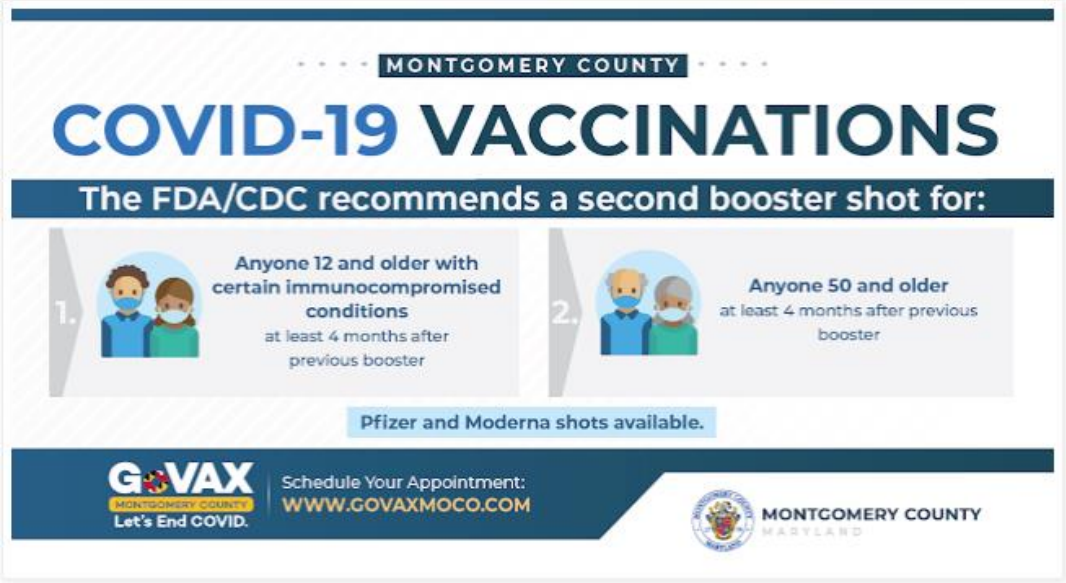
Guidance is continually evolving as more is known about the novel coronavirus and how it is transmitted. Additional state and local prevention measures may apply depending on the current level of community transmission. At the time of this report, current federal guidance from the Centers for Disease Control and Prevention (CDC), is to do the following:

- Get vaccinated and stay up to date on your COVID-19 vaccines
- Wear a mask that covers your nose and mouth indoors in public areas when the COVID-19 Community Level is high
- Social distance by staying six feet apart from others
- Wash your hands often with soap and water or use hand sanitizer if soap and water are not available to you
- Avoid crowds and poorly ventilated spaces
- Clean and disinfect high touch surfaces regularly
- Cover your coughs and sneezes
- Avoid touching your eyes, nose, face, or mouth with unwashed hands
- Monitor your health daily
- Follow recommendations for quarantine or isolation
- Test to prevent spread to others
- Take precautions when you travel

For more details and the most up-to-date CDC guidance, please visit:
https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

For up-to-date Maryland resources, please visit: https://covidlink.maryland.gov/

For up-to-date Montgomery County resources, please visit:
https://www.montgomerycountymd.gov/covid19/



DEMOGRAPHIC AND SOCIAL DETERMINANTS

In public health, factors such as age, race, ethnicity, and sex are important factors to consider when determining the health burden of any given disease. Morbidity and mortality measures often differ by these demographic and social determinants. Details of the County's demographics and social determinants of health are described below.

County Demographics

As of 2019, the County's population is over 1.05 million (Table 1). The sex distribution in the County is consistent over time and is similar to that of Maryland and the U.S. The County's population is aging over time; and is similar to that of Maryland and the U.S. The County's population is more diverse than that of the U.S. or Maryland. Over time, it is becoming more diverse, as both the non-Hispanic black and Hispanic populations have increased while the non-Hispanic white population has decreased.

Table 1. Percent Population Estimates by Selected Characteristics, Montgomery County, Maryland, and the U.S., 2015 - 2019

		2015 MoCo	2016 MoCo	2017 MoCo	2018 MoCo	2019 MoCo	2019 MD	2019 US
Total (n)						1,050,688		
Sex	Male	48.2	48.2	48.4	48.4	48.3	48.4	49.2
	Female	51.8	51.8	51.6	51.6	51.7	51.6	50.8
Age Group	Under 5	6.5	6.4	6.3	6.3	6.2	5.9	5.9
	5 to 9	6.5	6.6	6.2	6.6	6.1	5.9	6.0
	10 to 14	6.4	6.4	6.8	6.4	6.9	6.5	6.5
	15 to 19	6.1	6.1	6.1	6.1	6.1	6.3	6.5
	20 to 24	5.8	5.9	5.8	5.7	5.6	6.2	6.5
	25 to 34	13.2	12.9	12.8	12.7	12.5	13.6	13.9
	35 to 44	13.9	13.8	13.7	13.8	13.7	13.0	12.8
	45 to 54	14.5	14.3	14.2	13.9	13.7	13.2	12.4
	55 to 59	6.8	6.9	7.0	6.9	7.0	6.8	6.5
	60 to 64	6.2	6.2	6.1	6.2	6.1	6.7	6.4
	65 to 74	8.0	8.3	8.5	8.8	9.1	9.3	9.6
	75 to 84	4.1	4.3	4.4	4.7	4.9	4.7	4.9
	85+	2.0	2.0	2.1	2.1	2.1	1.9	1.9
Race/Ethnicity	NH-White	44.7	44.5	43.3	43.0	42.6	49.8	60.0
	NH-Black	17.6	17.8	18.0	18.1	18.6	29.7	12.4
	NH-Asian	14.9	14.8	15.2	14.4	14.8	6.3	5.6
	Hispanic	19.0	19.1	19.6	19.9	20.1	10.6	18.4

Social Determinants of Health

The percentage of individuals living below the poverty level in the County fluctuated over time but remains less than that of Maryland or the U.S. (Table 2). Among racial and ethnic groups, a higher proportion of Black and Hispanic residents are below the poverty level than non-Hispanic white or Asian residents.

Table 2. Percentage of Individuals Below Poverty Level by Race/Ethnicity, Montgomery County, Maryland, and the U.S., 2015 - 2019

	2015 MoCo	2016 MoCo	2017 MoCo	2018 MoCo	2019 MoCo	2019 MD	2019 US
All	7.5	6.7	6.9	6.9	7.4	9.0	12.3
NH-White	3.6	3.8	3.6	3.7	3.3	6.1	9.0
Black alone	12.1	10.1	11.2	11.1	13.6	12.9	21.2
Asian alone	7.0	5.4	5.8	6.3	5.9	7.4	9.6
Hispanic	13.1	10.7	11.1	9.7	11.5	11.7	17.2

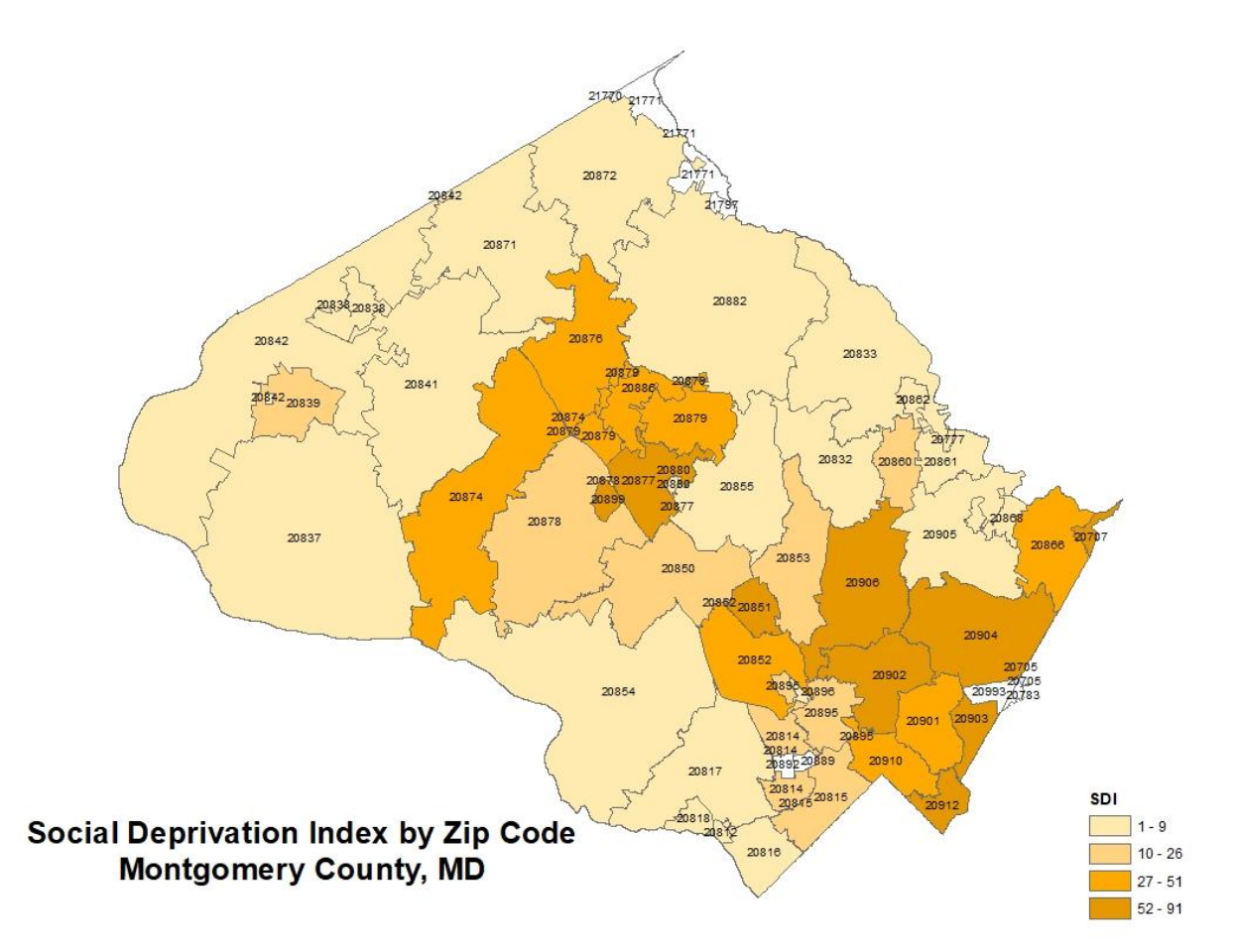
The percentage of individuals with college education or higher in the County has fluctuated but remained relatively consistent over time, both overall and across racial and ethnic groups (Table 3). The percentage of individuals with a college education or higher in the County is much higher than that in Maryland and the U.S., overall and across racial and ethnic groups. Among the racial and ethnic groups, a larger proportion of non-Hispanic white and Asian residents have a college degree or higher than other population subgroups.

Table 3. Percentage of Individuals with College Degree or Higher by Race/Ethnicity, Montgomery County, Maryland, and the U.S., 2015 - 2019

	2015 MoCo	2016 MoCo	2017 MoCo	2018 MoCo	2019 MoCo	2019 MD	2019 US
All	58.0	59.2	57.8	58.6	57.8	40.9	33.1
NH-White	71.1	71.6	71.5	73.1	72.9	46.5	36.9
Black alone	44.5	49.1	43.2	44.2	42.1	30.8	22.5
Asian alone	67.7	67.3	66.8	67.4	66.9	63.3	55.6
Hispanic	23.0	24.6	25.1	25.0	23.4	22.0	17.6

Map 1 shows the Social Deprivation Index (SDI) by ZIP Code in Montgomery County. The SDI is an indicator that combines seven demographic characteristics from the American Community Survey (ACS): percent living in poverty, percent with less than twelve years of education, percent single parent household, percent living in rented housing unit, percent living in overcrowded housing unit, percent of households without a car, and percent non-employed adults under 65 years of age (Robert Graham Center, 2021). This composite measure is used to quantify the socio-economic variation in health outcomes. The ZIP Codes with the highest SDI are the following: 20903, 20877, 20912, 20902, 20851, 20705, 20906, 20904, 20899, and 20707.

Map 1. Social Deprivation Index by ZIP Code



Researchers identified specific subpopulations that have been disproportionately impacted by COVID-19 compared to others.

COVID-19 and Age

An age-specific vulnerability pertaining to the disease burden of COVID-19 has been examined in the literature, with studies noting an increased risk of death observed among older individuals (Falandry, 2022). The CDC reports that in 2020, COVID-19 death rates were lowest among children aged 1 to 4 years and 5 to 14 years and highest among individuals aged 85 years or older (Ahmad, 2021).

An international systematic analysis investigating age-specific COVID-19 infection-fatality ratios (IFR) of cases occurring between April 2020 to January 2021 found a J-shaped curve, with IFR generally increasing as age increases (COVID-19 Forecasting Team, 2022). Previous studies have found similar results. Between October 2020 and February 2021, a Danish study testing 3.8 million blood donors for antibodies calculated an IFR that was very low (3.36 per 100,000 infections) among individuals under 51 years of age, and greater (281 per 100,000 infections) among individuals 61 to 69 years old (Kaspersen, 2022).

A meta-analysis investigating age-specific COVID-19 infection fatality rates of cases occurring before September 18, 2020, and across seventeen countries found an exponential relationship between age and COVID-19 mortality. The age specific IFR was low for children and young adults (0.002% at age 10 and 0.01% at age 25) and increased as age increased (Levin, 2020). The IFR was found to be 0.4% at age 55, 1.4% at age 65, 4.6% at age 75, and 15% at age 85 (Levin, 2020). Williams et al. suggests that IFRs in children may be low because children are less likely to have severe illness to COVID-19 when compared to adults (2020). Children are likely to have less severe COVID-19 symptoms because of immune response differences and fewer co-morbidities (Williams, 2020). Early on in the pandemic, it was suggested that infections may have been less frequent and severe among children because of a lower prevalence of comorbidities, higher levels of antibodies from infection by other coronaviruses, a stronger innate immune system, becoming infected by family (resulting in lower viral pathogenicity), or being more likely to have competing viruses in respiratory mucosa (Nikolopoulou, 2022).

While these findings demonstrate that older populations are more vulnerable to mortality from COVID-19, they also are more vulnerable to requiring hospitalization. A Bayesian analysis conducted by Palmer et al. found that the probability of hospitalizations related to COVID-19 is inversely proportional to T-cell production. Individuals under 20 years old also typically have over 50% additional immune protection due to strong thymus function, alone (Palmer, 2021). Thymus volume and T-cell production decrease exponentially over time with age and thus, explains an increase in hospitalizations among older patients.

COVID-19 and Race/Ethnicity

Vulnerabilities pertaining to race and ethnicity continue to be observed when examining the disease burden of COVID-19. According to the CDC, the highest age-adjusted COVID-19 death rates in 2020 were among non-Hispanic American Indian or Alaskan Native persons and Hispanic persons, while multiracial and Asian persons experienced the lowest death rates (Ahmad, 2021).

A cross-sectional study, using data as of April 2020 and across 22 U.S. states, found a strong relationship between race and ethnicity and population-level COVID-19 mortality. When examining the relative risk

between three major subpopulations across states, black and Latino persons had significantly higher age-adjusted death rates than their white counterparts (3.57 and 1.88, respectively) (Gross, 2020). The authors note that the magnitude of the disparities varied by state. Furthermore, an ecological study using data as of April 2020, across 369 counties, found that African Americans were more vulnerable to COVID-19 than other groups (Abedi, 2021). A study published in April 2020 examined black-white risk differentials in COVID-19 transmission, mortality, and case fatality. At the time of analysis, the authors found that the mortality cumulative incidence in black Americans was 34% of the total COVID-19 mortality in the U.S., while comprising only 13% of the population (Holmes, 2020). In the same study, COVID-19 case fatality was higher among blacks relative to whites in all states investigated, including Maryland (2.7% vs. 2.5%, respectively).

More recent studies find that disparities by race/ethnicity have changed over time. A nationwide study using electronic health record data from Veteran Affairs medical centers included 1.3 million individuals tested for COVID-19 between February 2020 and August 2021. This study found the adjusted odds of testing positive over the full time period were higher among Black, Hispanic, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander groups. However, when stratifying by waves of COVID, the authors found that case disparities were greater at the beginning of the pandemic and attenuated in nearly all groups over the course of 18 months. The Hispanic population was the only group where disparity remained elevated (1.08 (CI: 1.01-1.16)) (Ferguson, 2022).

Another study analyzing death certificates in California form March 2020 to July 2021 found changing trends in COVID mortality by race and ethnicity. As disparities shifted, age-standardized mortality rates decreased over time for all four groups studied – Latinos, non-Hispanic Black, non-Hispanic white, and Asian Americans. The study found that the disproportionate share of mortality Latino Americans bore decreased as the proportion of white COVID-19 deaths increased. This reduced the mortality gap between white and Latino Americans. Conversely, as the proportion of deaths in older Black Americans increased, the mortality disparity in this group grew (RIley, 2022). This may be due to unchanged structural inequities. There is evidence to suggest that factors contributing to this disparity include pre-existing disparities and inequities in health (RIley, 2022; Shannon, 2022), and social factors (Shortreed, 2022). Therefore, race and ethnicity are important factors to consider when examining COVID-19 statistics.

Trends also indicate higher observed hospitalizations related to COVID-19 among adults of color compared to non-Latinx White individuals. One study conducted an analysis using multiple data sets on factors that may contribute to this increase in hospitalizations among diverse communities. Similar to death trends, authors found that beyond individual health risks, the social determinants of health play a major role in increasing the risk of negative COVID-19 health outcomes. The authors find that lower income, increased stress associated with lower incomes, poor living conditions and overcrowding, poor access to health care, and residential segregation, are just a few examples of social determinants that communities of color face and thus, contribute to the increase in observed hospitalizations related to COVID-19 (Guerrero, 2021).

COVID-19 and Sex

The CDC reports that in 2020, age-adjusted COVID-19 death rates in the U.S. were higher among males than females (115.0 vs 72.5 per 100,000) (Ahmad, 2021). A meta-analysis using data as of June 1, 2020,

found that, globally, male patients had nearly 3 times the odds of requiring intensive care and almost 40% increased odds of death than females (Peckham, 2020). A study by Ramirez-Soto et al. examined sex differences in COVID-19 fatality across 73 countries through May 2021. Fewer cases were male, but the IFR was higher in males (3.17%) than in females (2.26%), and the odds of death were also higher in males in 49 countries (2021). This evidence suggests some variation in the strength of the sex differences by country. In global sex-disaggregated data, the number of male and female infections was similar, but the ratio of deaths varied by country and ranged between 1.0 to 2.7 of October 2020 (Alwani, 2021). This research suggests that sex differences are present in COVID-19 severity and mortality, but not necessarily in rate of infection.

Researchers are investigating how biological, psychological, social, and behavioral factors may contribute to this differential (Bienvenu, 2020; Griffith, 2020; Moradi, 2020; Penna, 2020). A literature review by Raza et al. suggests genetic, hormonal, immunological and behavioral factors may be responsible (Raza, 2021).

CORONAVIRUS DISEASE 2019 (COVID-19) IN MONTGOMERY COUNTY

Overview of the COVID-19 Pandemic

Cases resembling viral pneumonia with an unknown cause were first reported in Wuhan, China in December 2019 (World Health Organization, 2021). A novel strain of the coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), subsequently identified, and the resulting illness was termed Coronavirus Disease 2019 (COVID-19) (World Health Organization, 2021). The first lab-confirmed case outside of China was discovered in Thailand on January 13, 2020, with the U.S. identifying its first confirmed case approximately one week later, on January 21 (World Health Organization, 2021). The virus spread to nearly every country worldwide and impacted almost every facet of day-to-day life. The World Health Organization officially declared the public health crisis as a pandemic on March 11, 2020, thereby intensifying efforts of disease containment, giving rise to economic ramifications, and prompting major public policy changes worldwide. The emergence of the novel pathogen overwhelmed healthcare systems as public health experts and scientists raced to understand and slow disease transmission, estimate disease burden, develop diagnostic capabilities and therapeutics, and produce a safe and effective vaccine.

At the time of this report, there were 481 million global cases and over 6 million global deaths from COVID-19 (Johns Hopkins University of Medicine, 2022). The U.S. has the highest counts of both cases and deaths than any other country. To date, there were more than 79.1 million COVID-19 cases and over 966,000 deaths in the U.S. (Centers for Disease Control and Prevention, 2022). In 2020, the CDC reports that COVID-19 was the third leading cause of death, behind heart disease and cancer (Ahmad, 2021).

In the U.S., the response to the public health crisis required efforts at the federal, state, and local levels of government. The approach to limiting the spread of the virus varied over time and by jurisdiction. Mitigation efforts involved the closing of boarders, schools, and non-essential businesses; face mask requirements; travel restrictions; and quarantine. Current public health efforts related to controlling the spread of COVID-19 involve targeted vaccination efforts and closely monitoring SARS-CoV-2 genetic variants.

The surveillance of communicable/infectious diseases is a crucial service provided by the Montgomery County Government. As such, the County has maintained a COVID-19 dashboard with live updates throughout the course of the pandemic. These data inform residents of the current health status of their County and allows for targeted and timely interventions, while highlighting any potential health disparities that may exist among population subgroups. This report provides a much more comprehensive picture and epidemiological profile of the COVID-19 pandemic on case, testing, contract tracing, hospitalization, deaths, and vaccination trends in Montgomery County, Maryland, as well as how DHHS programs and services have been responding to the pandemic. The data in this report span two years since the start of the pandemic, covering March 2020 to March 2022.

CHAPTER I: CASES

COVID-19 Confirmed Cases in Montgomery County

As of March 2022, there were 161,633 confirmed cases in Montgomery County since the first case was identified in the County two years prior. Throughout 2020, there were a total of 48,055 confirmed cases in the County, with 26% (n=12,713) of these cases occurring in December 2020 (Table 4). Throughout 2021, there were a total of 73,019 confirmed cases in the County, with 48% (n=35,275) of these cases occurring in December 2021 (Table 4).

There were 40,559 confirmed cases in the County thus far in 2022, with the highest number of confirmed cases occurring in January (n=37,583).

Table 4. Counts of Confirmed Cases of COVID-19, Montgomery County, MD 2020-2022 (N=161,633)

	2020	2021	2022
Month	n	n	n
January	0	11,466	37,583
February	0	4,080	2,703
March	761	3,494	273
April	4,797	2,997	
May	6,889	932	
June	2,847	269	
July	2,754	1,261	
August	2,323	4,110	
September	2,571	3,653	
October	3,621	2,397	
November	8,779	3,085	
December	12,713	35,275	
CY Total	48,055	73,019	40,559

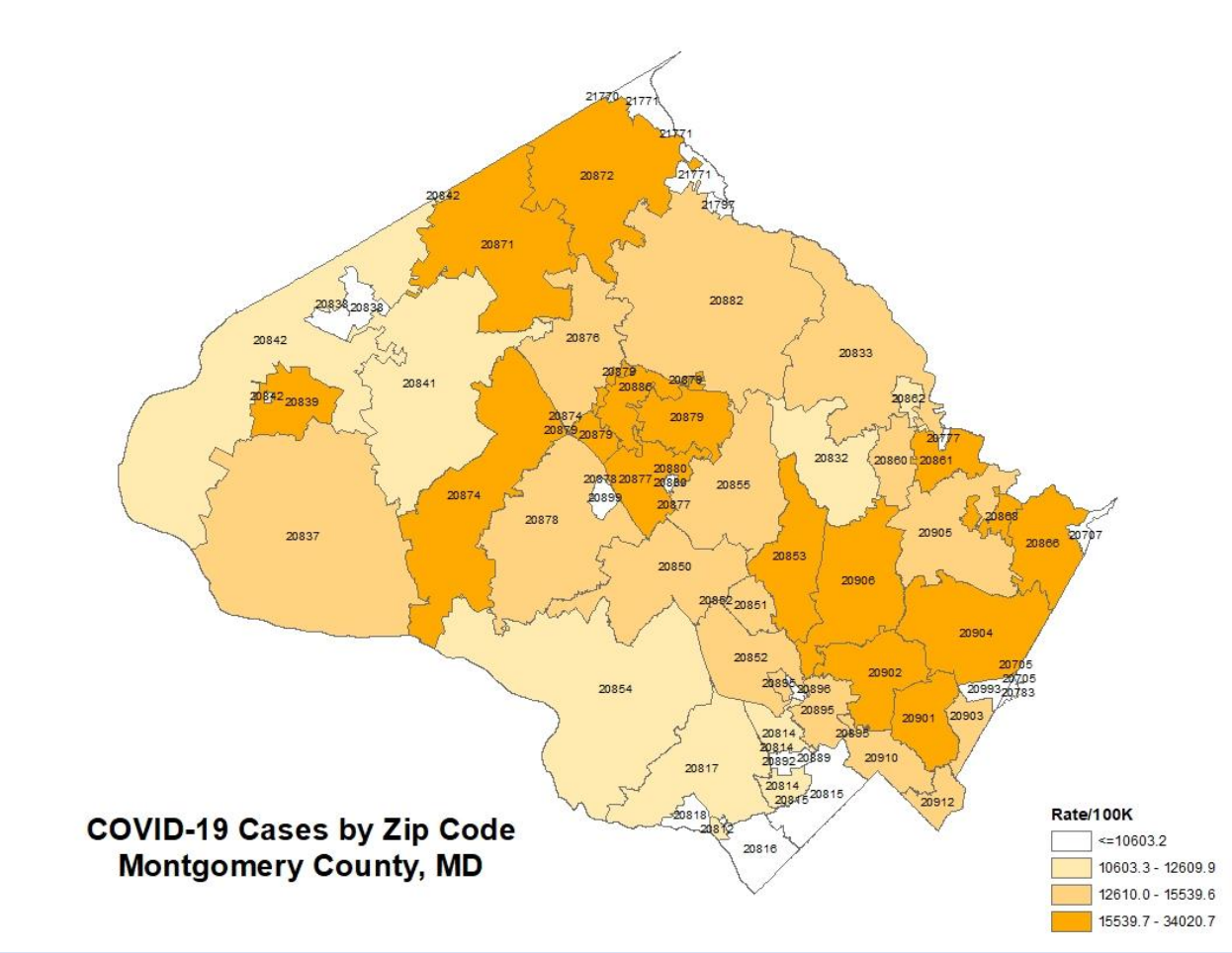
COVID-19 Cumulative Case Rates in Montgomery County

Rates represent the number of new cases over time among the resident population, per 100,000 residents in Montgomery County. Rates displayed in this section are presented by sex or combined race and ethnicity and stratified by age group, since these factors often impact disease burden. Rates are also presented by ZIP Code to visualize the impact of COVID-19 by geographic area.

By ZIP Code

Map 2 shows the cumulative COVID-19 case rates, per 100,000 residents, by ZIP Code in Montgomery County. ZIP Codes with a darker gradient represent areas with high cumulative case rates. Alternatively, ZIP Codes with a lighter gradient represent areas of lower cumulative case rates among residents. Population subgroups and communities disproportionately impacted by COVID-19 mirror the pattern of social determinants of health and SDI.

Map 2. COVID-19 Case Rates by ZIP Code, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022



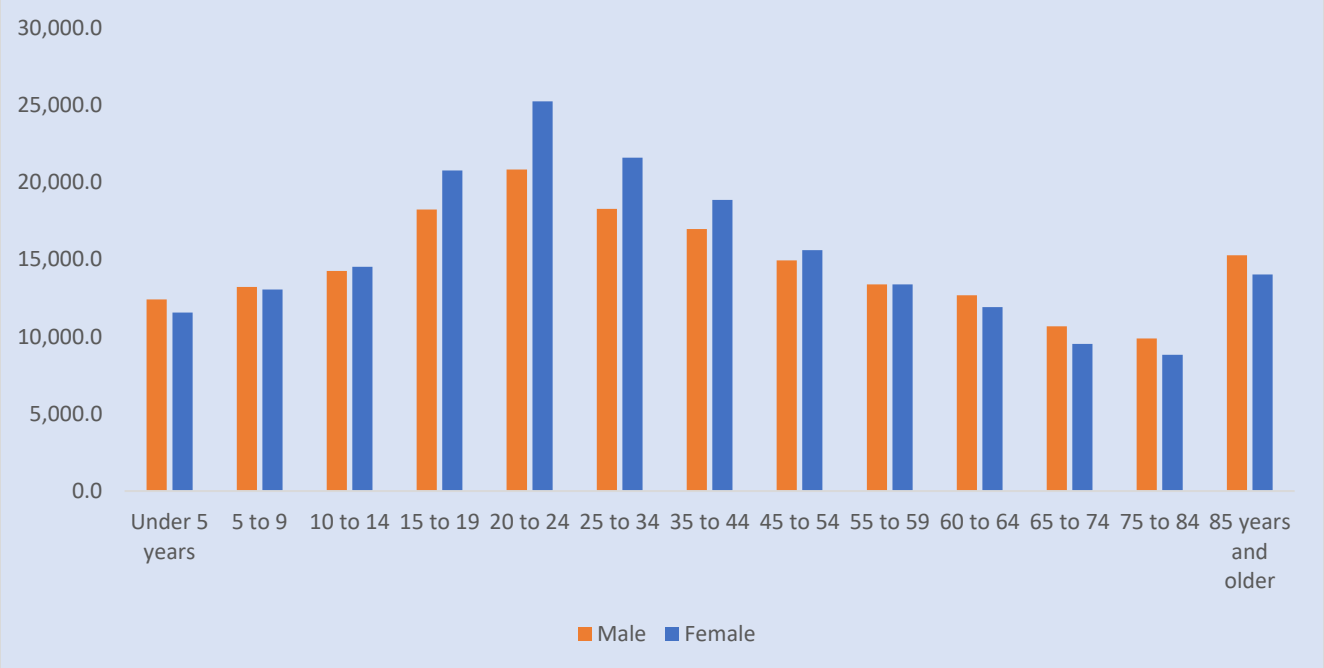
Age and Sex

The age group with the highest case rates across both sexes are 20 to 24-year-old residents (Table 5). Male residents have slightly higher case rates than females at the tail ends of the age distribution; for ages 0 to 9 and 55 years and older (Figure 1). Female residents have slightly higher case rates than males in the middle of the age distribution, from ages 10 to 54.

Table 5. COVID-19 Case Rates, Age and Sex Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022

	Female		Male	
Age Group	n	Rate	n	Rate
Under 5 years	3,751	11,565.0	4,169	12,414.0
5 to 9	4,329	13,047.8	4,568	13,208.4
10 to 14	4,794	14,516.7	5,018	14,256.5
15 to 19	6,506	20,754.1	5,948	18,223.6
20 to 24	7,459	25,235.1	6,262	20,815.1
25 to 34	14,623	21,597.2	12,034	18,276.3
35 to 44	13,964	18,852.9	11,792	16,971.3
45 to 54	12,033	15,597.3	10,489	14,933.7
55 to 59	5,106	13,379.8	4,613	13,380.7
60 to 64	4,022	11,919.9	3,831	12,682.1
65 to 74	4,600	9,520.9	4,360	10,665.1
75 to 84	2,376	8,832.1	1,950	9,885.4
85 years and older	1,939	14,035.5	1,097	15,265.8

Figure 1. COVID-19 Case Rates, Age and Sex Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022



Age and Race/Ethnicity

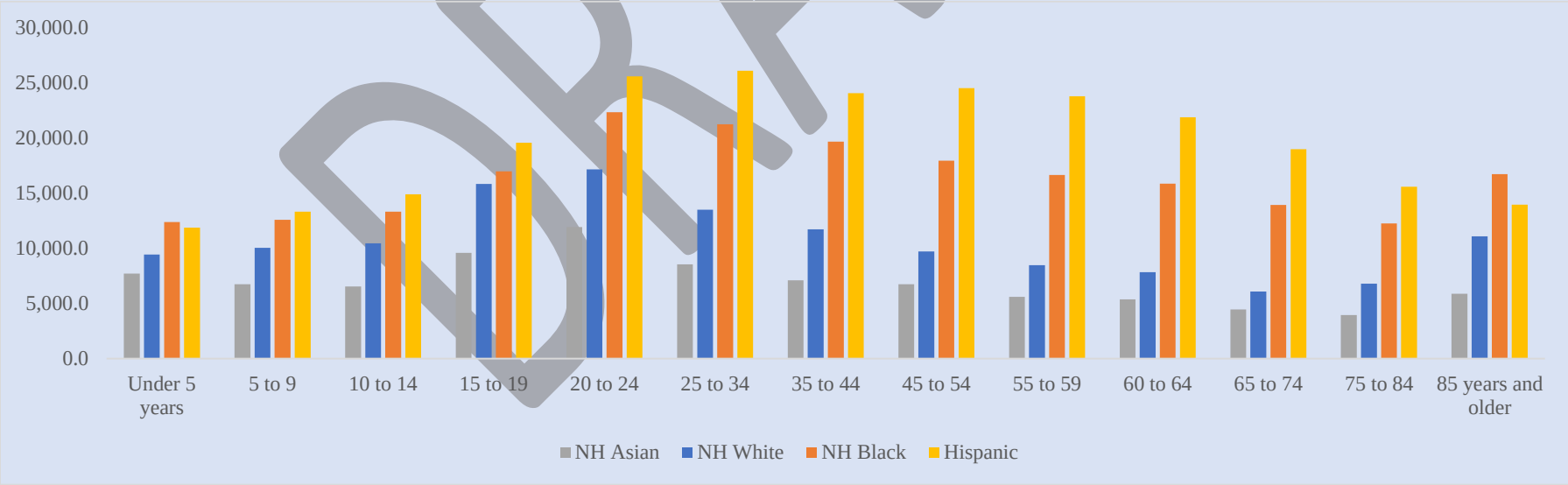
Overall, across age groups, Hispanic residents have the highest case rates, followed by non-Hispanic black residents, non-Hispanic white residents, and non-Hispanic Asian residents, respectively (Figure 2). Notable exceptions to this trend are among residents who are under 5 years and residents 85 years and older, where non-Hispanic black residents have the highest age-specific case rates, followed by their Hispanic counterparts.

Among non-Hispanic white, black, and Asian residents, the highest case rates are observed among the 20 to 24-year-old age group (Table 6), consistent with findings in the calculation of age and sex specific case rates. However, the highest case rate observed among Hispanic residents occurs in the 25 to 34-year-old age group.

Table 6. Case Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022

	NH White		NH Black		NH Asian		Hispanic		NH Other		Unknown	
Age Group	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
Under 5 years	2,069	9,406.7	1,706	12,357.8	633	7,683.0	2,411	11,847.1	808	N/A	293	N/A
5 to 9	2,408	10,019.1	1,856	12,556.7	634	6,738.2	2,547	13,290.5	1,006	N/A	446	N/A
10 to 14	2,716	10,432.5	1,987	13,293.6	688	6,525.7	2,543	14,875.7	1,216	N/A	662	N/A
15 to 19	4,112	15,801.4	2,316	16,957.1	889	9,570.5	3,016	19,547.6	1,353	N/A	768	N/A
20 to 24	3,983	17,137.8	2,890	22,295.9	949	11,898.2	3,722	25,556.2	1,420	N/A	757	N/A
25 to 34	6,713	13,469.9	6,125	21,201.8	1,905	8,541.1	7,845	26,044.1	2,521	N/A	1,548	N/A
35 to 44	6,355	11,701.3	5,806	19,624.8	1,912	7,084.4	8,024	24,024.7	2,356	N/A	1,303	N/A
45 to 54	5,977	9,696.3	5,104	17,907.5	1,748	6,722.6	6,626	24,478.2	2,109	N/A	958	N/A
55 to 59	3,129	8,466.1	2,129	16,630.2	668	5,581.6	2,490	23,743.7	928	N/A	375	N/A
60 to 64	2,860	7,809.5	1,692	15,823.4	560	5,365.0	1,727	21,835.9	717	N/A	297	N/A
65 to 74	3,442	6,062.3	1,943	13,919.3	682	4,452.6	1,746	18,941.2	817	N/A	330	N/A
75 to 84	2,035	6,794.0	789	12,238.3	322	3,952.9	650	15,550.2	363	N/A	167	N/A
85 years and older	1,877	11,077.0	436	16,705.0	178	5,863.0	249	13,941.8	197	N/A	99	N/A

Figure 2. COVID-19 Case Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022



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COVID-19 Case Rates Over Time in Montgomery County

In addition to calculating case rates to measure the cumulative burden since the start of the pandemic, another important consideration is how the transmission of COVID-19 has changed over time. Figure 3 below shows the count of cases by day, along with the 7-day moving average number of cases for Montgomery County. The distribution of cases reflects the first, second, and third wave of the pandemic in Montgomery County, with peaks at 282.1 average daily new cases in May 2020, 537.1 in January 2021, and 3,044 in January 2022. Figure 4 shows the 7-day case rate, compared to the state of Maryland and nationally. Overall, the County experienced similar rates to the state of Maryland throughout the pandemic. However, the County experienced a greater impact during the first wave of the pandemic compared to the state of Maryland and the rest of the country.

Overall Case Trends

Figure 3. Daily Trends in the Number of COVID-19 Cases in Montgomery County, MD, March 2020 –March 2022

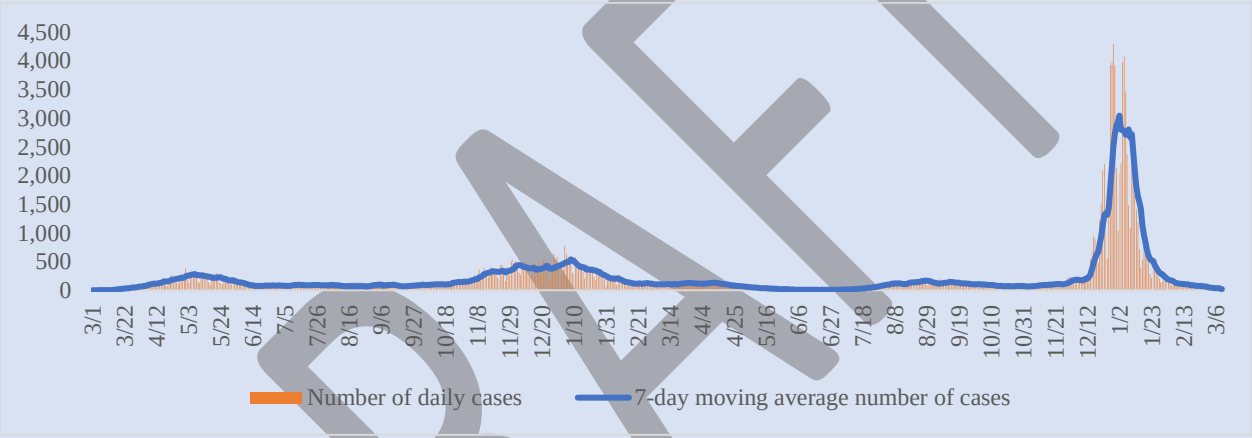
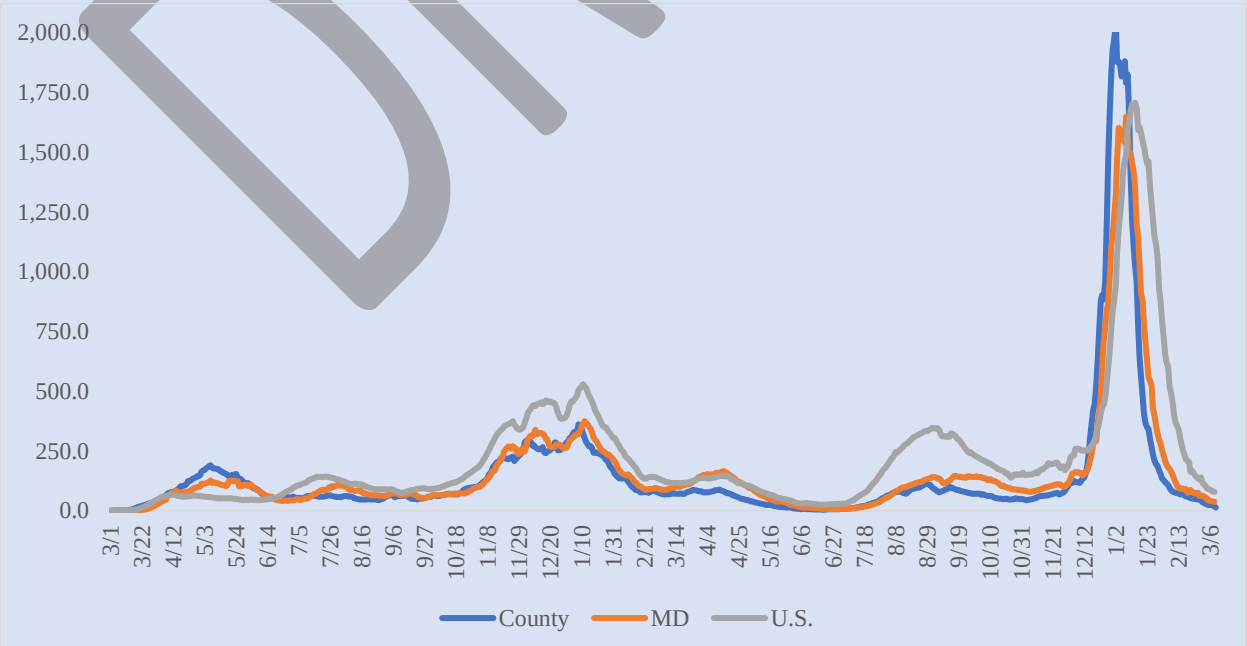


Figure 4. 7-day COVID-19 Case Rate, per 100,000, Montgomery County, MD, March 2020 – March 2022



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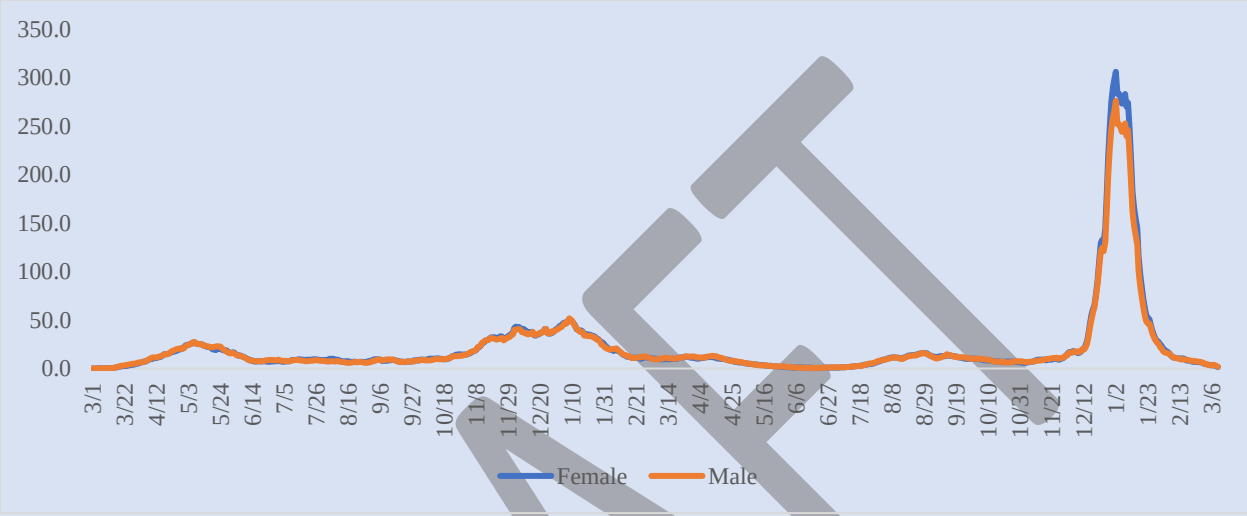
Case Trends - By Demographics

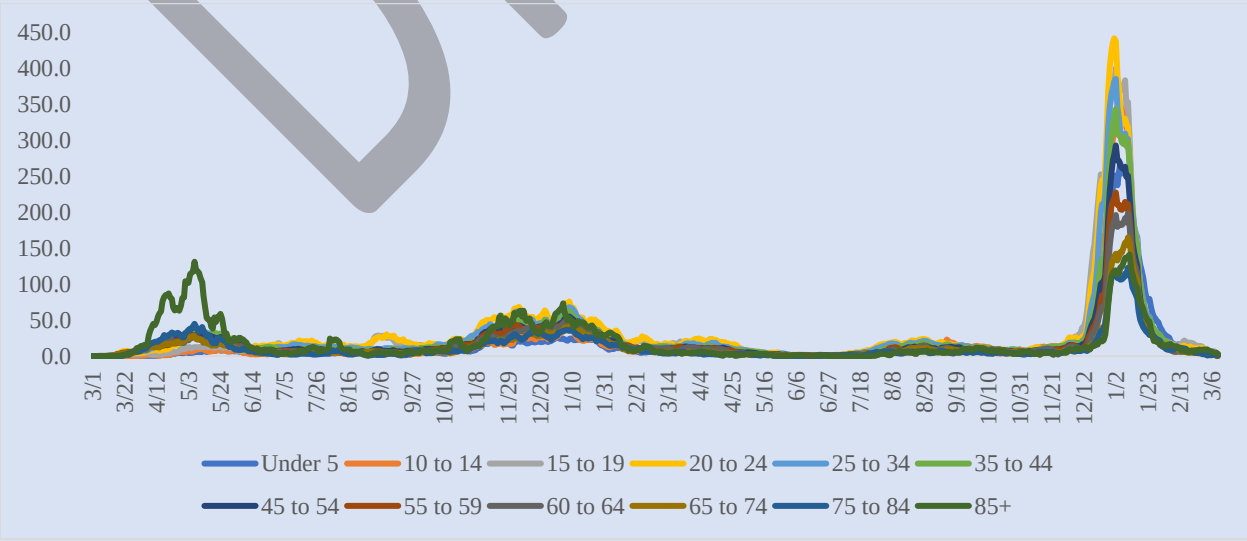
The average case rate over time by male and female resident populations is displayed in Figure 5. While females had a higher average case rate in the January 2022 peak, both male and female case rates generally follow the same trend over time and reflect the overall trend at the County level.

Figure 5. 7-day Moving Average COVID-19 Case Rate by Sex, per 100,000, Montgomery County, MD, March 2020 – March 2022



The average case rate over time by residents in each age group is displayed in Figure 6. The most notable finding is the high average case rate among residents 85 years and older during the first wave of the pandemic. Secondly, a peak of 442.1 average cases in the 7-day moving rate is observed in early January 2022 among 20 to 24-year-old residents.

Figure 6. 7-day Moving Average COVID-19 Case Rate by Age Group, per 100,000, Montgomery County, MD, March 2020 – March 2022



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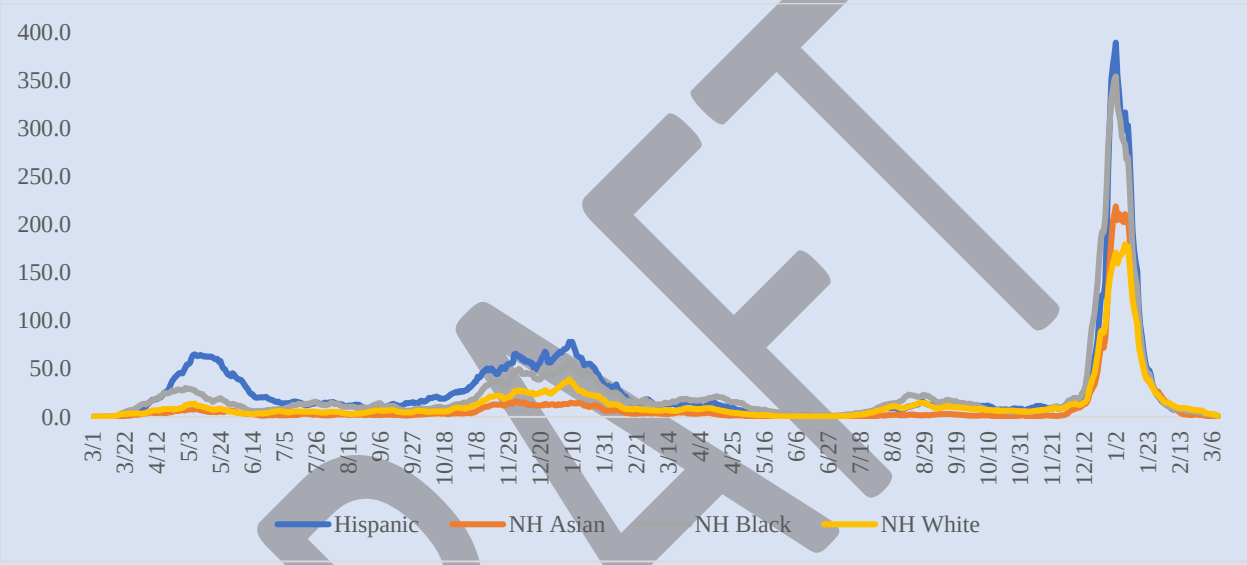
The average case rate over time by combined race and ethnicity is displayed in Figure 7. During the first and second waves, Hispanic residents experienced the highest case-rates, followed by non-Hispanic black residents, non-Hispanic white, and non-Hispanic Asian residents. During the third wave in Montgomery County, Hispanic and non-Hispanic black residents had much higher case rates than their non-Hispanic white and Asian counterparts.

Figure 7. 7-day Moving Average COVID-19 Case Rate by Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



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Case Trends - By Multiple Demographics

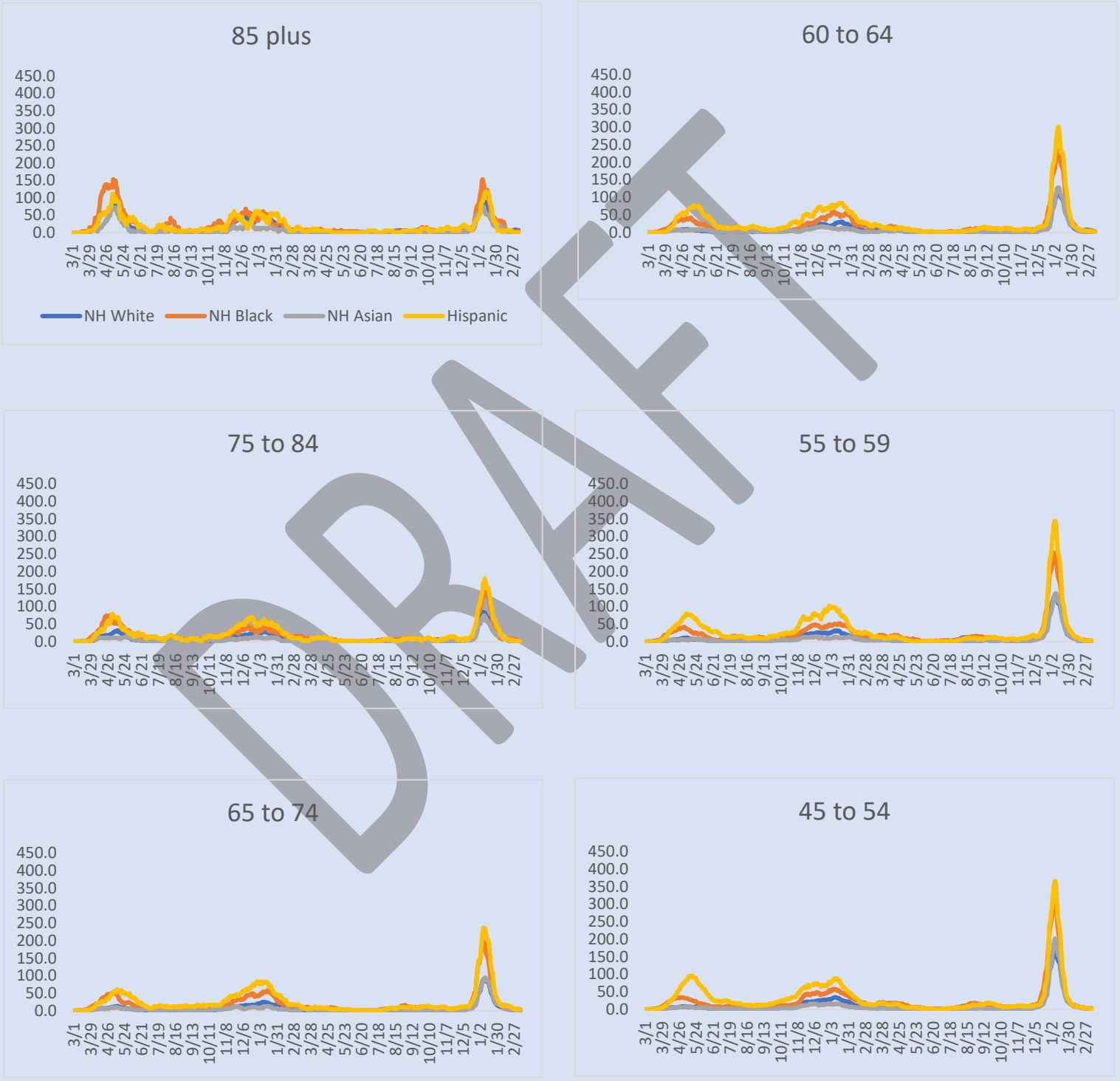
The calculation of case rates over time by race/ethnicity and sex of County residents, while considering differing age distributions within these subpopulations, allows for a closer examination of potential health disparities throughout the pandemic. Figure 8 shows the 14-day[1] moving average case rate per 100,000 residents over time by age group and race/ethnicity. Notable findings include the following:

- The highest average case rate since the onset of the pandemic was observed during the third wave among Hispanic residents aged 20 to 24. Prior to the Omicron surge, the highest case rates were observed among non-Hispanic black residents aged 85 and older, during the first wave.
- During the first wave of the pandemic, Hispanic residents and non-Hispanic black residents 35 years and older experienced higher average case rates than their non-Hispanic white and Asian counterparts. However, among younger age groups, only Hispanic residents experienced higher average case rates compared to other subgroups.
- During the third wave, non-Hispanic black residents under the age of 5 and residents 85 and older had higher average case rates than their counterparts.

[1] A 14-day moving average was calculated for the stratification by race/ethnicity and age to provide a clearer interpretation of the trends due to smaller cell counts by each age and race/ethnicity group over time.

- A small increase in average case rate is observed among non-Hispanic white residents ages 15 to 19 and 20 to 24 during September 2020.

Figure 8. 14-day Moving Average COVID-19 Case Rate by Age Group and Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



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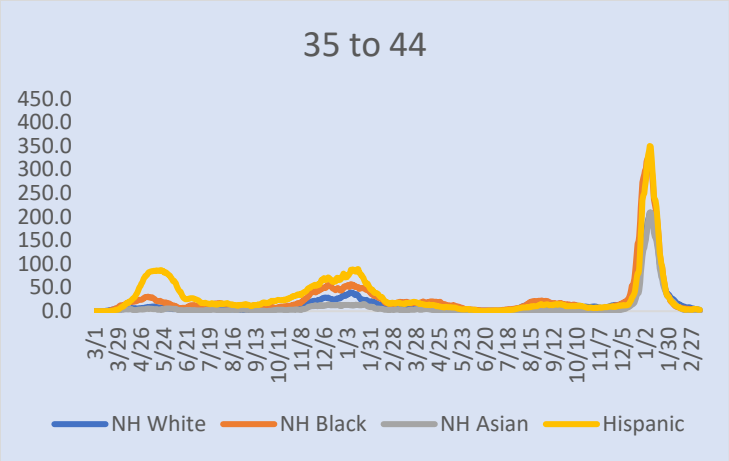
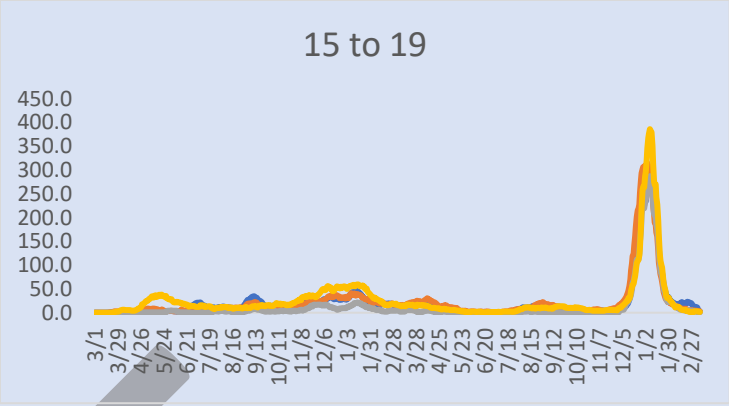
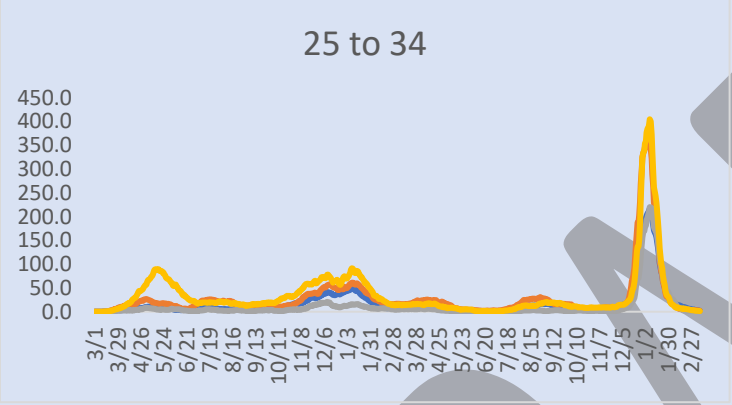
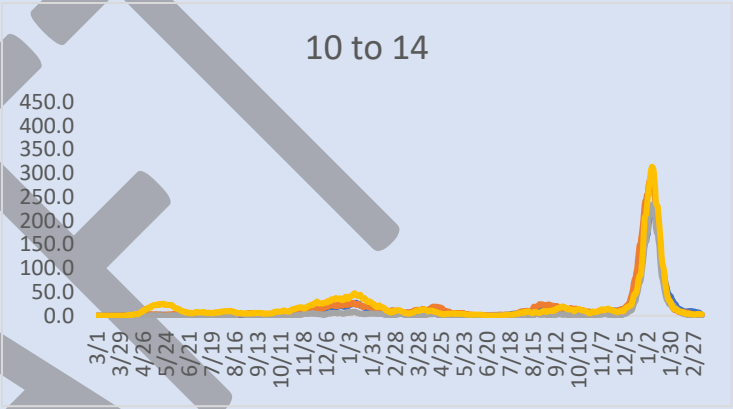
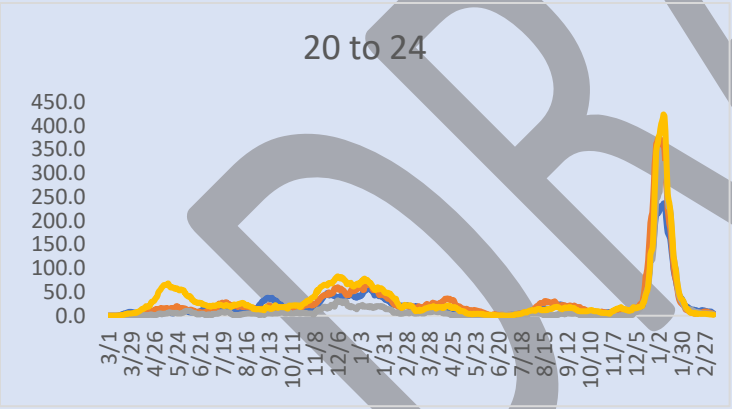
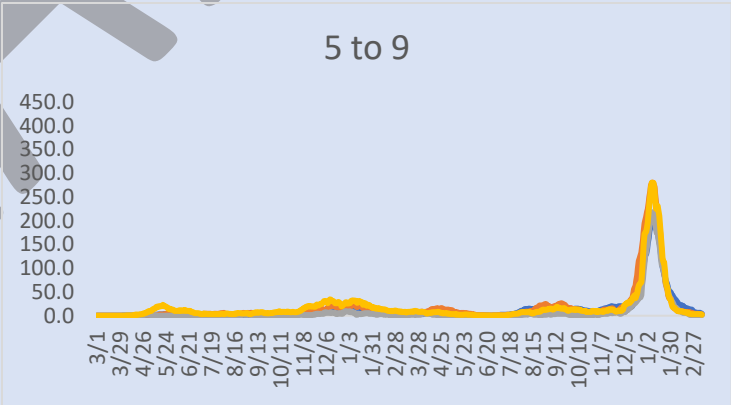

35 to 44
NH White
NH Black
NH Asian
Hispanic


15 to 19


25 to 34


10 to 14


20 to 24


5 to 9

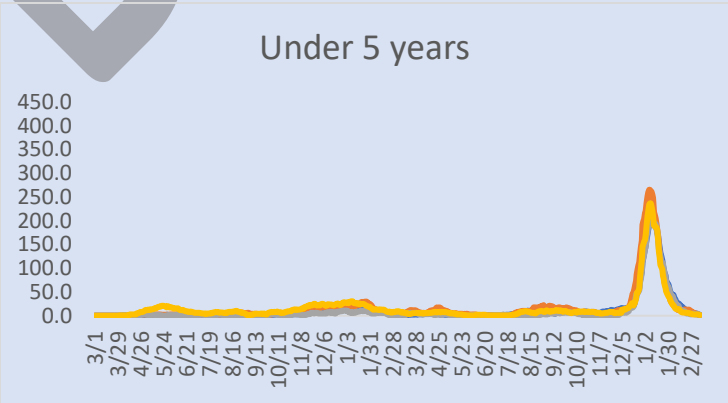

Under 5 years

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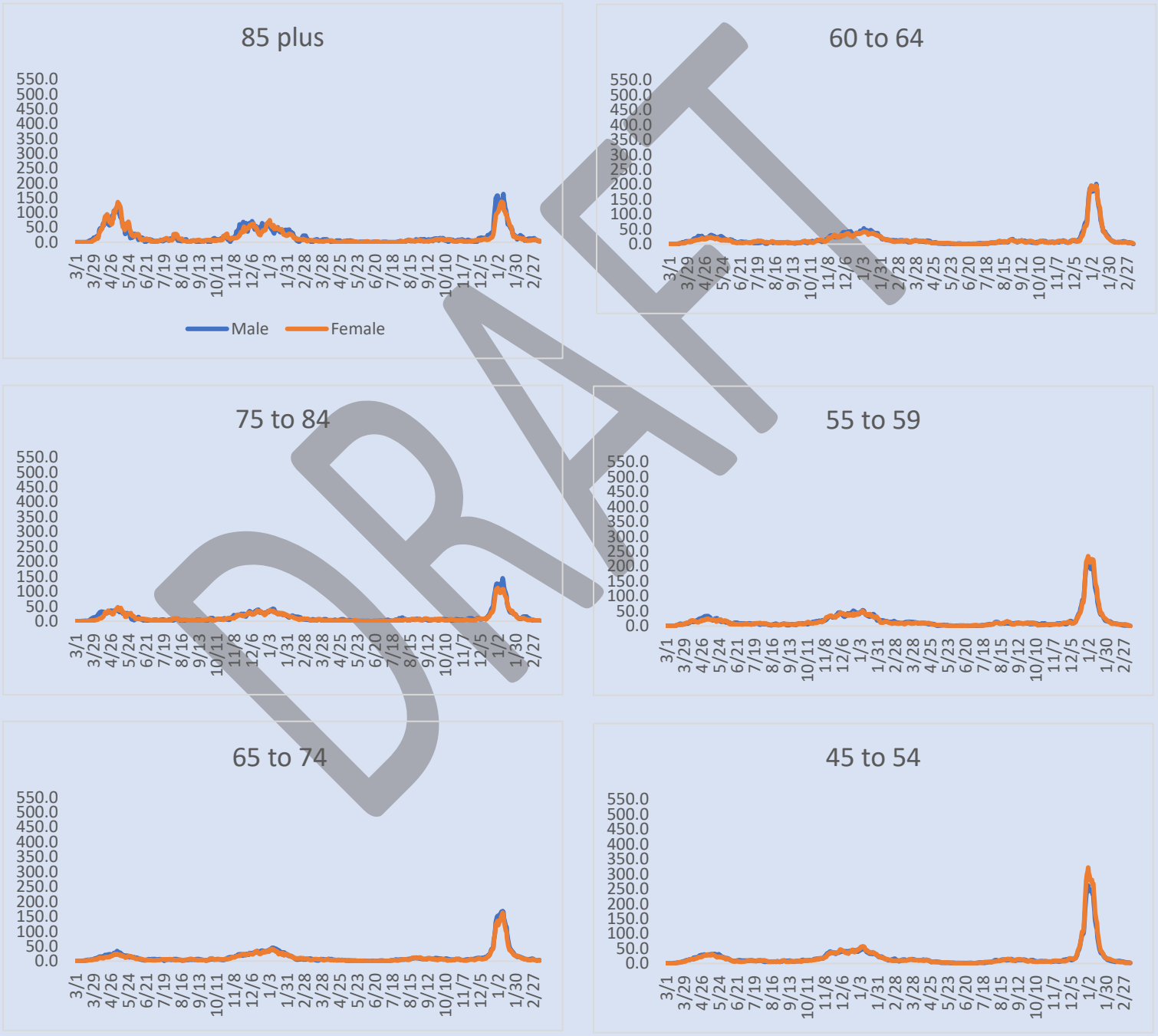
Figure 9 shows the 14-day moving average case rate per 100,000 residents over time by age group and sex of Montgomery County residents. Only minute differences are observed between average case rates of male and female residents throughout most of the pandemic. The one exception is that in the third wave of the pandemic for age groups 20 to 24 and 25 to 34, average case rates for female residents were noticeably higher than average case rates for male residents.

Figure 9. 14-day Moving Average COVID-19 Case Rate by Age Group and Sex, per 100,000, Montgomery County, MD, March 2020 – March 2022



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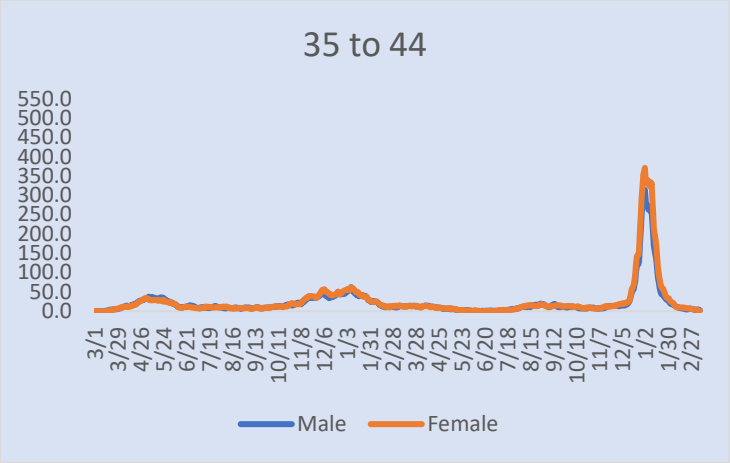
35 to 44
550.0
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50.0
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4/26
5/24
6/21
7/19
8/16
9/13
10/11
11/8
12/6
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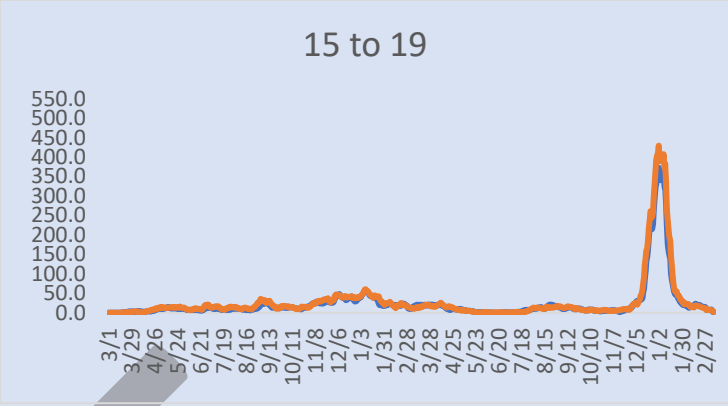
1/31
2/28
3/28
4/25
5/23
6/20
7/18
8/15
9/12
10/10
11/7
12/5
1/2
1/30
2/27
Male
Female


15 to 19
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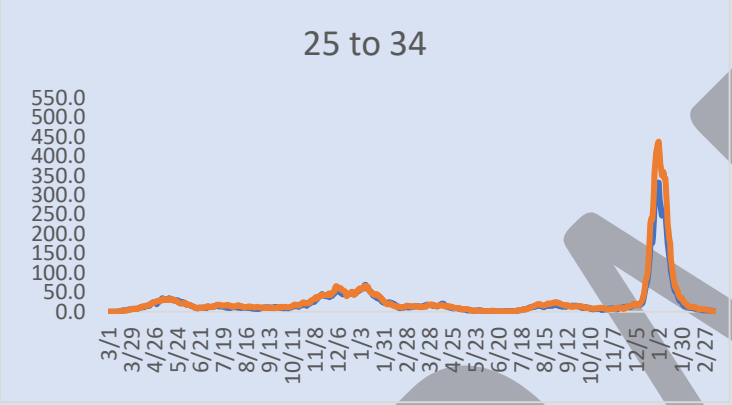
25 to 34
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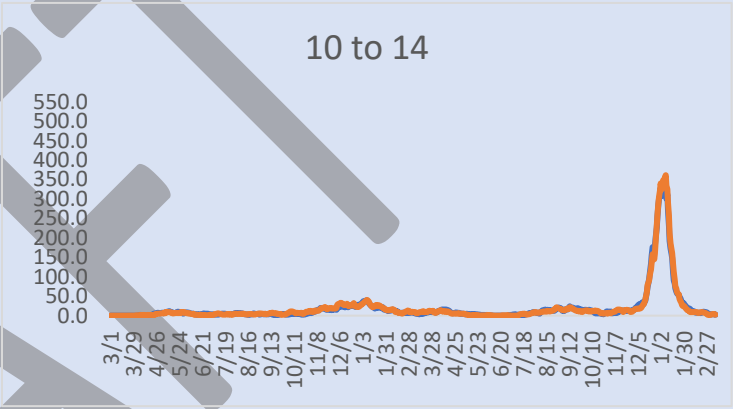
10 to 14
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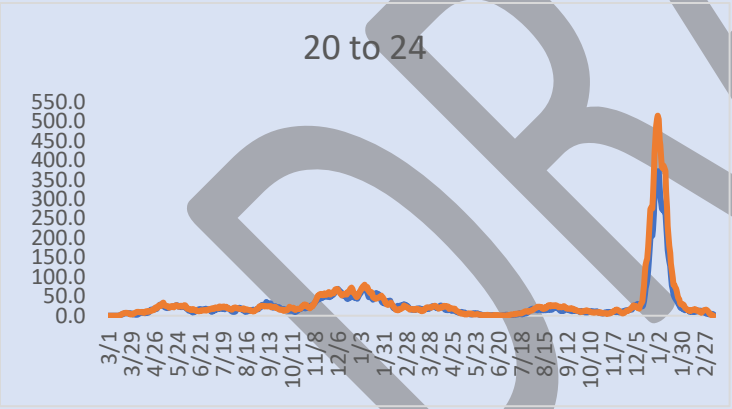
20 to 24
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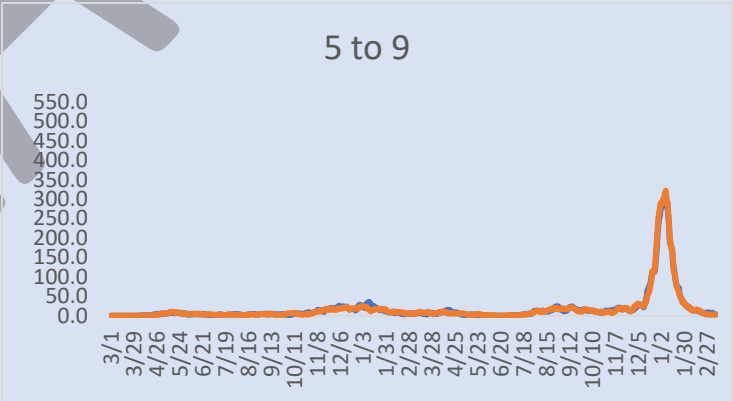
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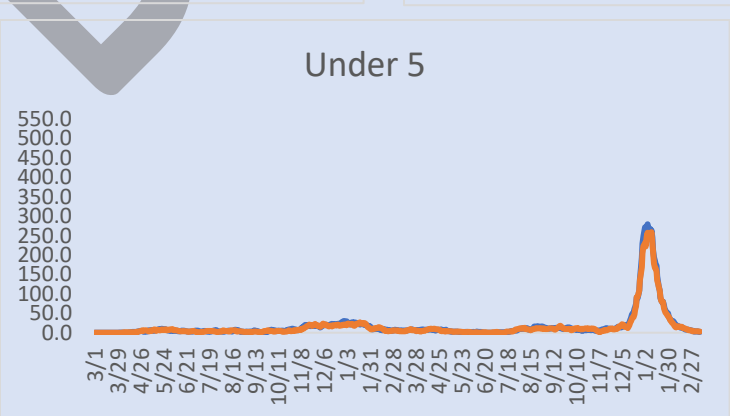
Under 5
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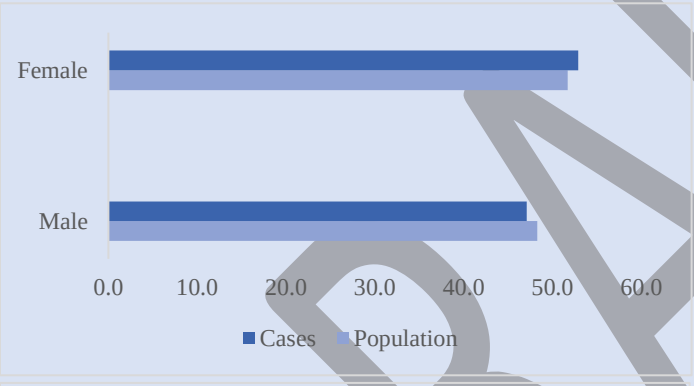
Percentage of Cases vs Percentage of Resident Population

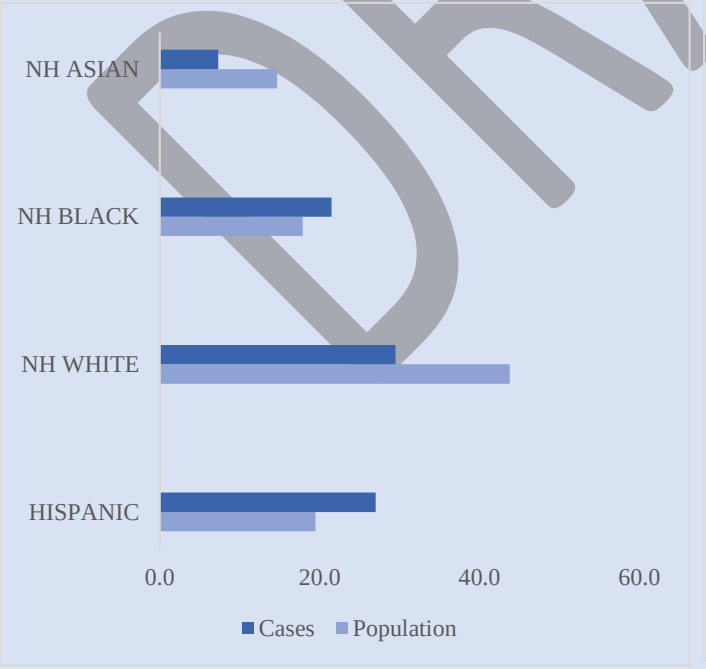
Females comprise a greater proportion of all cases relative to their population size. Non-Hispanic black and Hispanic residents comprise a larger share of cases relative to their population size. Finally, residents between the ages of 15 and 44 represent a greater proportion of cases compared to their proportion of the County population.

Figure 10 compares the proportion of all COVID-19 cases in Montgomery County to the proportion of the population by each demographic. This comparison allows for a closer examination of potential health disparities based on the population distribution of each subpopulation.

Females comprise a greater proportion of all cases relative to their population size. Non-Hispanic black and Hispanic residents comprise a larger share of cases relative to their population size. Finally, residents between the ages of 15 and 44 represent a greater proportion of cases compared to their proportion of the County population.

Figure 10. Percentage of COVID-19 Cases by Sex, Race/Ethnicity, and Age Group, and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022





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Percentage of Cases vs Percentage of Resident Population – by Multiple Demographics

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Figure 11 compares the proportion of cases by sex and age group to their proportion of the County population. Overall, males and females follow the same pattern in terms of magnitude of differences between the proportion of cases and proportion of the population. Substantial differences are only observed across age groups.

Figure 12 compares the proportion of cases by race, ethnicity, and age group to their respective proportion of the resident population. Within age groups, the following differences among race/ethnicity subgroups are observed:

- Non-Hispanic black and Hispanic residents under the age of 15 comprise a lower proportion of cases compared to their population size, while non-Hispanic white and Asian residents follow a case distribution that more closely aligns with their population size.
- From ages 15 to 19, non-Hispanic white residents and Asian residents have a higher proportion of cases relative to their population size.
- Non-Hispanic black and Hispanic residents between the ages of 45 and 54 have a disproportionately higher percentage of cases relative to their population size.
    - Non-Hispanic white and Asian residents comprise a disproportionately lower percentage of cases, relative to their population size, in this same age group.
- Hispanic residents between the ages of 55 and 64 have a higher percentage of cases relative to their population size, while other race/ethnicity subgroups comprise a lower percentage of cases relative to their population size.
- Among residents aged 65 to 84, non-Hispanic Asian, non-Hispanic black, and non-Hispanic white residents have a disproportionately lower percentage of cases relative to their population sizes.
    - Hispanic residents aged 65 to 84 follow a case distribution that more closely aligns with their population size.

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Figure 11. Percentage of COVID-19 Cases by Sex and Age Group and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022

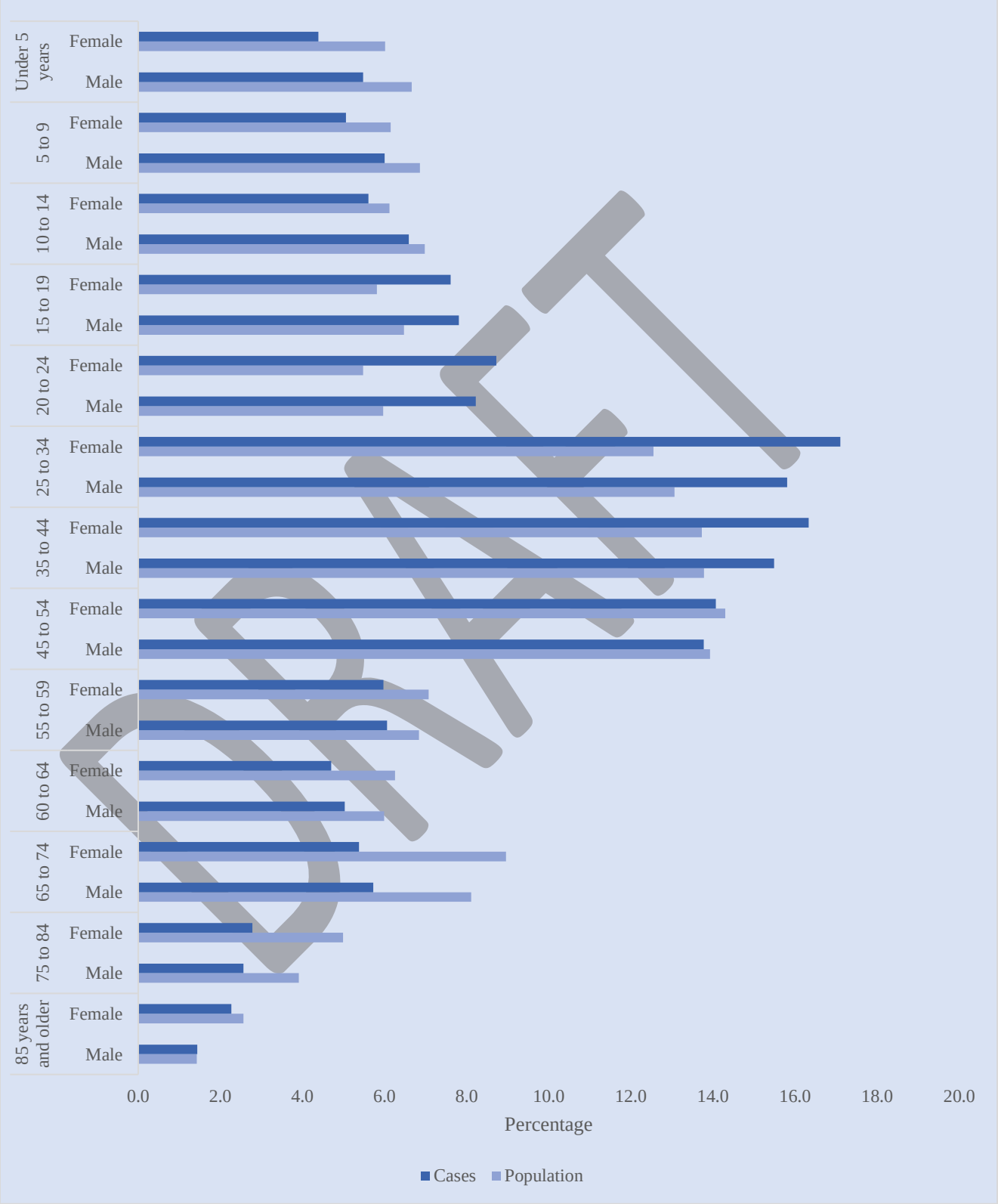
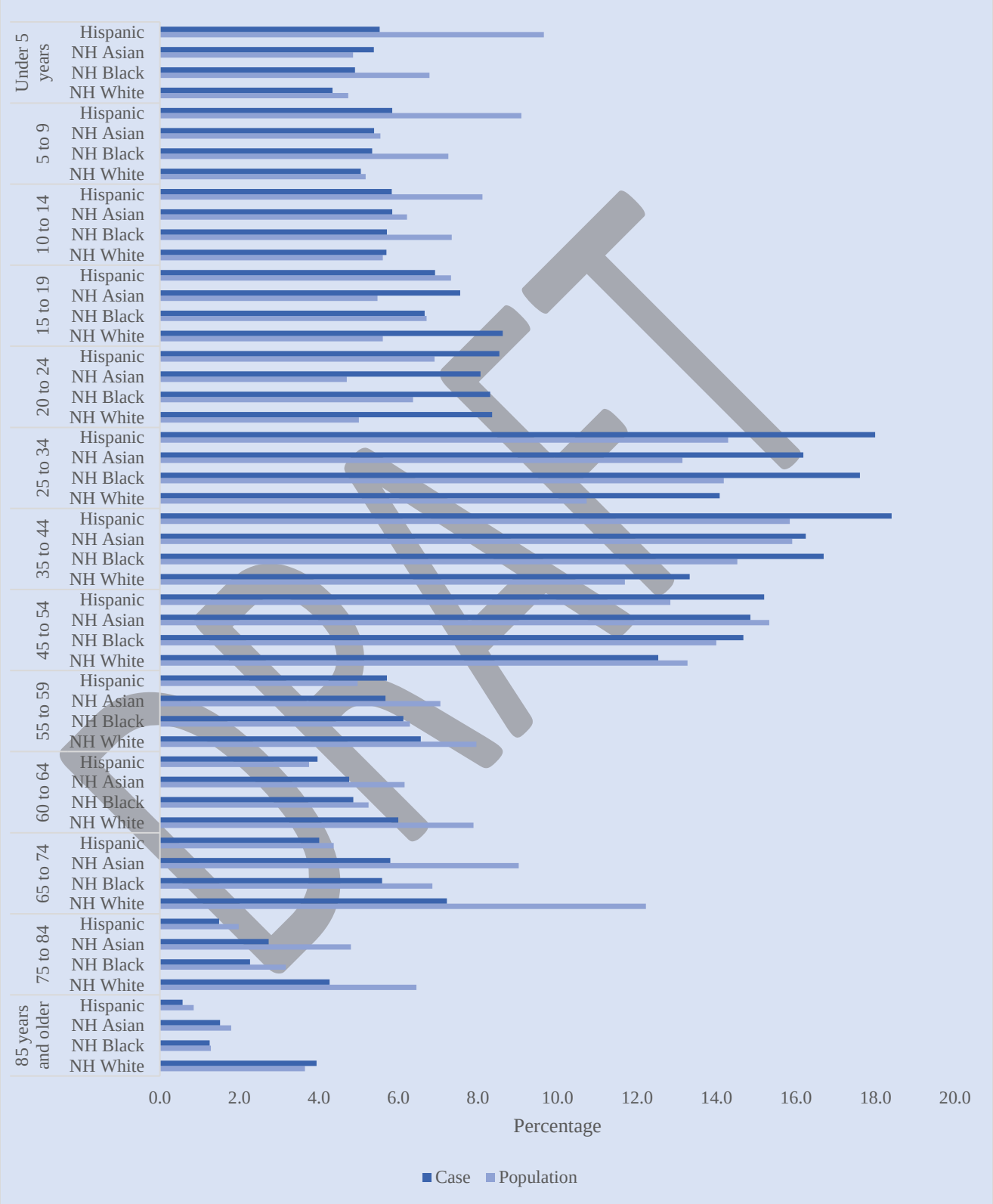


Figure 12. Percentage of COVID-19 Cases by Race/Ethnicity and Age Group and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022



CHAPTER II: TESTING, VARIANTS, & OUTBREAKS

There were 3.6 million tests administered in Montgomery County since the start of the pandemic.

Overall Testing Trends

The average rate of tests administered in Montgomery County, per 100,000 residents, is displayed in Figure 1Figure 13. The highest levels of testing occurred between December 2021 and January 2022.

Figure 13. 7-day Average Testing Rate, per 100,000 residents, Montgomery County, MD, March 2020 - March 2022

Figure 14 depicts the number of weekly tests administered in Montgomery County by facility type. Except for the week of July 5th, the public county sites make up the largest percentage of administered tests in Montgomery County.

Figure 14. Weekly Trends in Number of Tests Administered by Facility Type, per 100,000 residents, Montgomery County, MD, June 2021 - March 2022

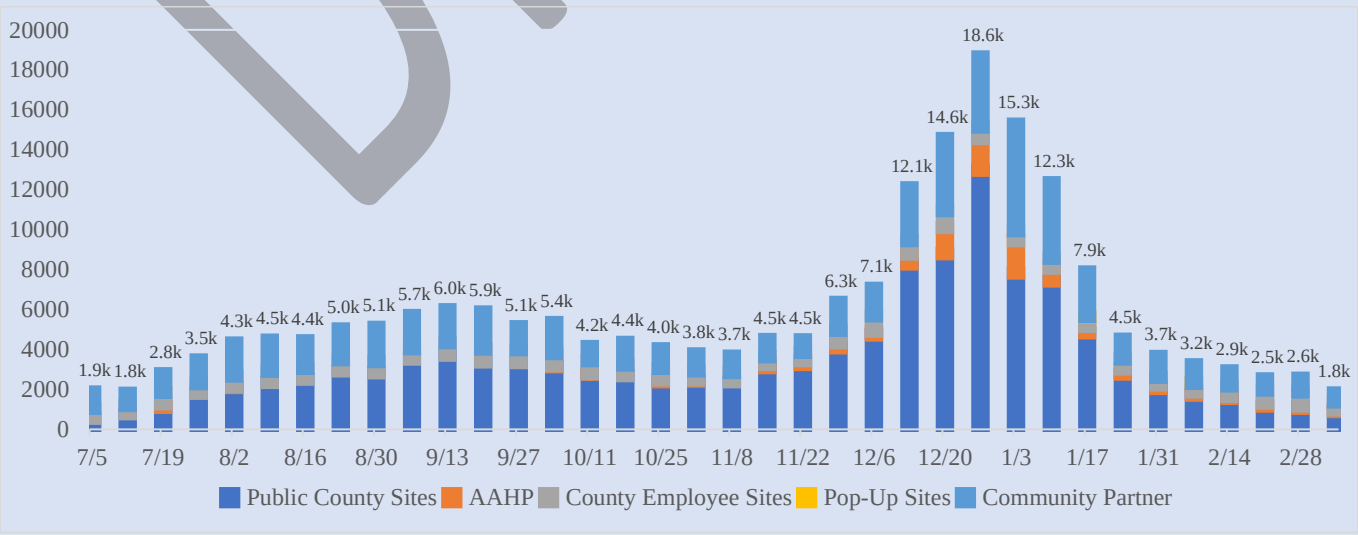


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Figure 15 shows the 7-day moving average of percent positive tests in Montgomery County. This measure is used as an indicator of the levels of community-wide transmission of COVID-19. The levels were highest during the first wave of the pandemic in Montgomery County.

Figure 15. 7-day Moving Average Percent Positivity, Montgomery County, MD, March 2020 - March 2022

Testing Trends – By Demographics

Figure 16 shows the 7-day moving average of percent positive tests in Montgomery County, by race and ethnicity. Throughout much of the pandemic, Hispanic individuals had higher rates than other race/ethnicity subgroups.

Figure 16. 7-day Moving Average Percent Positivity by Race/Ethnicity, Montgomery County, MD, March 2020 – March 2022

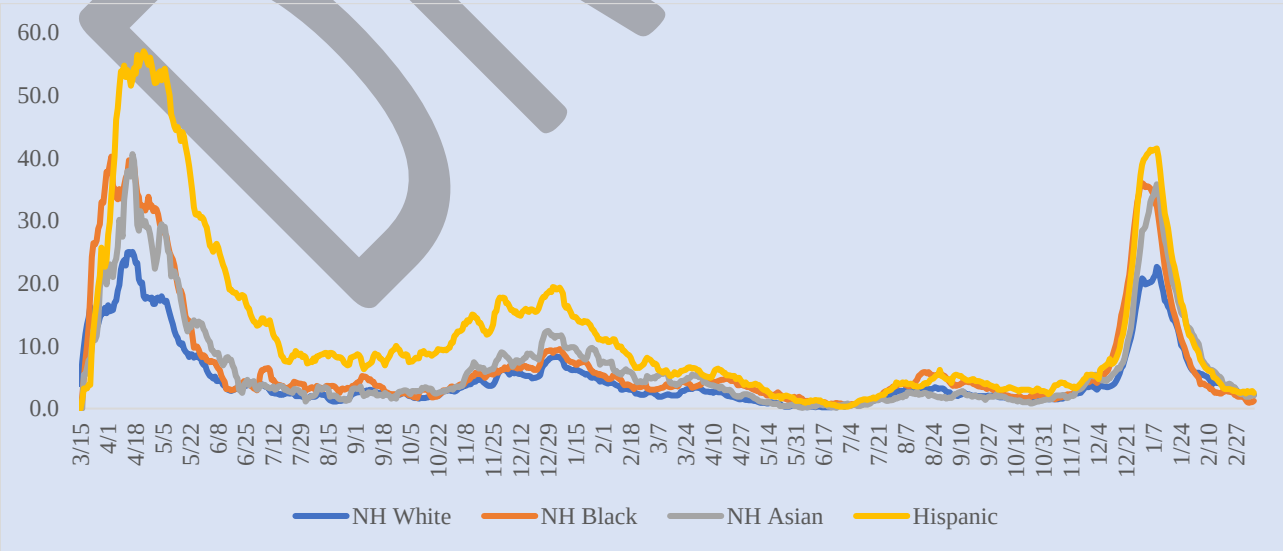

Figure 17 shows the 7-day moving average of percent positive tests in Montgomery County, by age group. With minor variation, the same trend is observed among age groups. Notable observations are

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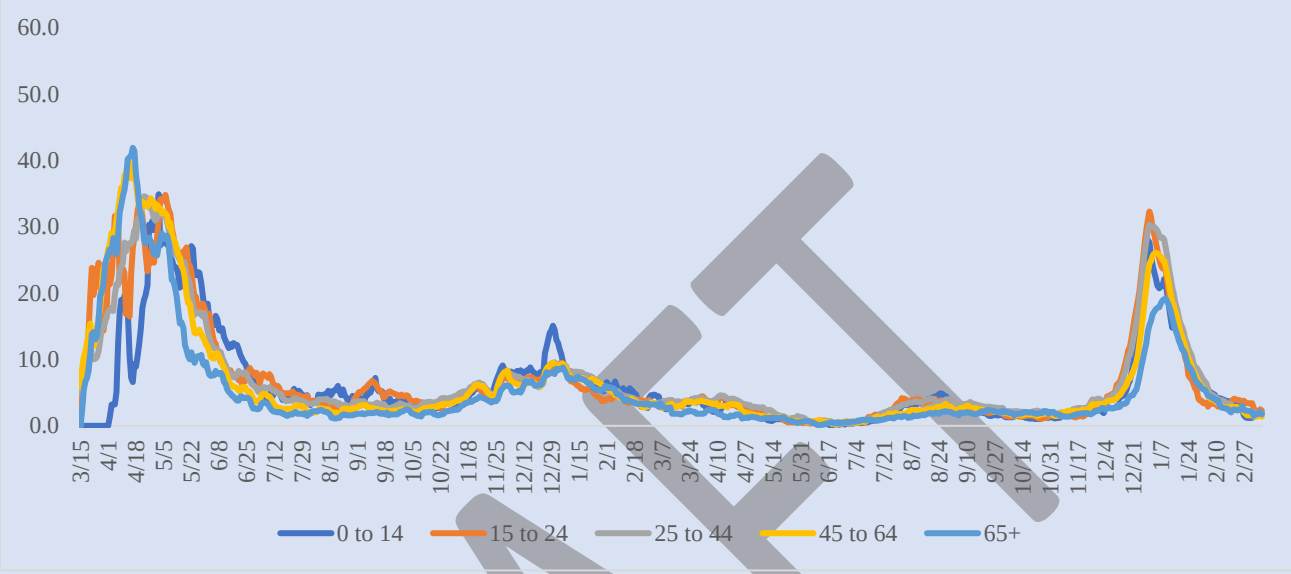
the high percent positivity among the 45 to 64 and 65+ age groups at the onset of the pandemic and among the 15 to 24 and 25 to 44 age groups in the third wave, from December 2021 to January 2022.

Figure 17. 7-day Moving Average Percent Positivity by Age Group, Montgomery County, MD, March 2020 – March 2022



Overall Sequencing Variant Trends

Figure 18 shows the daily trend of Montgomery County cases that were sequenced overtime from June 2020 to January 2022. In the County, 2,854 total cases were sequenced over this time. The daily sequencing count peaked at 48 daily positive cases sequenced in December 2021.

Figure 18. Daily Trends in the Number of Positive Cases Sequenced, Montgomery County, MD, June 2020 – January 2022

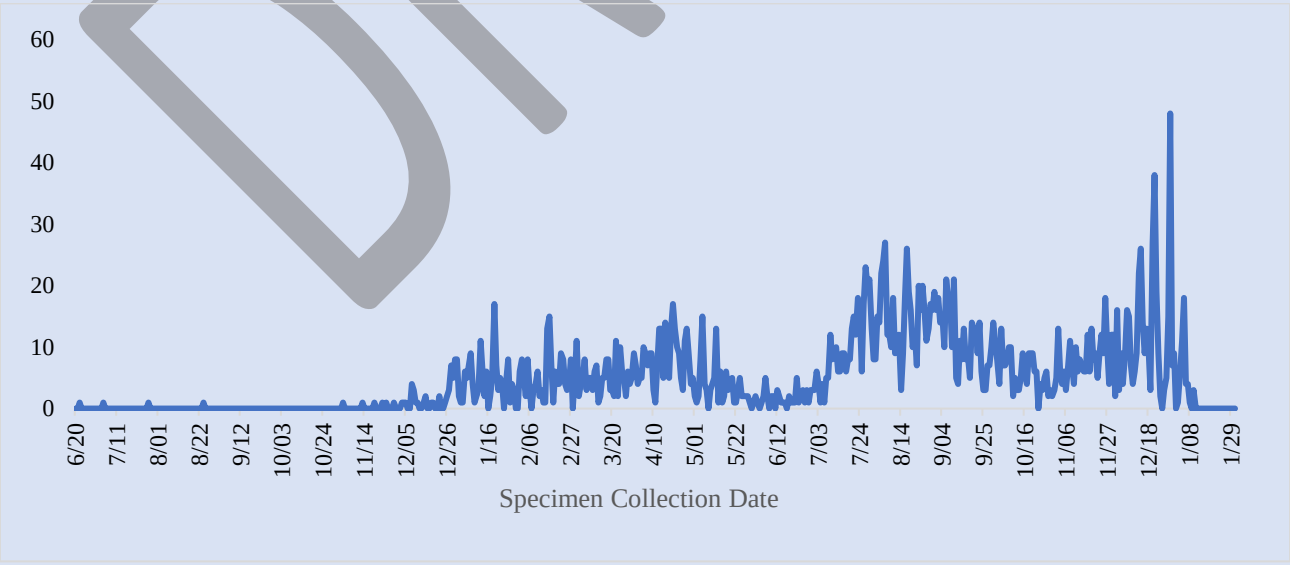


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Figure 19 shows the daily trend of Montgomery County cases that were sequenced overtime from June 2020 to January 2022 by variant type. The Delta variant was frequently sequenced in the 2nd half of 2021 before the Omicron variant peaked in the number of sequenced variant cases in December 2021.

Figure 19. Daily Trends in the Number of Positive Cases Sequenced by Variant, Montgomery County, MD, June 2020 – January 2022

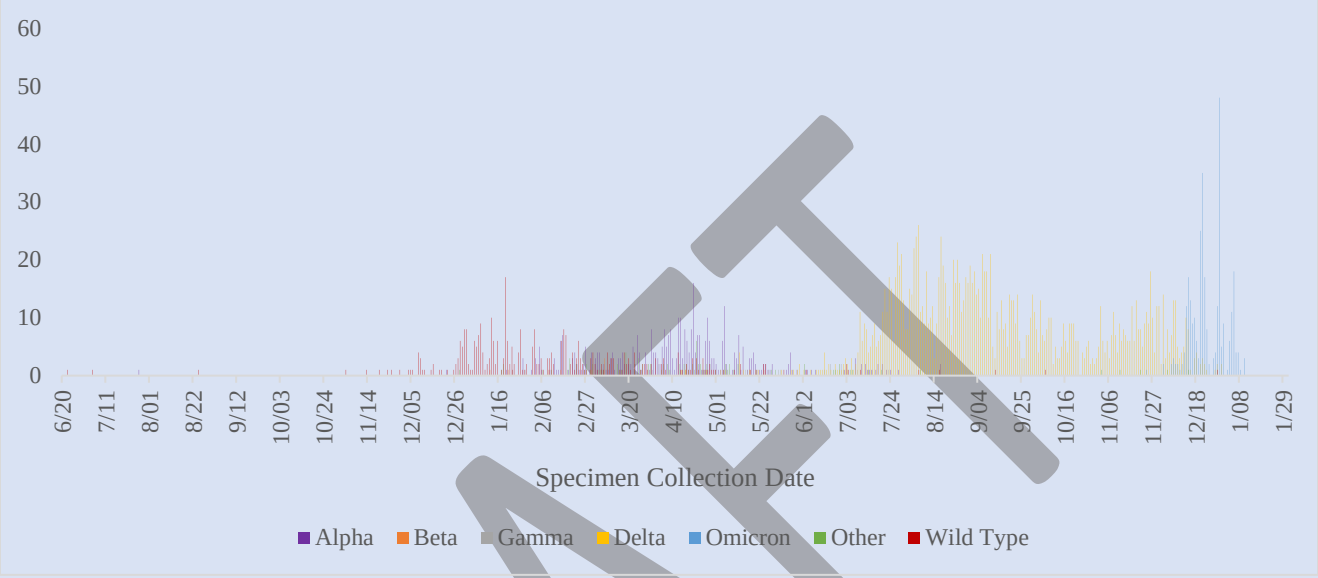
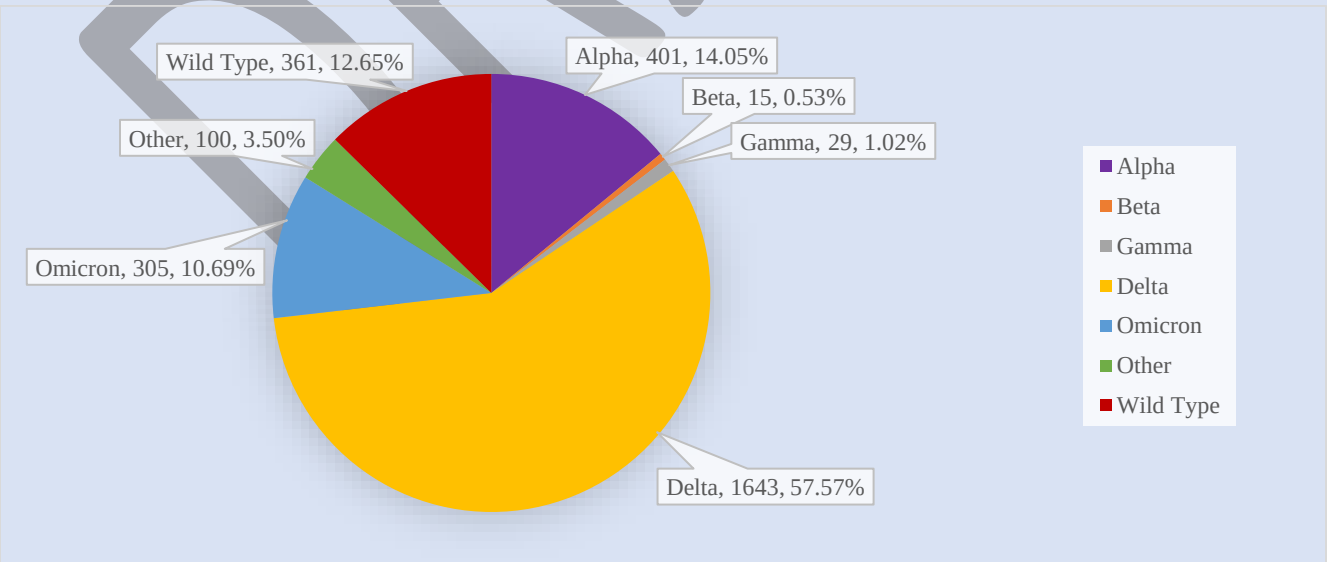


Figure 20 shows the SARS-CoV-2 variants that were sequenced in Montgomery County cases by percentage from June 2020 to January 2022. The most frequent variant is the Delta variant which was confirmed in 57% of sequenced specimens for Montgomery County cases.

Figure 20. Percentage of Variant Types in Positive Cases Sequenced, Montgomery County, MD, June 2020 – January 2022



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Overall Outbreak Trends

Figure 21 shows the number of outbreaks in Montgomery County from March 2020 to March 2022 overtime. 1,055 outbreaks have occurred in this time in Montgomery County. The number of official MDH reported outbreaks peaked in both January 2020 and January 2021.

Figure 21. Daily Trends in the Number of Outbreaks, Montgomery County, MD, March 2020 – March 2022

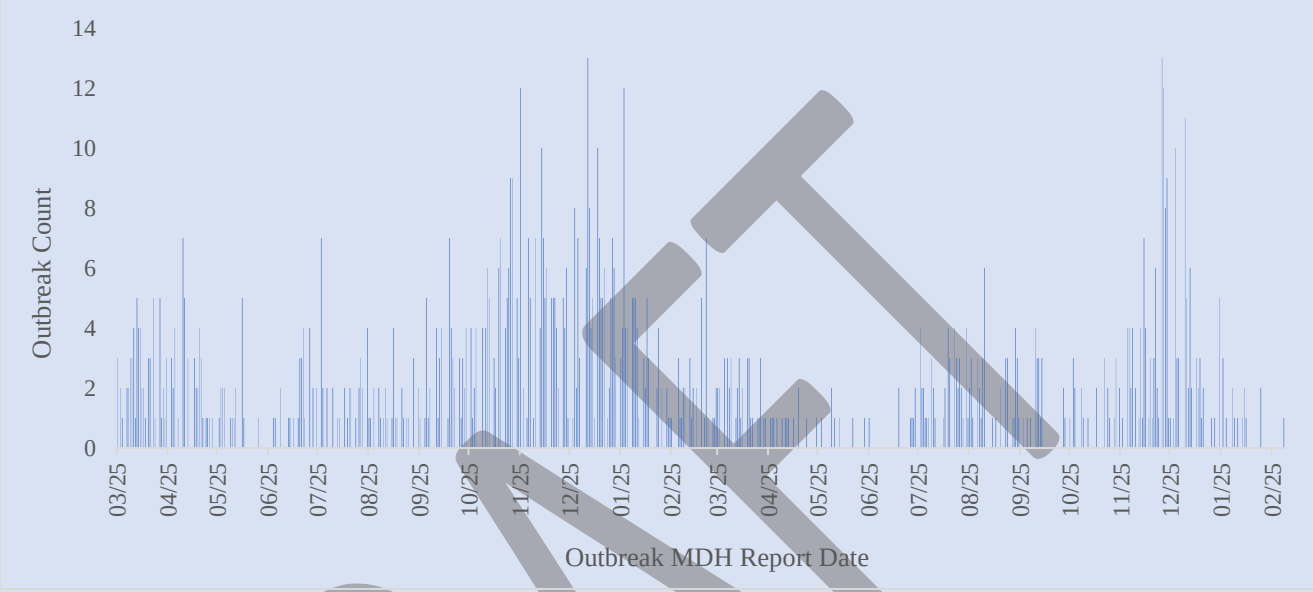

Figure 22 shows the frequency of outbreaks by facility type in Montgomery County from March 2020 to March 2022. Throughout the pandemic, the most outbreaks have occurred in assisted living facilities, group home facilities, and nursing home facilities, respectively.

Figure 22. Frequency of Outbreaks by Facility Type, Montgomery County, MD, March 2020 – March 2022

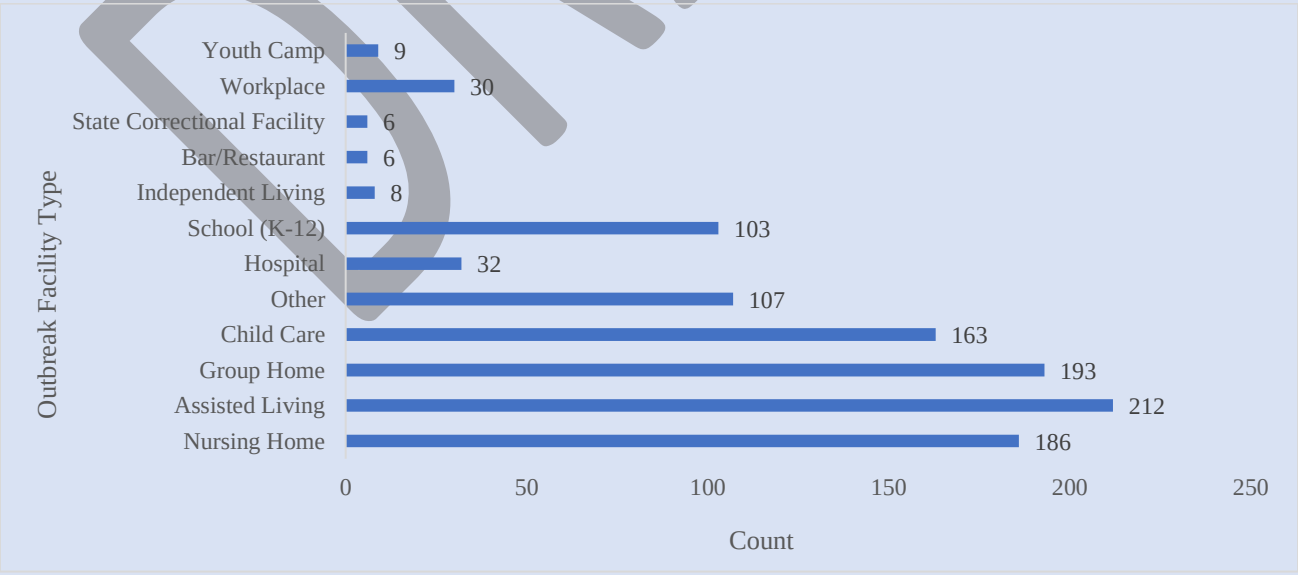

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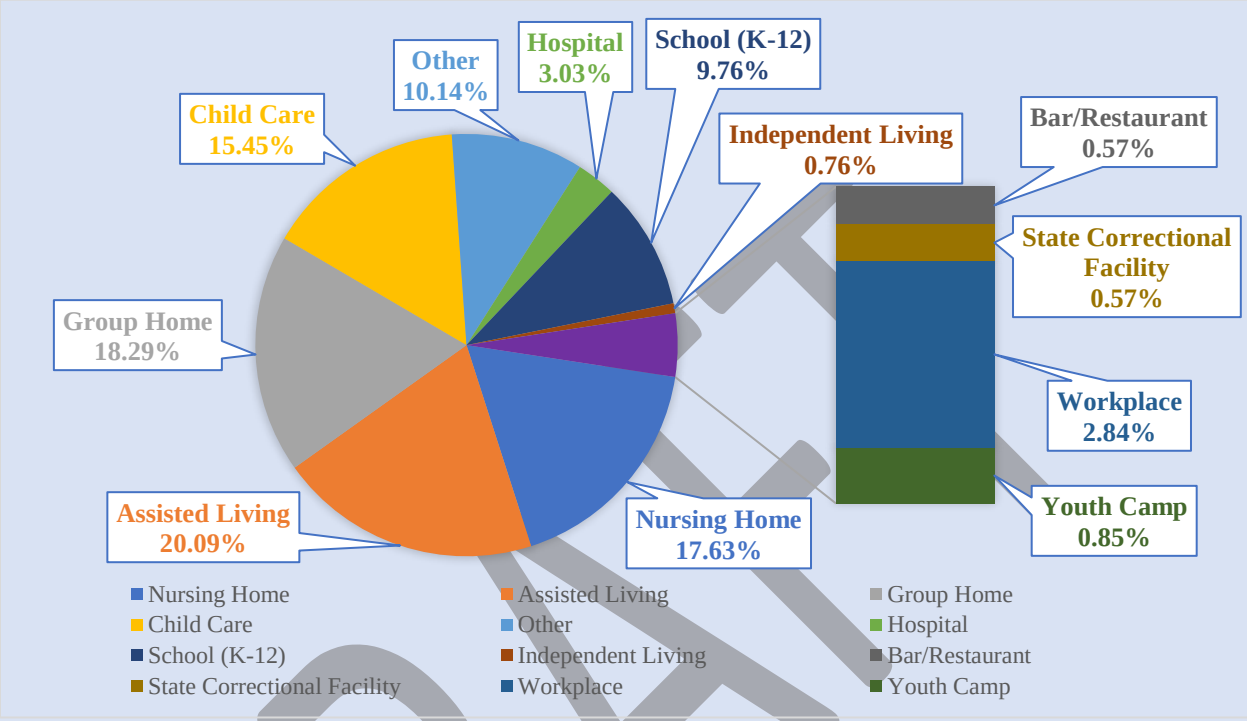
Figure 23 shows the locations of outbreaks in Montgomery County from March 2020 to March 2022 by percentage. Throughout the pandemic, over 20% of the outbreaks have occurred in assisted living facilities.

Figure 23. Percentage of Outbreaks by Facility Type, Montgomery County, MD, March 2020 – March 2022



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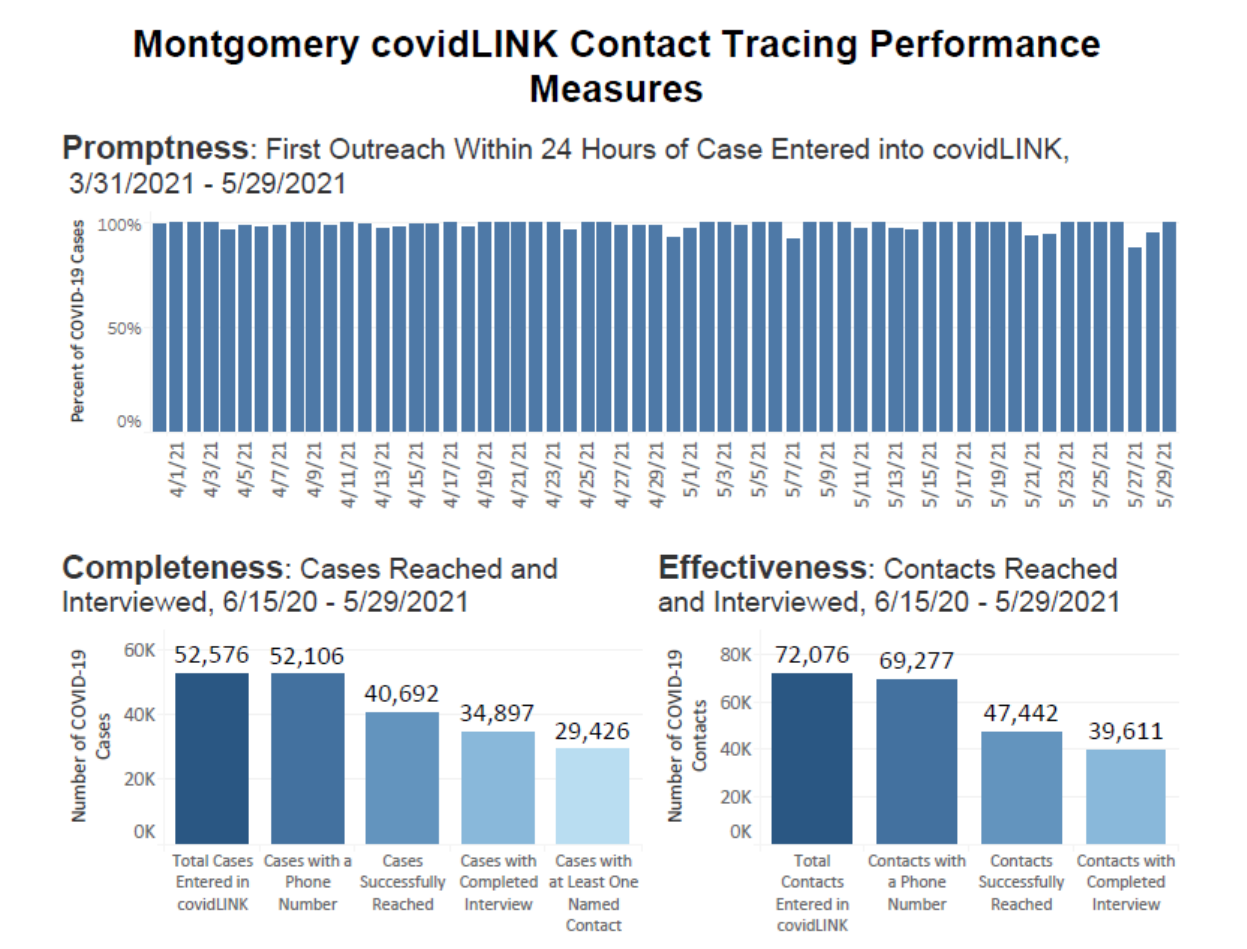
CHAPTER III: CONTACT TRACING

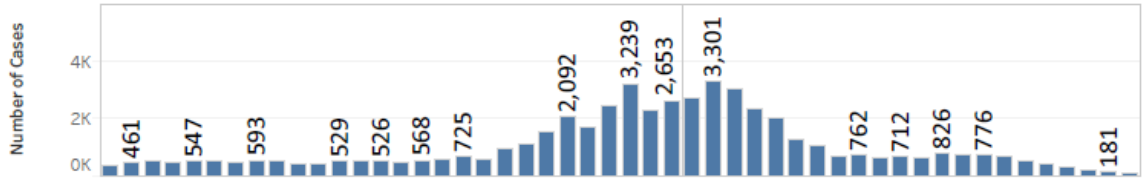
Contact tracing helps slow the spread of COVID-19 and protect individuals and the communities. It lets people know they may have been exposed to COVID-19 and should monitor their health for signs and symptoms of COVID-19. It also helps people who may have been exposed to COVID-19 get tested. Finally, it asks people to self-isolate if they have COVID-19 or self-quarantine if they are a close contact. Data collected through contact tracing can be used to mitigate the possible exposure and prevent further spread of the disease. Throughout the pandemic, Montgomery County DHHS has been working with the Maryland Department of Health on contact tracing efforts in order to curb the spread of the community transmission of COVID-19. Examples of previous contact tracing performance measures are included below.

Performance Measure Summary

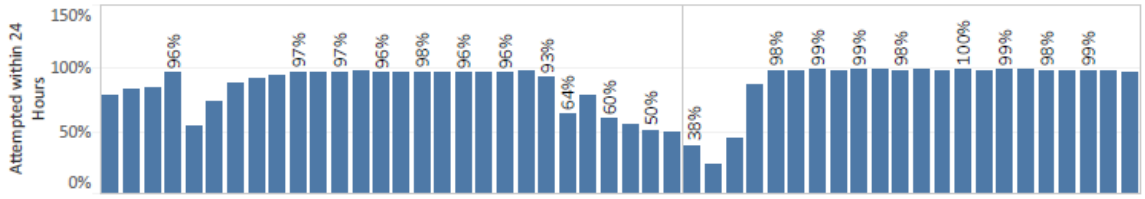


Montgomery covidLINK Contact Tracing Performance Measure Weekly Trends

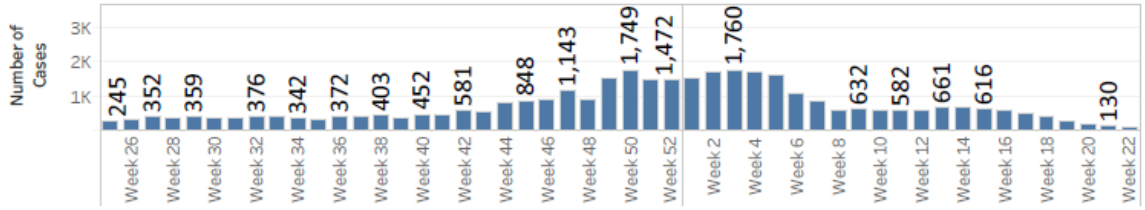
Cases Added to covidLINK by Week, 6/15/20 - 5/29/2021



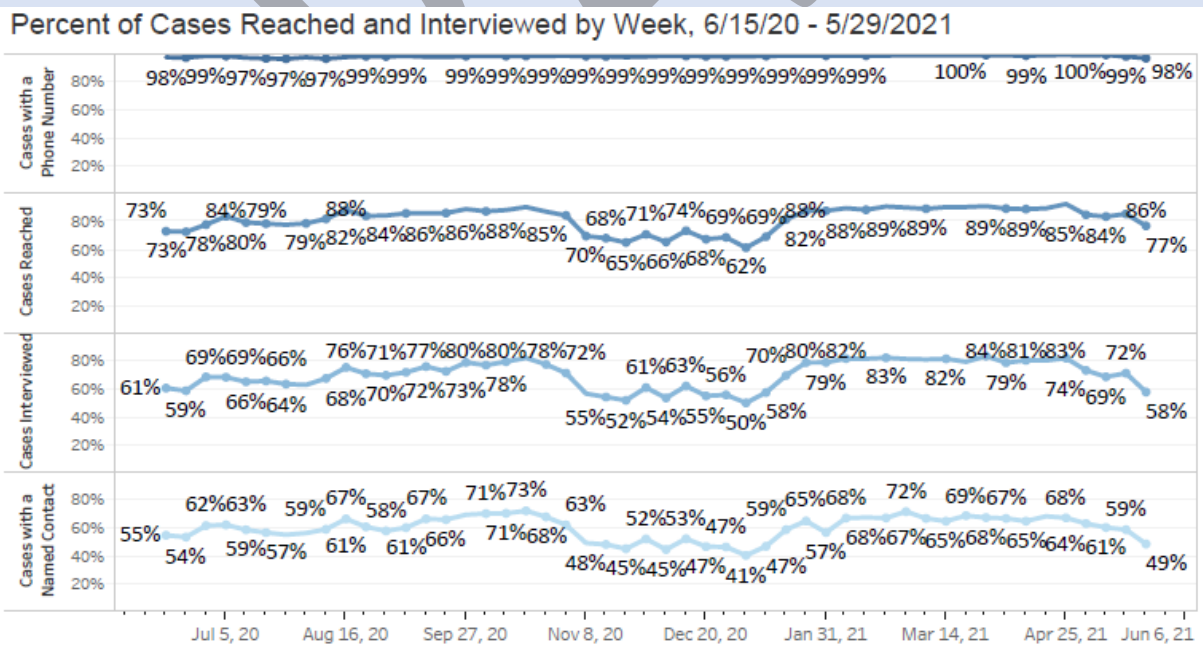
First Outreach Within 24 Hours of Case Entry into covidLINK by Week, 6/15/20 - 5/29/2021



covidLINK Cases Interviewed by Week, 6/15/20 - 5/29/2021



Percent of Cases Reached and Interviewed by Week, 6/15/20 - 5/29/2021



One of the most important performance measures of contact tracing is the percentage of cases and potential contacts reached within 24 to 48 hours. Data from May 23 to 29, 2021 show there were 99% of cases and 97% of contacts attempted within the first 24 hours, and 99% of cases and contacts attempted within the first 48 hours upon when they are entered into covidLINK. The median time to interview cases and contacts was 5 hours and 4 hours, respectively.

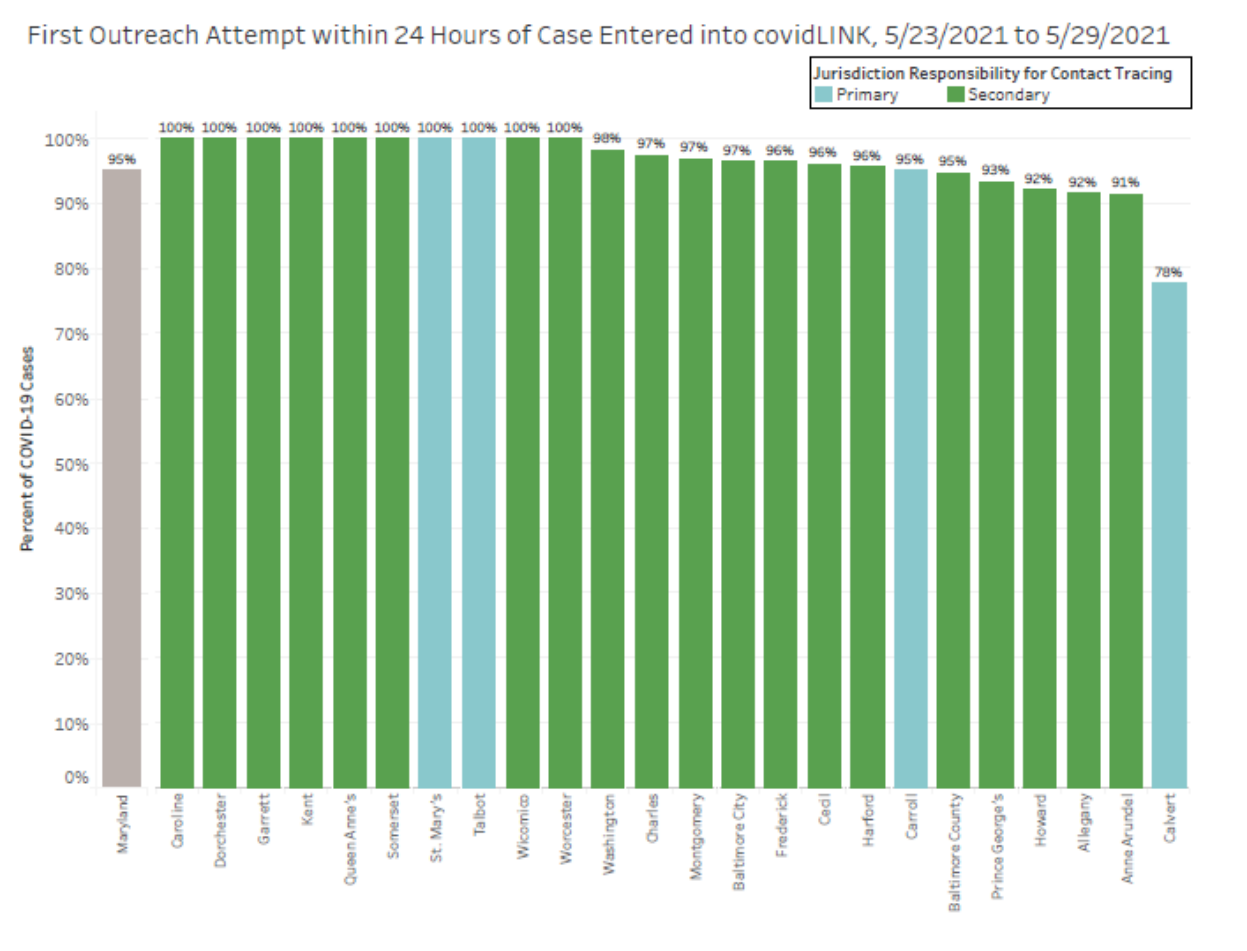
Montgomery covidLINK Contact Tracing Performance Measures 05-23-2021 to 05-29-2021

covidLINK Measure	Number of Records Meeting Criteria	Percent of Records Meeting Criteria	Total Number of Records Considered
Number of Cases Entered into covidLINK for Contact Tracing	127	100%	127
Cases with a Phone Number	124	98%	127
Cases with First Call Attempt within 24 Hours of Entering covidLINK	123	99%	124
Cases with First Call Attempt within 48 Hours of Entering covidLINK	123	99%	124
Cases Reached by Phone	98	79%	124
Reached Cases who Completed an Interview	74	76%	98
Reached Cases Interviewed within 24 Hours of Entering covidLINK	64	86%	74
Reached Cases Interviewed within 48 Hours of Entering covidLINK	70	95%	74
Interviewed Cases with at Least One Named Contact	62	84%	74
Number of Named Contacts	318	100%	318
Contacts with a Phone Number	316	99%	318
Contacts with First Call Attempt within 24 Hours of Entering covidLINK	306	97%	316
Contacts with First Call Attempt within 48 Hours of Entering covidLINK	313	99%	316
Contacts Reached by Phone	266	84%	316
Reached Contacts who Completed an Interview	226	85%	266
Reached Contacts Interviewed within 24 Hours of Entering covidLINK	188	83%	226
Reached Contacts Interviewed within 48 Hours of Entering covidLINK	218	96%	226

Median Time to Interview (Hours)	Total Number of Records Considered	covidLINK Measure
5	74	Median Time to Case Interview
4	226	Median Time to Contact Interview

Interviewed Cases	Total Named Contacts	Average Contacts per Case
74	318	4.3

The figure below compares first outreach attempt of cases within 24 hours from May 23 to 29, 2021 among jurisdictions in Maryland. While Montgomery County has the largest population and the second highest number of cases (just below Prince George's County), Montgomery County performs better than most other jurisdictions in this effort.



The cumulative data from June 2020 through May 2021 show there were 75% of cases and 72% contacts attempted within the first 24 hours, and 88% of cases and 81% for contacts attempted within the first 48 hours upon when they were entered into covidLINK. The median time to interview cases was 20 hours and 14 hours for contacts respectively.

Montgomery covidLINK Contact Tracing Performance Measures Cumulative - 06-15-2020 to 05-29-2021

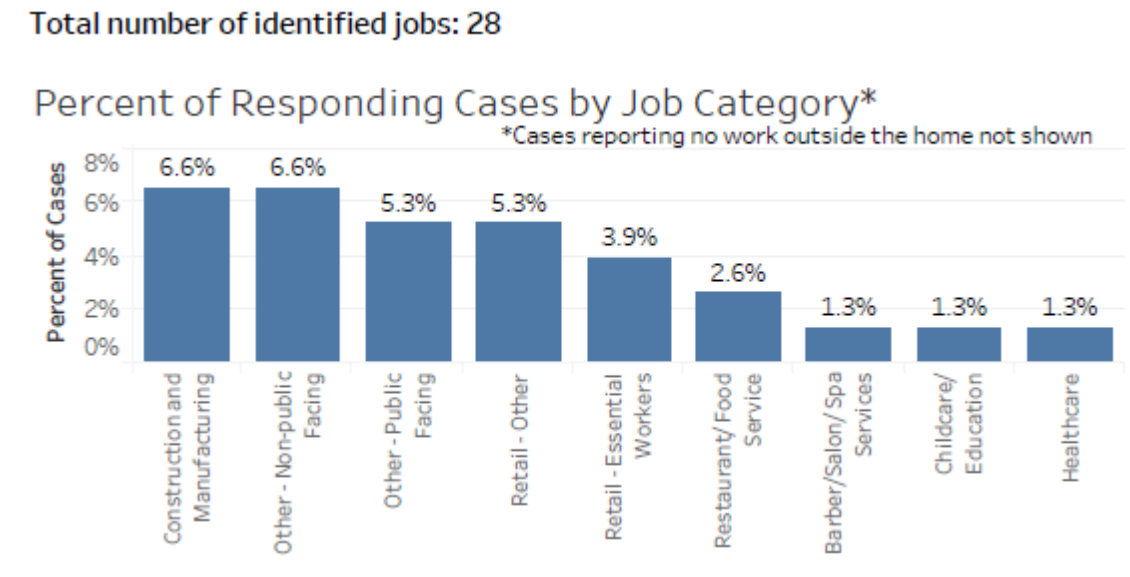
covidLINK Measure	Number of Records Meeting Criteria	Percent of Records Meeting Criteria	Total Number of Records Considered
Number of Cases Entered into covidLINK for Contact Tracing	52,537	100%	52,537
Cases with a Phone Number	52,067	99%	52,537
Cases with First Call Attempt within 24 Hours of Entering covidLINK	38,964	75%	52,067
Cases with First Call Attempt within 48 Hours of Entering covidLINK	45,851	88%	52,067
Cases Reached by Phone	40,676	78%	52,067
Reached Cases who Completed an Interview	34,881	86%	40,676
Reached Cases Interviewed within 24 Hours of Entering covidLINK	19,082	55%	34,881
Reached Cases Interviewed within 48 Hours of Entering covidLINK	25,252	72%	34,881
Interviewed Cases with at Least One Named Contact	29,414	84%	34,881
Number of Named Contacts	68,957	100%	68,957
Contacts with a Phone Number	66,194	96%	68,957
Contacts with First Call Attempt within 24 Hours of Entering covidLINK	47,429	72%	66,194
Contacts with First Call Attempt within 48 Hours of Entering covidLINK	53,679	81%	66,194
Contacts Reached by Phone	45,957	69%	66,194
Reached Contacts who Completed an Interview	38,136	83%	45,957
Reached Contacts Interviewed within 24 Hours of Entering covidLINK	24,208	63%	38,136
Reached Contacts Interviewed within 48 Hours of Entering covidLINK	29,181	77%	38,136

Median Time to Interview (Hours)	Total Number of Records Considered	covidLINK Measure
20	34,881	Median Time to Case Interview
14	38,136	Median Time to Contact Interview

Interviewed Cases	Total Named Contacts	Average Contacts per Case
34,881	68,957	2.0

Employment Information

Employment information of cases is another type of information collected in contact tracing. It provides insight on how and where cases may be exposed due to employment. During May 23 to 29, 2021, construction and manufacturing (6.6%) and other: non-public health facing (6.6%) were the places of employment among most cases, followed by other: public facing (5.3%) and retails (5.3%), essential workers (3.9%), and restaurants/food services (2.6%).



Cumulative data from January through May 2021 show healthcare (3.2%) was the 3rd most employment next to other: non-public health facing (6.1%) and other: public facing (4.6%). This was followed by construction and manufacturing (2.8%) and restaurants/food services (2.5%).

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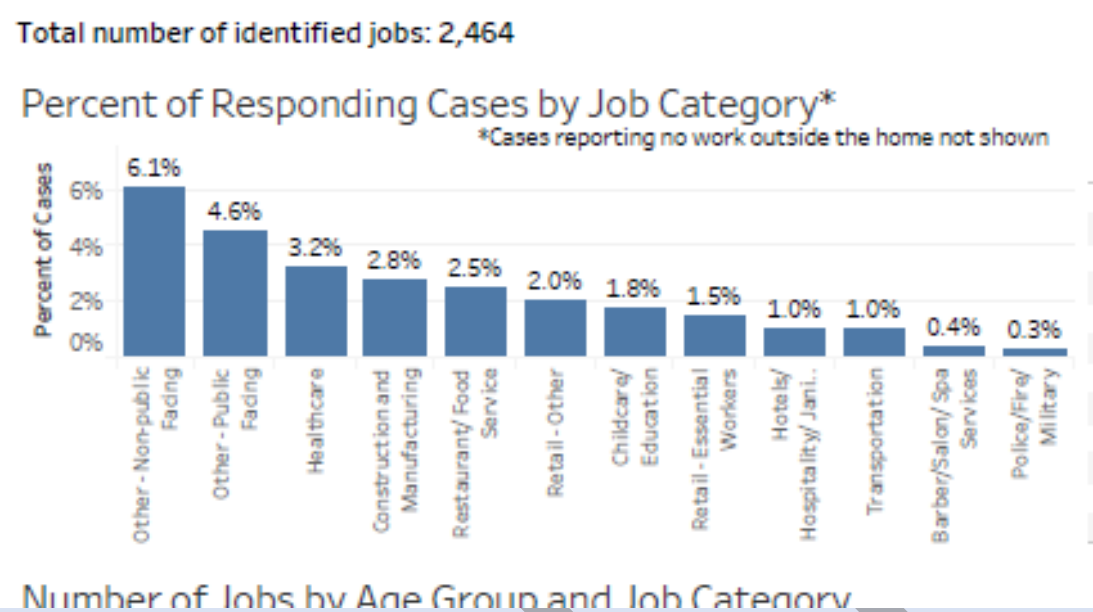
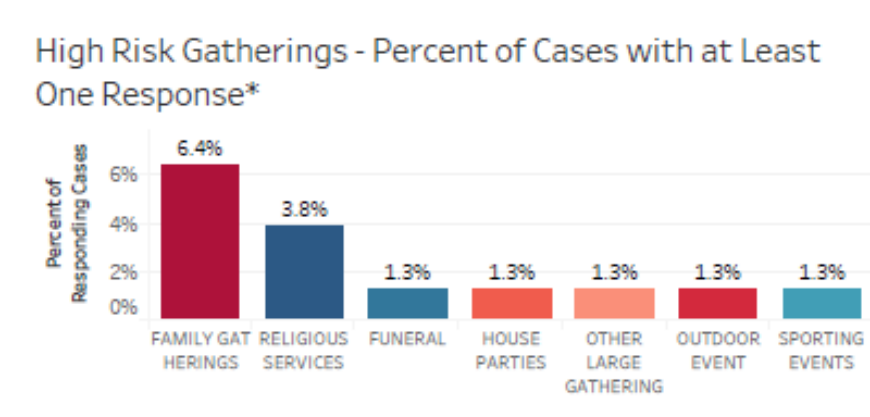


Venture analysis

Information on high risk gathering and location provides insight on how and where the public is exposed and potentially infected. This is critical to design and implement mitigation and prevention strategies and efforts.

From May 23 to 29, 2021, high risk gathering and location data show family gathering (6.4%) was the most exposure gathering, followed by religious services (3.8%); while work outside home (21.8%) was the most exposure location, followed by indoor shopping (19.2%), and indoor dining (9.0%).



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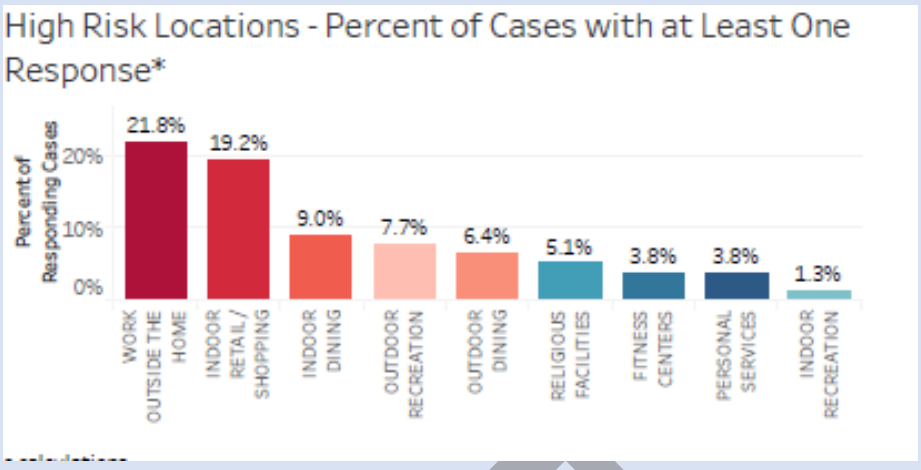
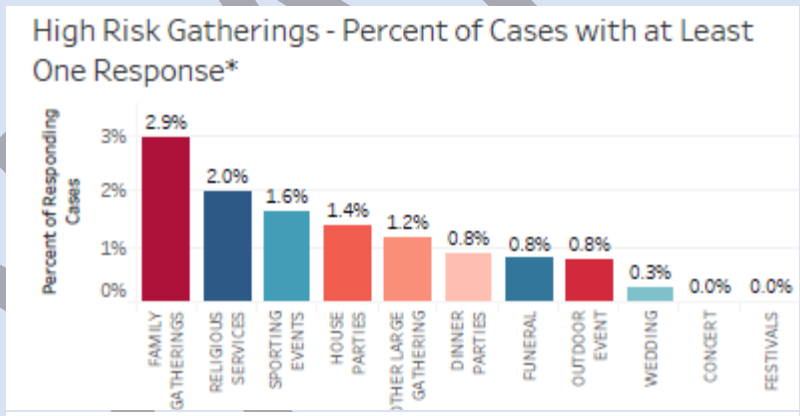
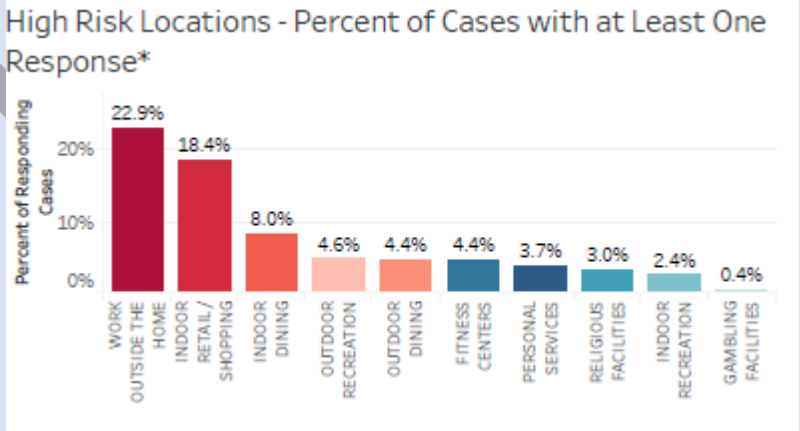


From January to May 2021, cumulative data also show family gathering (2.9%) was the most frequent exposure gathering, followed by religious services (2.0%), sporting events (1.6%), and house parties (1.4%); while work outside home (22.9%) was also the most frequent exposure location, followed by indoor shopping (18.4%), indoor dining (8.0%), and outdoor recreation (4.6%).



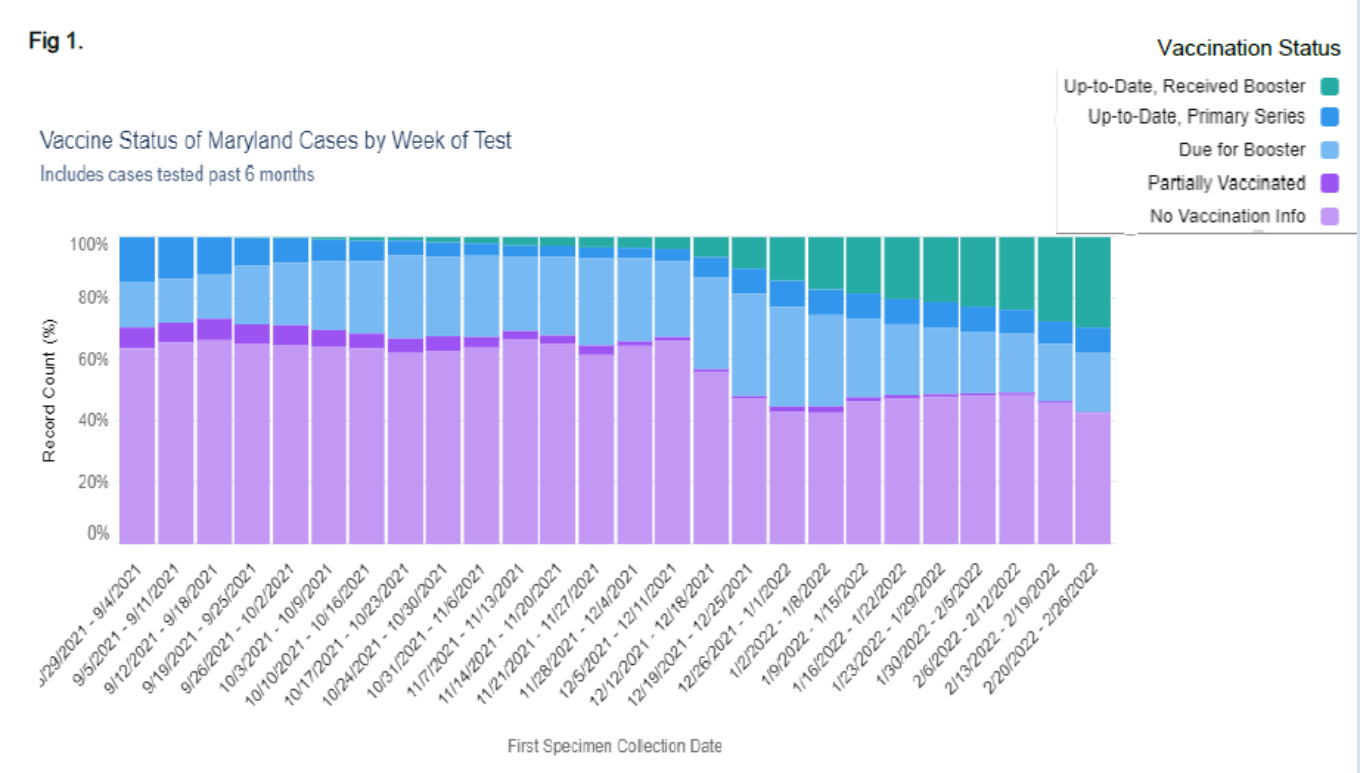


Since COVID-19 case surges have waned, contact tracing efforts have been scaled down to focus only on individuals and settings considered high-risk. Below are examples of current contact tracing performance measures.

From February 20 to 26, 2022, 21.57% of the 2,875 total confirmed cases in Montgomery County had at least one named contact. Information that is gathered via contact tracing can be used to limit potential new exposures among close contacts of cases and thereby prevent further spread of the disease.

Displayed in Figure 24 is the breakdown of vaccine status among Maryland cases, by week of test from August 2021 to February 2022. The percentage of cases that have received a booster dose is steadily increasing overtime. Although it is estimated approximately 86% of Maryland residents received at least one vaccine, a greater proportion of cases tested in the past 6 months appear to have no documented vaccination information. This further emphasizes the importance of being vaccinated. Only 37% of cases fully vaccinated and up-to-date in the week from February 20 to 26, 2022.

Figure 24. Vaccination Status of Cases in Maryland by Week of Test, Montgomery County, MD, August 2021 – February 2022



In addition, 40% of the county cases under 19 years old interviewed from February 20 to 26, 2022, reported a preK-12 school association or exposure that could explain their COVID-19 diagnosis. Finally, 25% of the interviewed cases had at least one job outside of their home in the 14 days prior to their onset of symptoms.

CHAPTER IV: HOSPITALIZATION

There were 8,088 confirmed COVID-19 hospital admissions among Montgomery County residents since the start of the pandemic, as of March 2022.

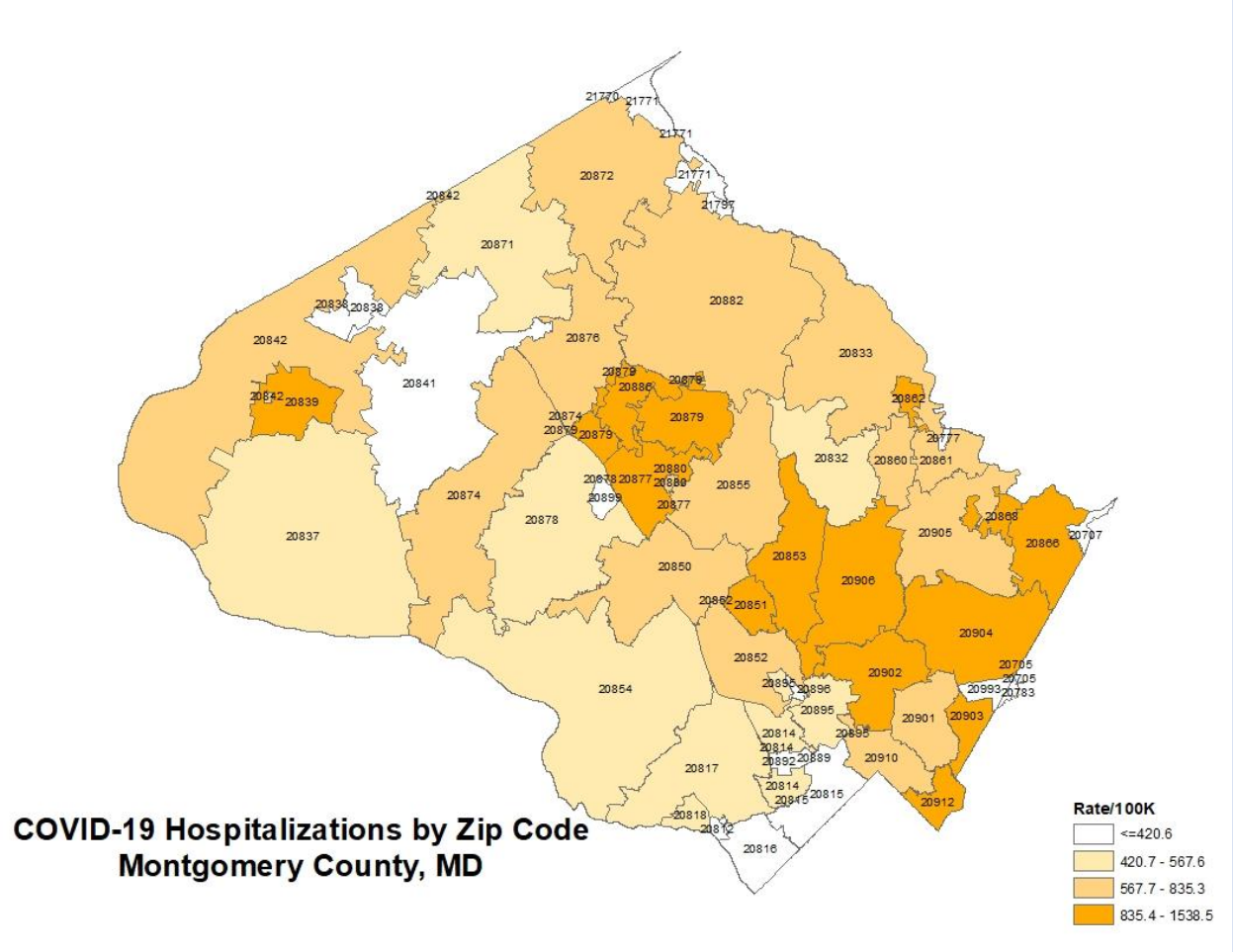
COVID-19 Cumulative Hospitalization Rates in Montgomery County

Rates represent the number of new hospital admissions over time among the resident population, per 100,000 residents in Montgomery County Rates displayed in this section are presented by sex or combined race and ethnicity and stratified by age group, since these factors often impact disease burden. Rates are also presented by ZIP Code to visualize the impact of COVID-19 by geographic area.

By ZIP Code

Map 3 shows the cumulative rate of COVID-19 hospital admissions, per 100,000 residents, by ZIP Code in Montgomery County. ZIP Codes with a darker gradient represent areas with high cumulative rates of COVID-19 hospital admissions. Alternatively, ZIP Codes with a lighter gradient represent areas of lower cumulative rates among residents. Population subgroups and communities disproportionately impacted by COVID-19 mirror the pattern of social determinants of health and SDI.

Map 3. COVID-19 Hospitalization Rates by ZIP Code, per 100,000 residents, Montgomery County, MD, March 2020 - March 2022

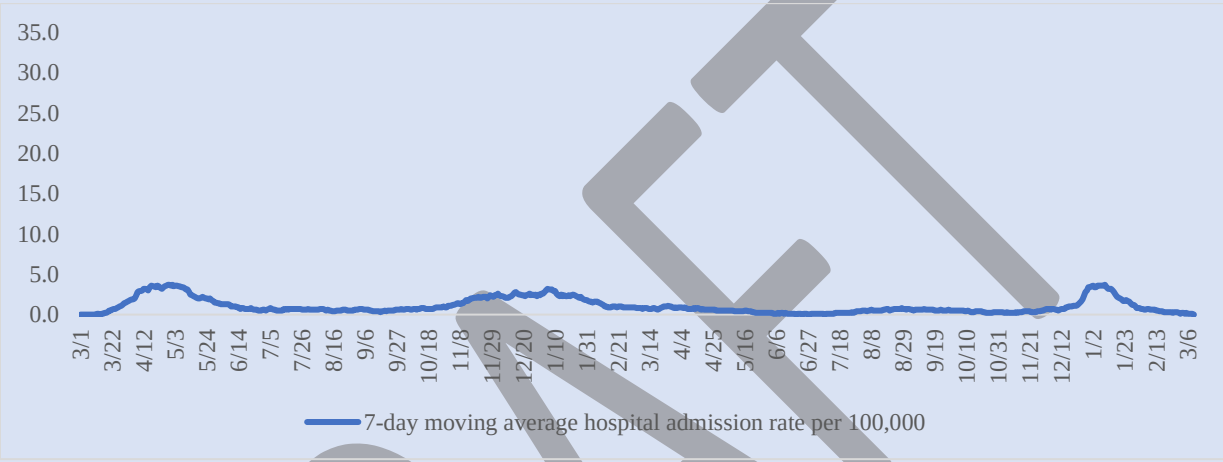


COVID-19 Hospitalization Rates Over Time in Montgomery County

Overall Admission Trends

The average rate of new hospital admissions for confirmed COVID-19 patients among Montgomery County residents is displayed in Figure 25. The distribution of admissions reflects the first, second, and third wave of the pandemic in Montgomery County, with peaks at 3.7, 3.2, and 3.7 average daily new admissions per 100,000 residents, respectively.

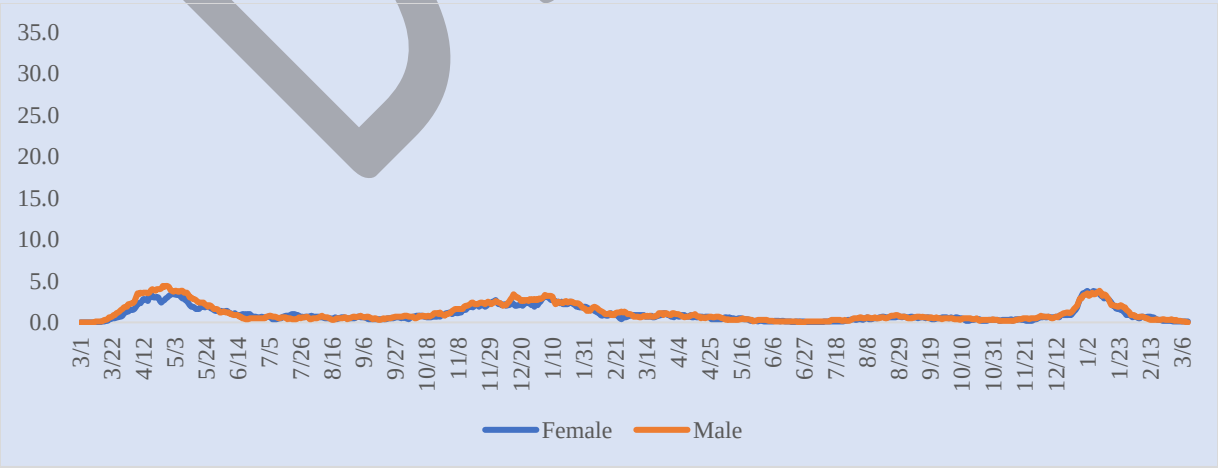
Figure 25. 7-day Moving Average New COVID-19 Hospital Admission Rate, per 100,000, Montgomery County, MD, March 2020 – March 2022



Admission Trends – By Demographics

The average rate of new hospital admissions for confirmed COVID-19 patients among Montgomery County male and female residents is displayed in Figure 26. During the first wave of the pandemic, rates for males were slightly higher than females. However, male and female admission rates generally follow the same trend over time and reflect the overall trend at the County level.

Figure 26. 7-day Moving Average New Hospital Admission Rate by Sex, per 100,000, Montgomery County, MD, March 2020 – March 2022



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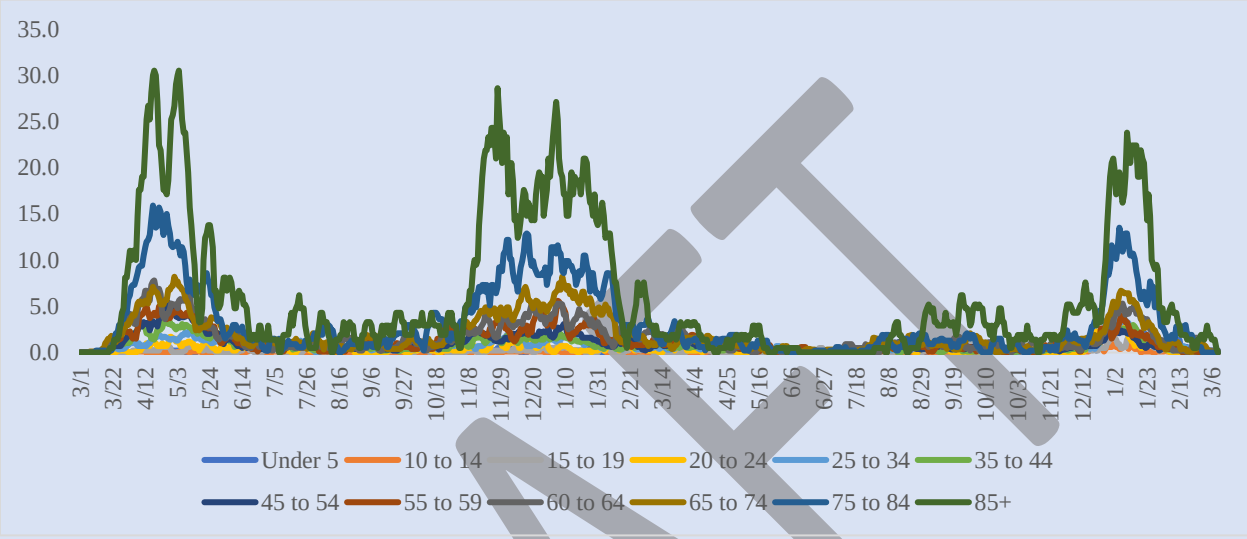
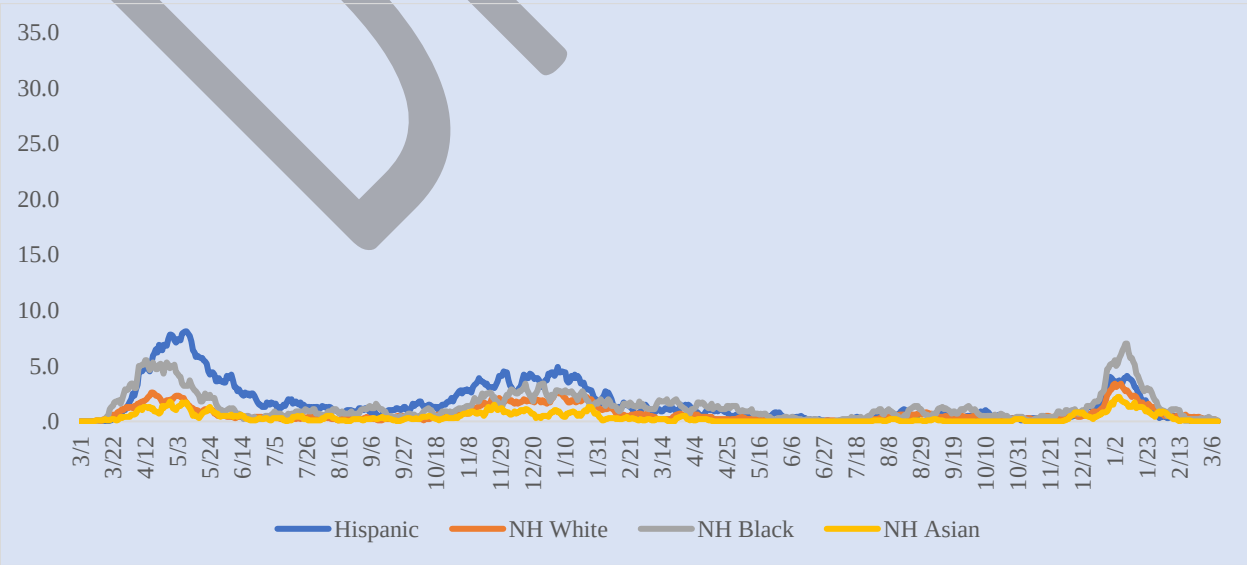
The average rate of new hospital admissions for confirmed COVID-19 patients among Montgomery County residents is displayed by age group in Figure 27. The most notable finding is the high average admission rate among residents 80 years and older during the first, second, and third waves of the pandemic.

Figure 27. 7-day Moving Average New Hospital Admission Rate by Age Group, per 100,000, Montgomery County, MD, March 2020 – March 2022



The average rate of new hospital admissions for confirmed COVID-19 patients among Montgomery County residents is displayed by race and ethnicity in Figure 28. Hispanic and non-Hispanic black residents had higher rates than their non-Hispanic Asian and non-Hispanic white counterparts during the first and second waves of the pandemic. Non-Hispanic black residents had the highest rates of hospitalizations in the third wave of the pandemic in December 2021 and January 2022.

Figure 28. 7-day Moving Average New Hospital Admission Rate by Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



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Hospitalization Trends - By Multiple Demographics

The calculation of hospitalization rates over time by race/ethnicity and sex of County residents, while considering differing age distributions within these subpopulations, allows for a closer examination of potential health disparities throughout the pandemic. Figure 29 shows the 14-day moving average hospitalization rate per 100,000 residents over time by age group and race/ethnicity. Notable findings include the following:

- Across all subgroups, the highest average hospitalization rate was observed among non-Hispanic black residents aged 85 and older and occurred during the first wave of the pandemic.
- During the first wave, among residents 75 years and older, non-Hispanic black residents had the highest hospitalization rates compared to other racial and ethnic subgroups.
    - However, among residents between the ages of 20 to 74, Hispanic residents experienced the highest hospitalization rates compared to other racial and ethnic subgroups.
- During the second wave of the pandemic, Hispanic residents tended to have higher hospitalization rates than other racial and ethnic groups among residents aged 35 and older.
- During the third wave of the pandemic, non-Hispanic black residents tended to have higher hospitalization rates than other racial and ethnic groups among residents aged 35 and older.
- For the younger age groups below 20 years old, major differences in hospitalization rates among racial and ethnic groups are not observed in this analysis.

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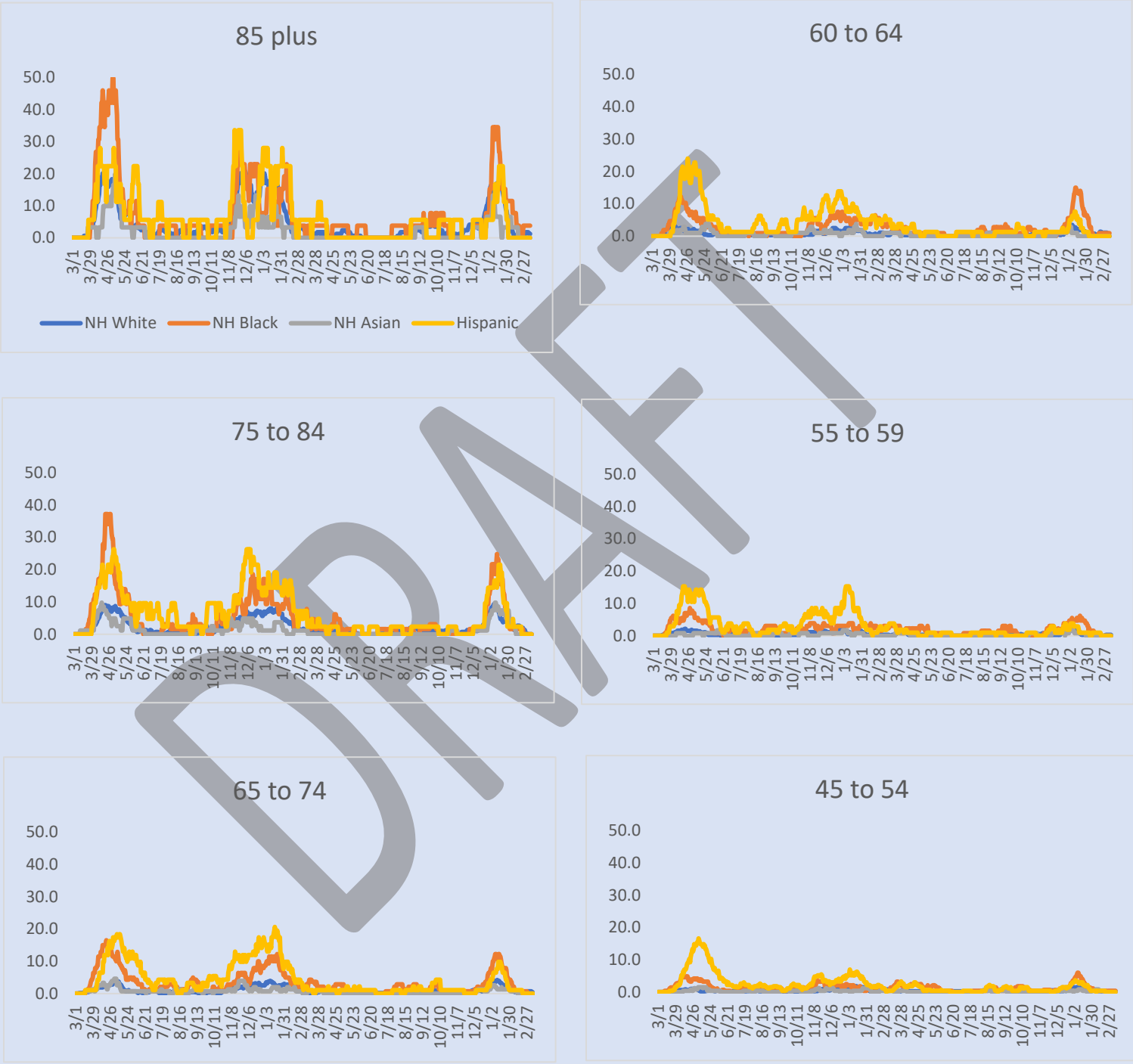
Figure 29. 14-day Moving Average COVID-19 Hospitalization Rate by Age Group and Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



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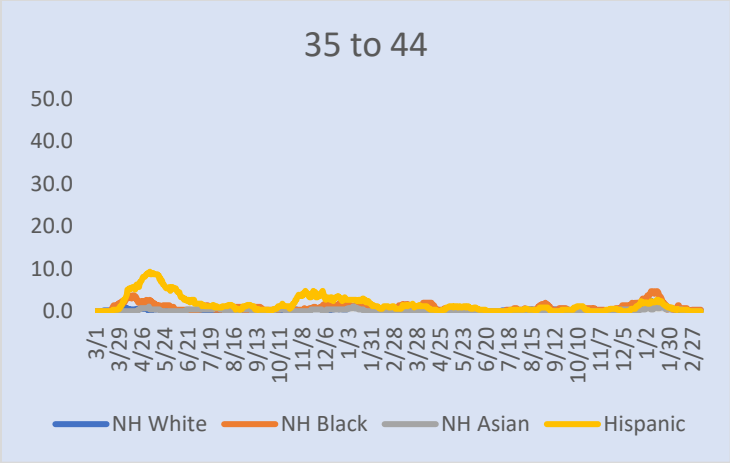
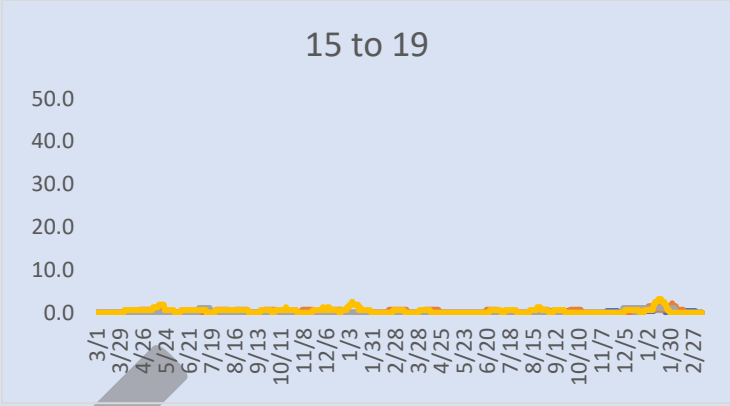
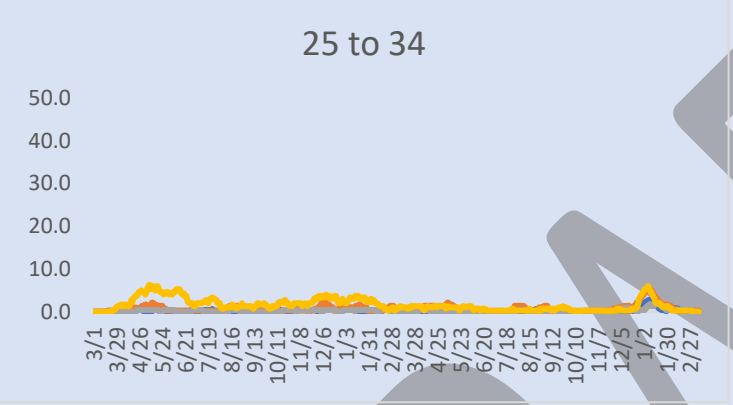

35 to 44
50.0
40.0
30.0
20.0
10.0
0.0
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27
NH White
NH Black
NH Asian
Hispanic


15 to 19
50.0
40.0
30.0
20.0
10.0
0.0
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27


25 to 34
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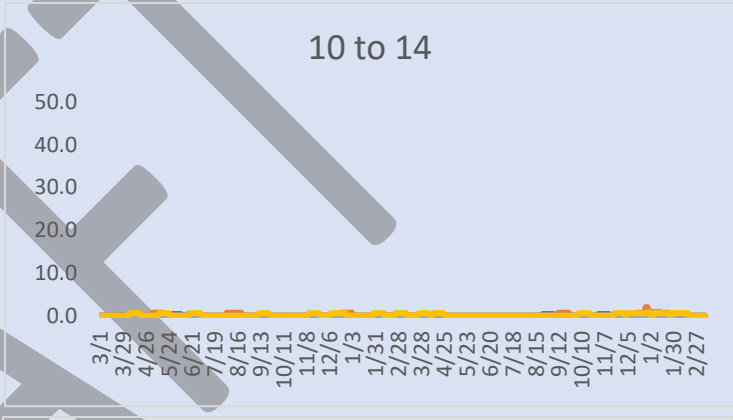
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27


10 to 14
50.0
40.0
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20.0
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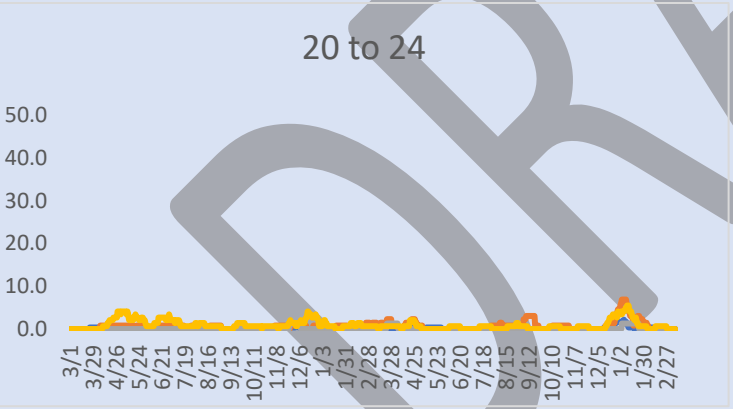
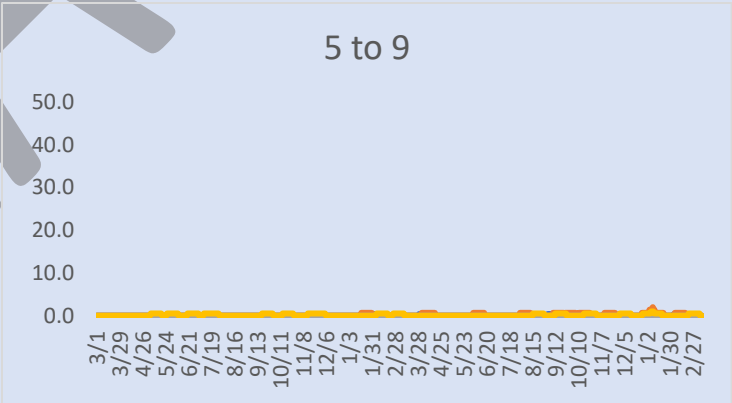
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27


20 to 24
50.0
40.0
30.0
20.0
10.0
0.0
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27


5 to 9
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3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27

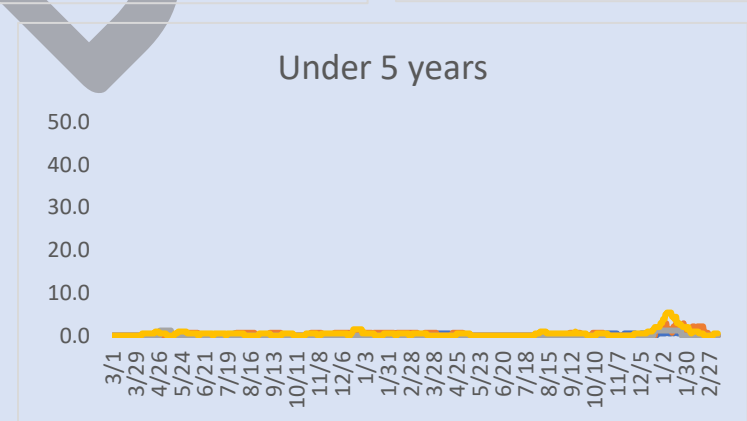
Under 5 years
50.0
40.0
30.0
20.0
10.0
0.0
3/1 3/29 4/26 5/24 6/21 7/19 8/16 9/13 10/11 11/8 12/6 1/3 1/31 2/28 3/28 4/25 5/23 6/20 7/18 8/15 9/12 10/10 11/7 12/5 1/2 1/30 2/27

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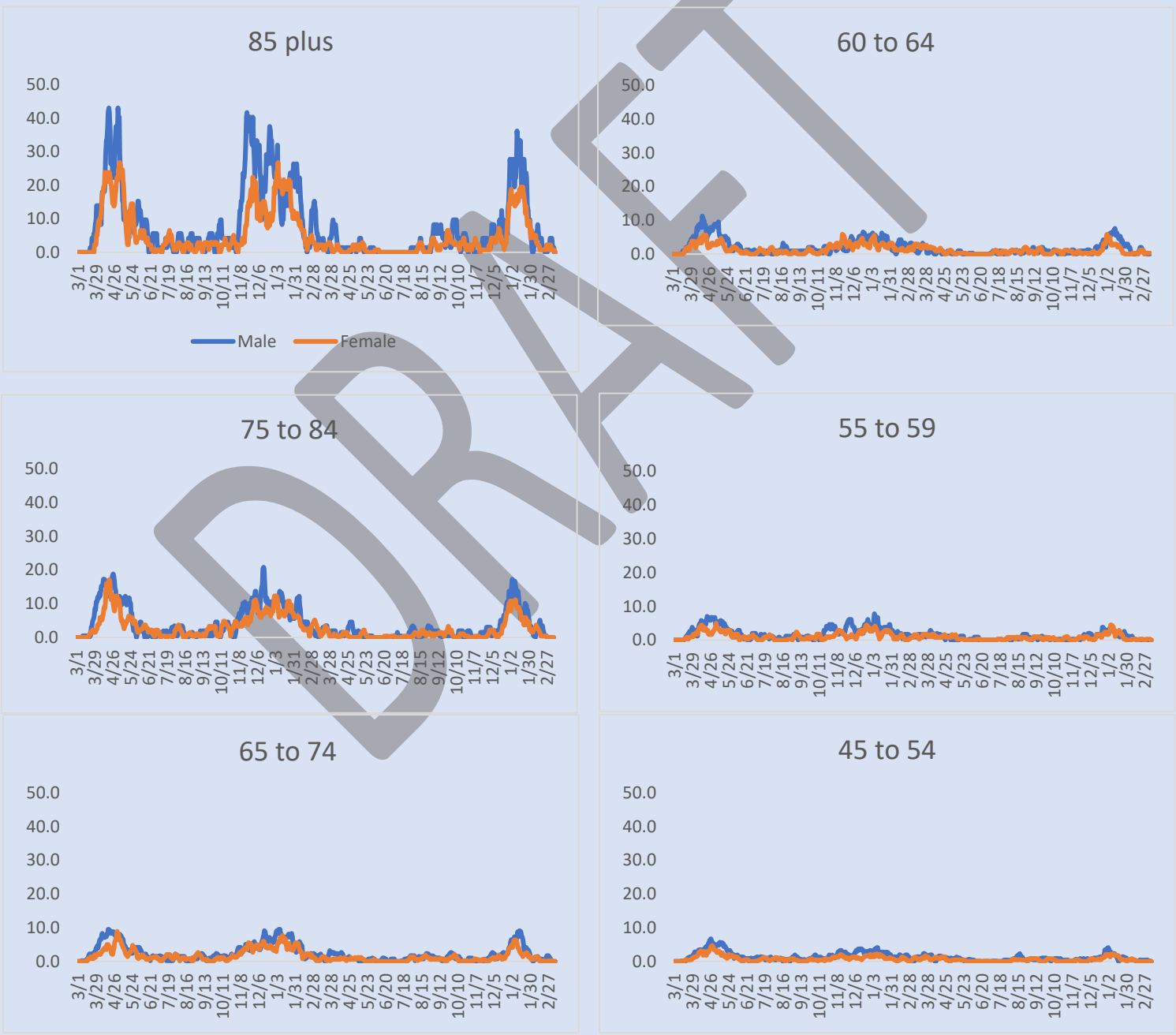
Figure 30 shows the 14-day moving average hospitalization rate per 100,000 residents over time by age group and sex of Montgomery County residents. In the first wave of the pandemic, the average hospitalization rates among male residents 35 years and older were noticeably higher than average case rates for their female counterparts. The same trend is observed during the second wave of the pandemic among residents aged 65 years and older. Substantial differences in average hospitalization rates among male and female residents 85 years and older are observed across all three waves of the pandemic.

Figure 30. 14-day Moving Average COVID-19 Hospitalization Rate by Age Group and Sex, per 100,000, Montgomery County, MD, March 2020 – March 2022



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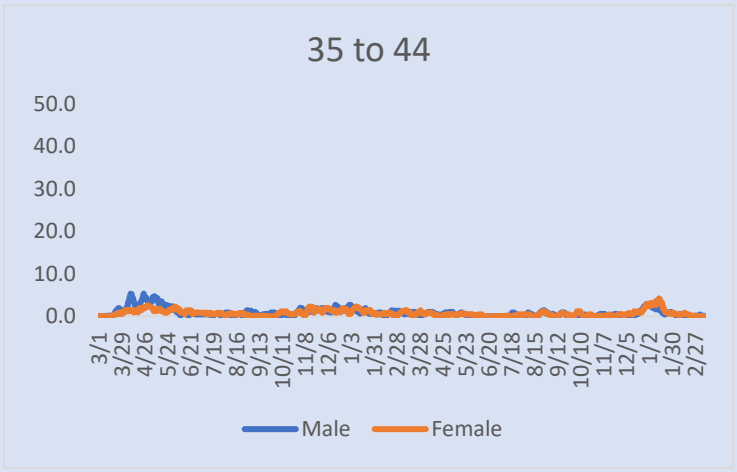
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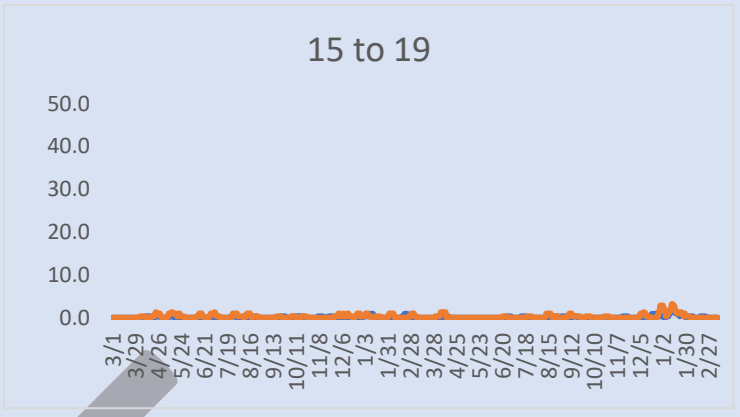
Male
Female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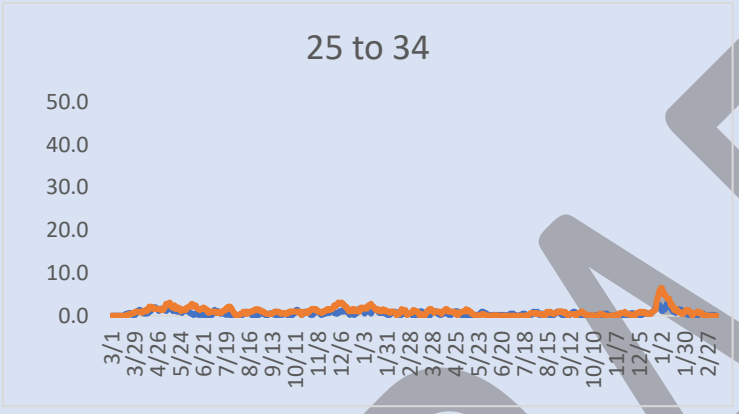
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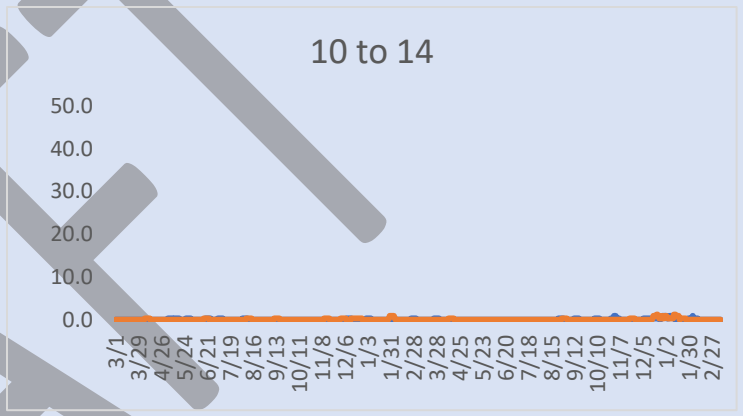
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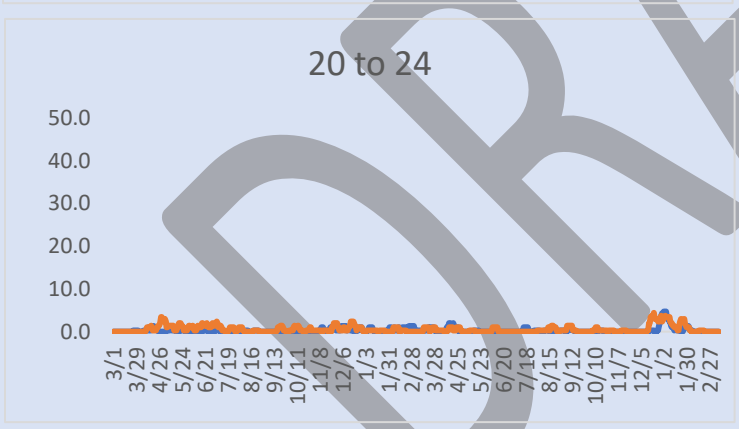
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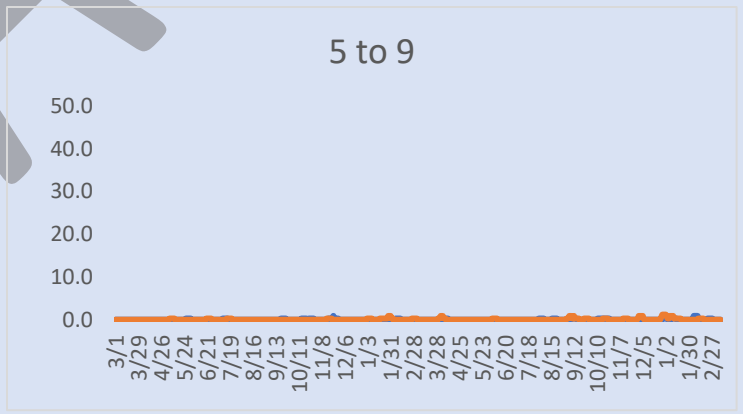
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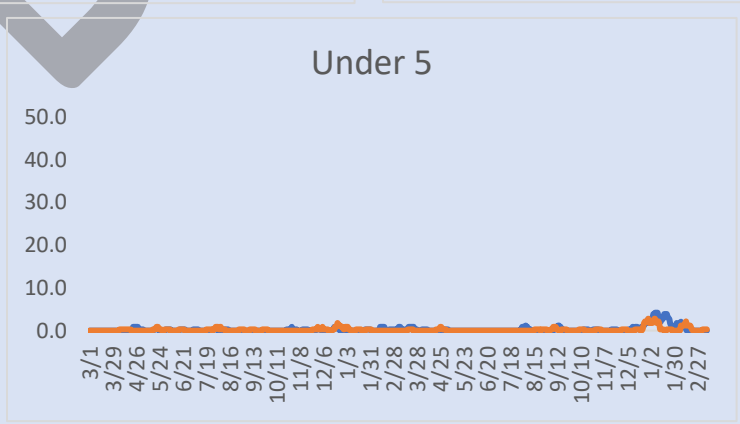
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CHAPTER V: DEATHS

COVID-19 Confirmed Deaths in Montgomery County

As of March 2022, there were 1,949 confirmed deaths due to COVID-19 among Montgomery County residents. Of the total deaths, 43% (n=829) occurred among Montgomery County residents of congregate living facilities, including nursing homes, assisted living, and independent living facilities (Table 7). During April and May of 2020, this number peaked at 69% and 67% of monthly COVID-19 deaths, respectively (Table 8).

Throughout 2020, there were a total of 1,136 confirmed deaths among County residents, with the highest monthly count occurring in May 2020. There were 595 confirmed deaths among County residents in 2021.

Table 7. Congregate Living Facility COVID-19 Deaths, Montgomery County, MD 2020-2022 (N=829)

Congregate Living Type	n (%)
Nursing Home	406 (50.7)
Assisted Living	183 (22.9)
Nursing Home & Assisted Living	168 (21.0)
Nursing Home, Assisted Living, & Independent Living	29 (3.6)
Independent Living	8 (1.0)
Developmental Disabilities Administration (DDA)	2 (0.3)
Other Group Home	4 (0.5)
Homeless shelter	1 (0.1)
Total[1]	829 (100.0)

[1]Congregate living deaths not able to be classified due to missing data are excluded (n=28).

Table 8. Confirmed Deaths of COVID-19, Overall and Among Congregate Living Facilities, Montgomery County, MD 2020-2022 (N=1,949)

	CY 2020		CY 2021		CY 2022 (*partial)*	
Month	Congregate Living Deaths n (%)	Total Deaths N	Congregate Living Deaths n (%)	Total Deaths N	Congregate Living Deaths n (%)	Total Deaths N
January	0	0	84 (44.9)	187	17 (10.8)	157
February	0	0	32 (28.3)	113	0 (0)	58
March	1 (20.0)	5	11 (17.2)	64	0 (0)	3
April	196 (68.8)	285	9 (20.0)	45		
May	221 (66.8)	331	4 (14.8)	27		
June	56 (50.5)	111	1 (7.7)	13		
July	22 (43.1)	51	0 (0)	5		
August	15 (53.6)	28	1 (6.7)	15		
September	4 (15.4)	26	4 (11.4)	35		
October	9 (33.3)	27	4 (12.9)	31		
November	45 (46.9)	96	1 (5.0)	20		
December	87 (49.4)	176	3 (7.5)	40		
CY Total	656 (57.7)	1,136	154 (25.9)	595	17 (7.8)	218

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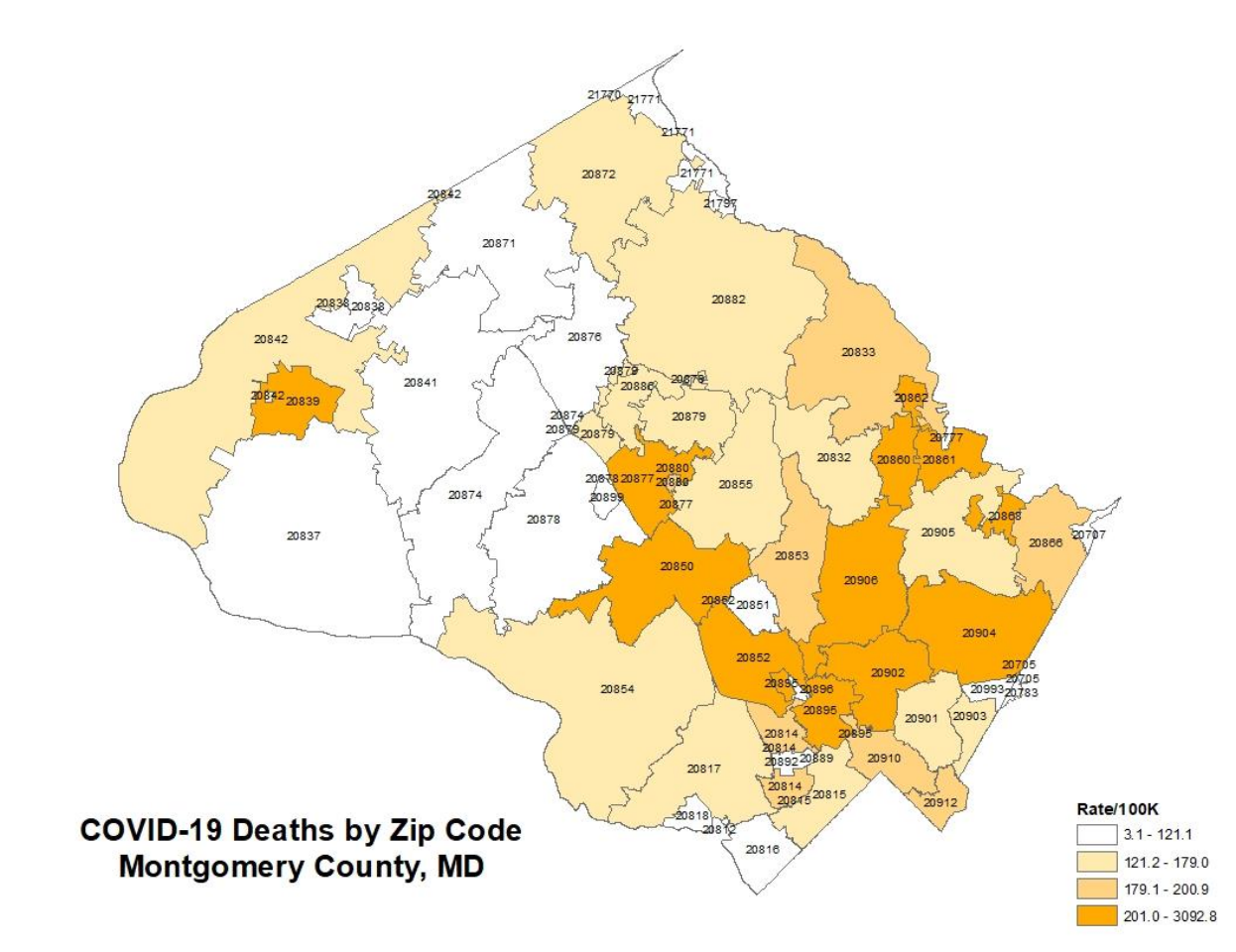
COVID-19 Death Rates in Montgomery County

Rates represent the number of deaths over time among the resident population, per 100,000 residents in Montgomery County. Rates displayed in this section are by sex or combined race and ethnicity and stratified by age group, since these factors often impact disease burden. Rates are also presented by ZIP Code to visualize the impact of COVID-19 by geographic area.

By ZIP Code

Map 4 shows the cumulative COVID-19 death rates, per 100,000 residents, by ZIP Code in Montgomery County. ZIP Codes with a darker gradient represent areas with high death rates. Alternatively, ZIP Codes with a lighter gradient represent areas of lower death rates among residents. ZIP Codes disproportionately impacted by COVID-19 follow a similar pattern to the SDI map.

Map 4. COVID-19 Death Rates by ZIP Code, per 100,000 residents, Montgomery County, MD, March 2020 - March 2022



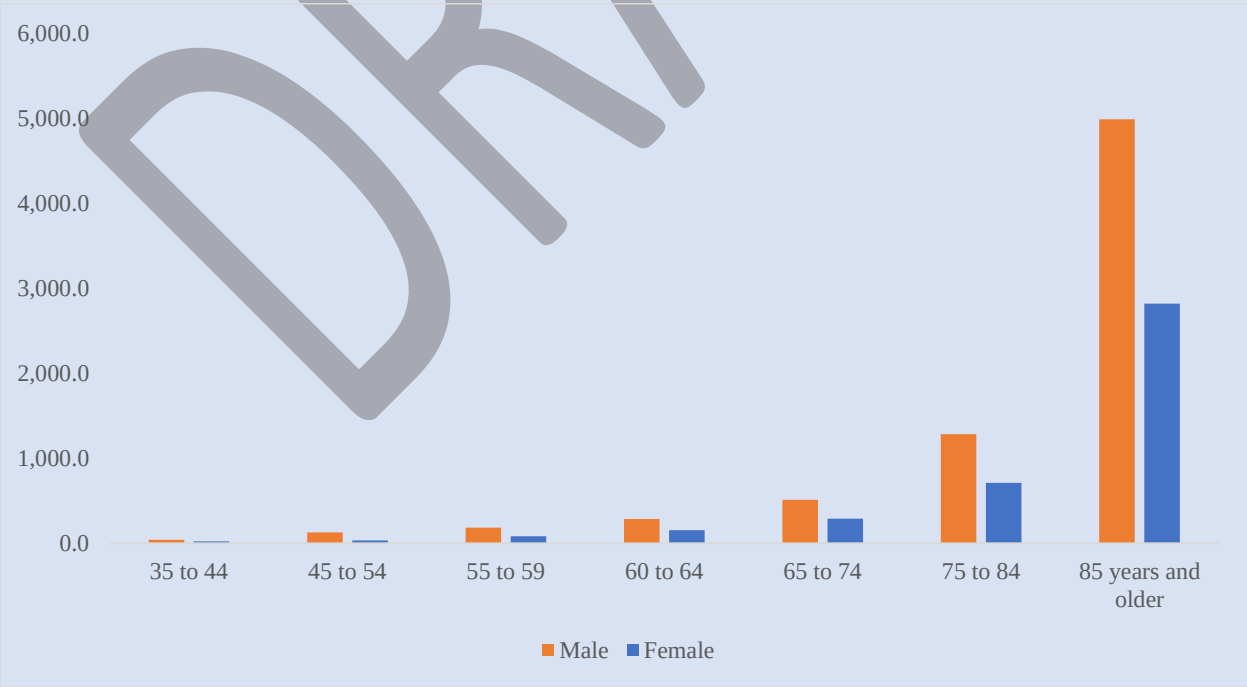
Age and Sex

As of March 10, 2022, the youngest age group in which a COVID-19 death occurred in Montgomery County was 20 to 24-years-old (Table 9). Across all age groups, substantially higher death rates are observed among male residents than female residents. The age groups with the highest death rates across both sexes are residents 85 years and older (Figure 31).

Table 9. COVID-19 Death Rates, Age and Sex Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022

	Female		Male	
Age Group	n	Rate	n	Rate
Under 5 years	0	N/A	0	N/A
5 to 9	0	N/A	0	N/A
10 to 14	0	N/A	0	N/A
15 to 19	0	N/A	0	N/A
20 to 24	0	N/A	1	N/A
25 to 34	6	N/A	9	N/A
35 to 44	16	21.6	28	40.3
45 to 54	27	35.0	90	128.1
55 to 59	31	81.2	63	182.7
60 to 64	52	154.1	86	284.7
65 to 74	140	289.8	209	511.2
75 to 84	191	710.0	253	1,282.6
85 years and older	389	2,815.8	358	4,981.9

Figure 31. COVID-19 Death Rates per 100,000, Age and Sex Specific, Montgomery County, MD, March 2020 – March 2022



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Age and Race/Ethnicity

Death rates due to COVID-19 increase by age, with the highest rates observed among residents who are 85 years and older (Table 10). Within this age group, non-Hispanic black residents have the highest age-specific death rate, followed by their non-Hispanic white, non-Hispanic Asian, and Hispanic counterparts, respectively (Figure 32). Across all other age groups, Hispanic residents have the highest death rates in comparison to their non-Hispanic counterparts.

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Table 10. Death Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022

	NH White		NH Black		NH Asian		Hispanic		NH Other		Unknown	
Age Group	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
Under 5 years	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
5 to 9	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
10 to 14	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
15 to 19	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
20 to 24	0	N/A	0	N/A	0	N/A	1	N/A	0	N/A	0	N/A
25 to 34	2	N/A	2	N/A	2	N/A	9	N/A	0	N/A	0	N/A
35 to 44	7	N/A	5	N/A	3	N/A	25	74.9	4	N/A	0	N/A
45 to 54	20	32.4	29	101.7	8	N/A	55	203.2	5	N/A	0	N/A
55 to 59	18	48.7	31	242.1	5	N/A	38	362.4	2	N/A	0	N/A
60 to 64	40	109.2	30	280.6	14	134.1	49	619.5	5	N/A	0	N/A
65 to 74	125	220.2	80	573.1	43	280.7	87	943.8	14	N/A	0	N/A
75 to 84	228	761.2	91	1,411.5	46	564.7	68	1,626.8	10	N/A	1	N/A
85 years and older	508	2,997.9	95	3,639.8	83	2,733.9	46	2,575.6	14	N/A	1	N/A

Figure 32. COVID-19 Death Rates, Age and Race/Ethnicity Specific, per 100,000 residents, Montgomery County, MD, March 2020 – March 2022

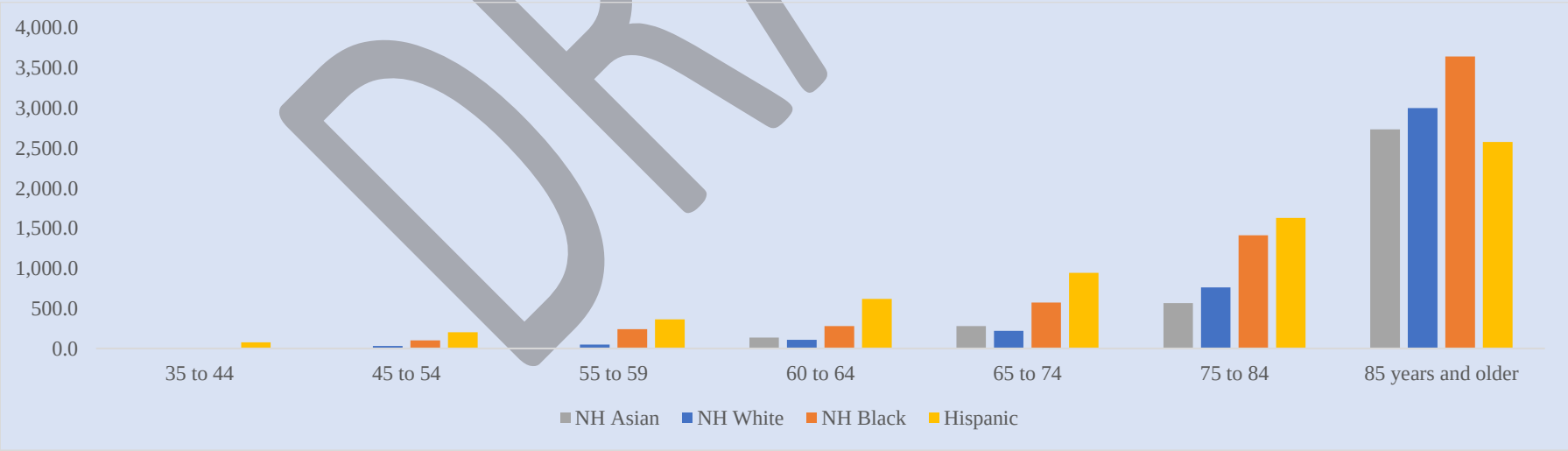

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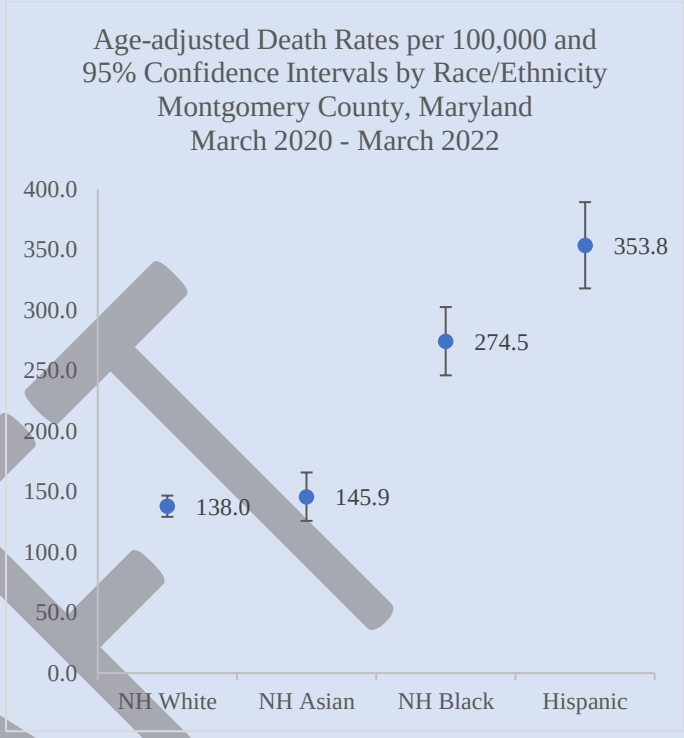
Figure 33 shows the age-adjusted death rates, per 100,000, by race and ethnicity for all deaths occurring since the onset of the pandemic. Overall, Hispanic residents had the highest death rates when accounting for age differences among the subgroups. Non-Hispanic black residents had the second highest death rate, followed by non-Hispanic Asian and white residents. Compared to their non-Hispanic white counterparts, the risk of dying from COVID-19 was 2.6 times higher among Hispanic residents and 2 times higher among non-Hispanic black residents.

Figure 33. Age-adjusted Death Rates by Race/Ethnicity, March 2020 - March 2022



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COVID-19 Death Rates Over Time in Montgomery County

Figure 34 shows the count of deaths by day, along with 7-day moving average number of deaths. The distribution of deaths closely resembles that of the cases. The first, second, and third waves of the pandemic are visible, with peaks at 14.9, 8.9, and 7.4 average daily new deaths, respectively. Figure 35 shows the 7-day death rates for the County, the state of Maryland, and the U.S. The County experienced a first wave peak of 10 deaths per 100,000 residents in a 7-day period.

Overall Death Trends

Figure 34. Daily Trends in the Number of COVID-19 Deaths in Montgomery County, MD, March 2020 – March 2022

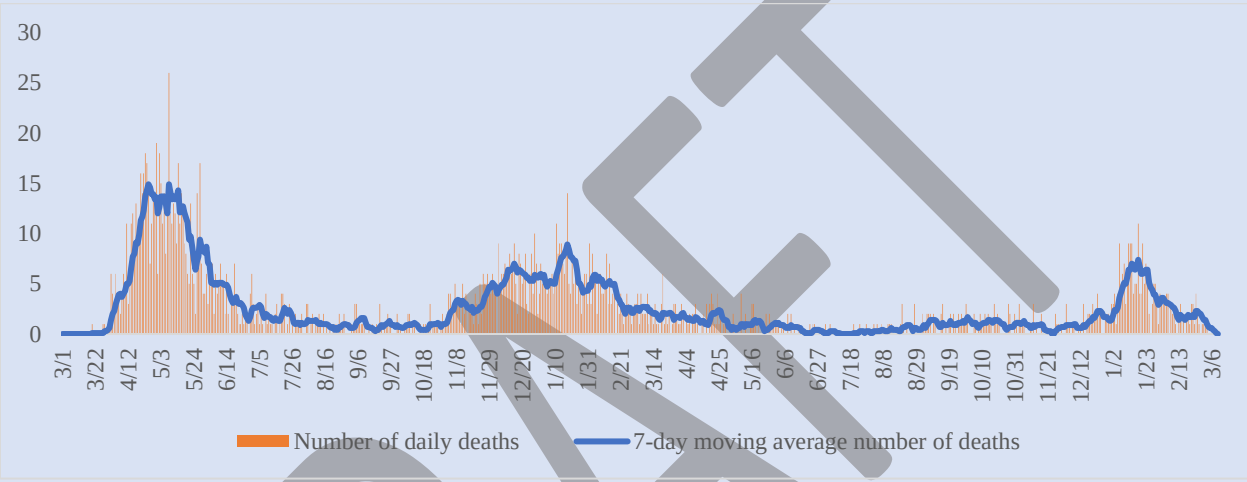
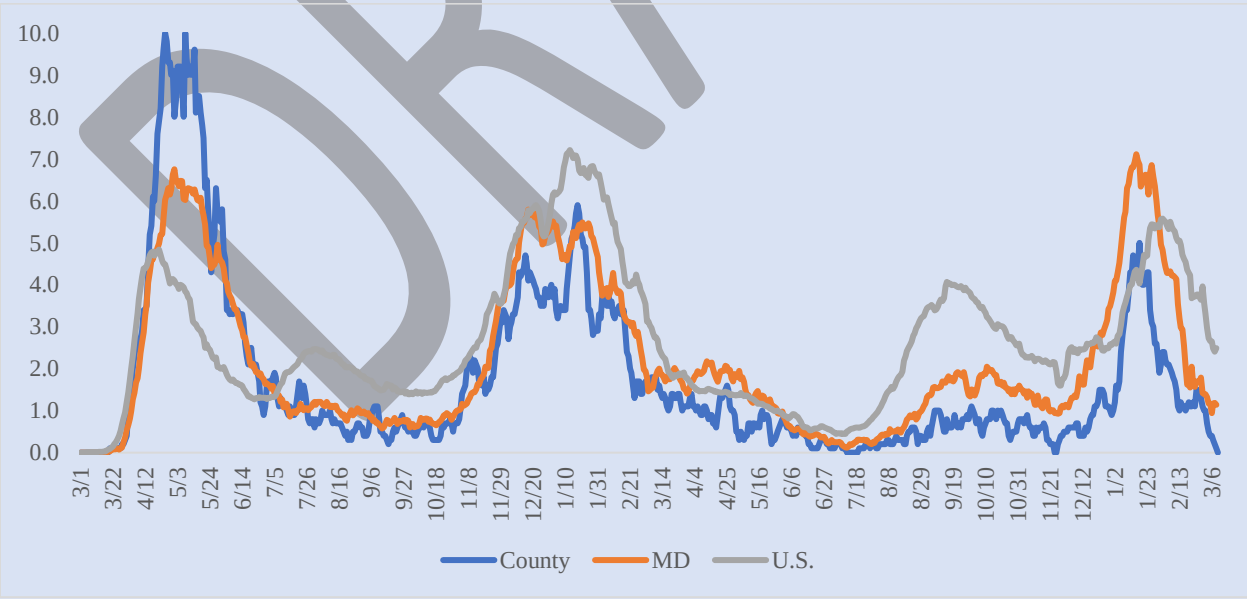


Figure 35. 7-day COVID-19 Death Rate, per 100,000, Montgomery County, MD, March 2020 – March 2022



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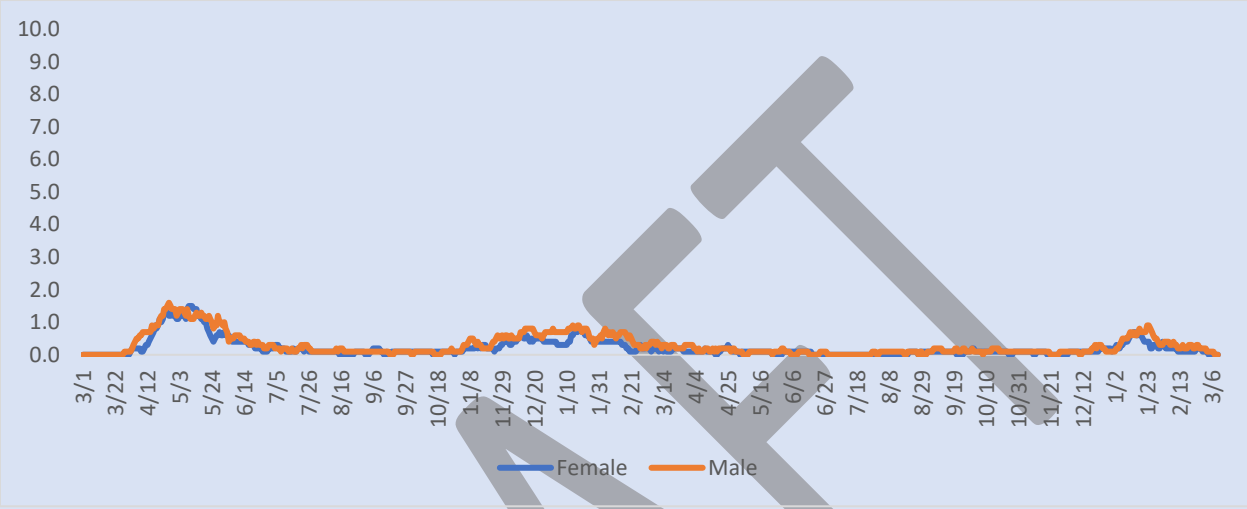
Death Trends - By Demographics

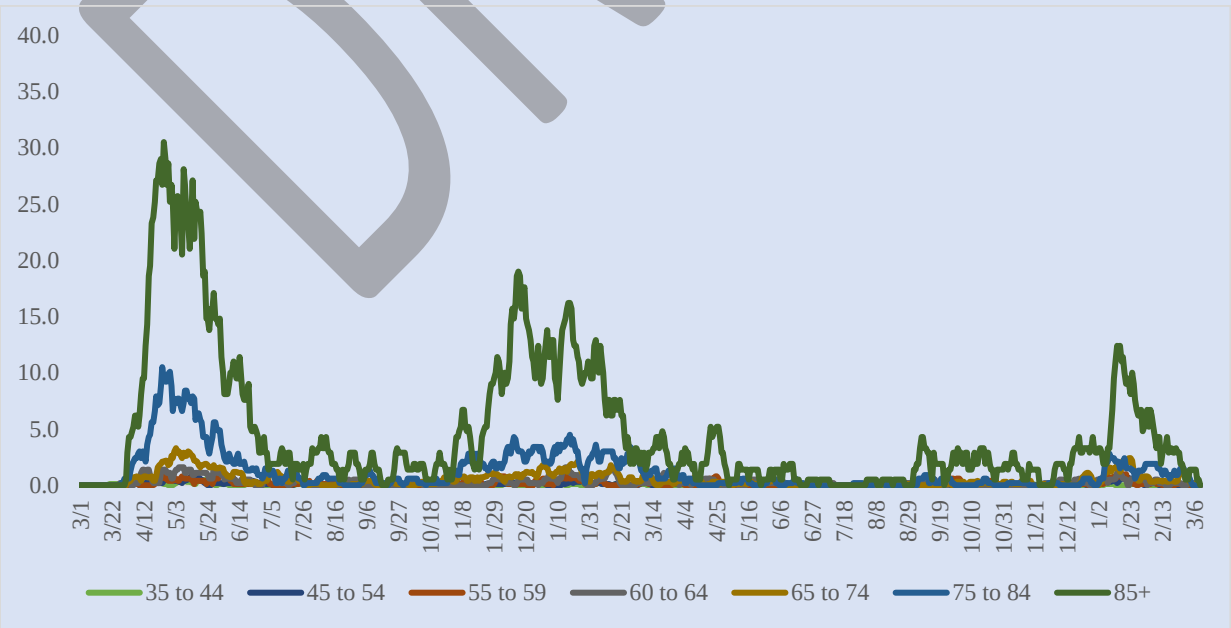
The average death rate over time by male and female resident populations is displayed in Figure 36. Both male and female death rates generally follow the same trend. At times, the death rate among males appears slightly higher than among females.

Figure 36. 7-day Moving Average COVID-19 Death Rate by Sex, per 100,000, Montgomery County, MD, March 2020 – March 2022



The average death rate over time by residents in each age group is displayed in Figure 37. The most notable finding is the high average death rates among residents 85 years and older during the first, second, and third waves of the pandemic. Rates were also high for residents in the 75 to 84-year-old age group in the first and second waves, compared to other age groups.

Figure 37. 7-day Moving Average COVID-19 Death Rate by Age Group, per 100,000, Montgomery County, MD, March 2020 – March 2022



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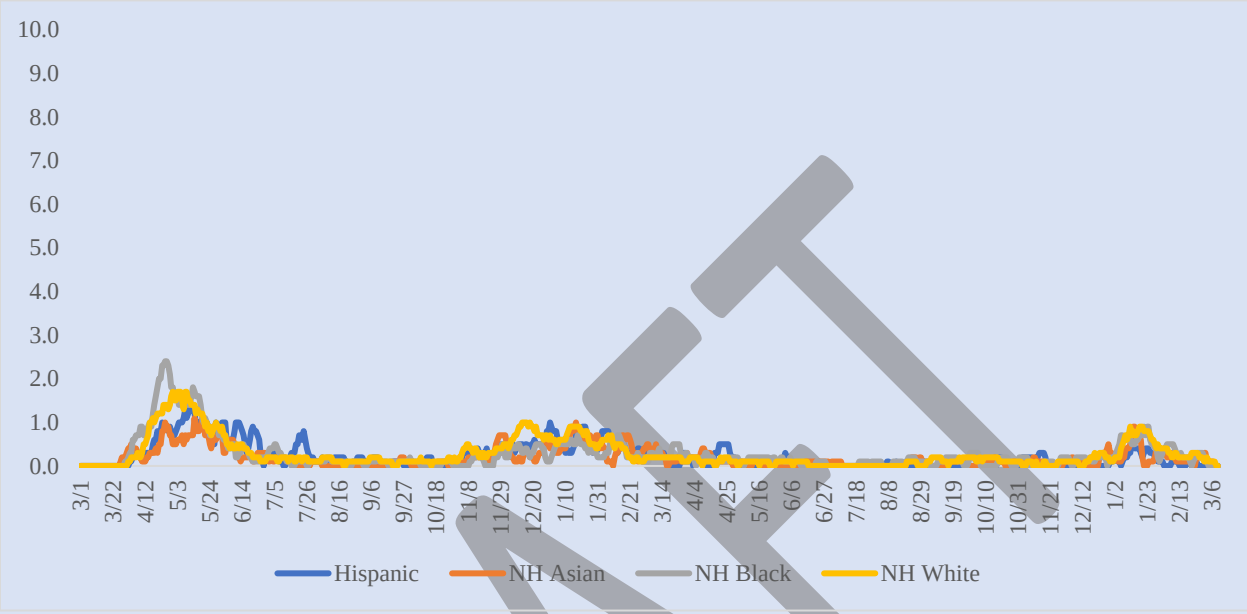
The average death rate over time by combined race and ethnicity is displayed in Figure 38 . A small increase is observed among non-Hispanic black residents during the first wave of the pandemic.

Figure 38. 7-day Moving Average COVID-19 Death Rate by Race/Ethnicity, per 100,000, Montgomery County, MD, March 2020 – March 2022



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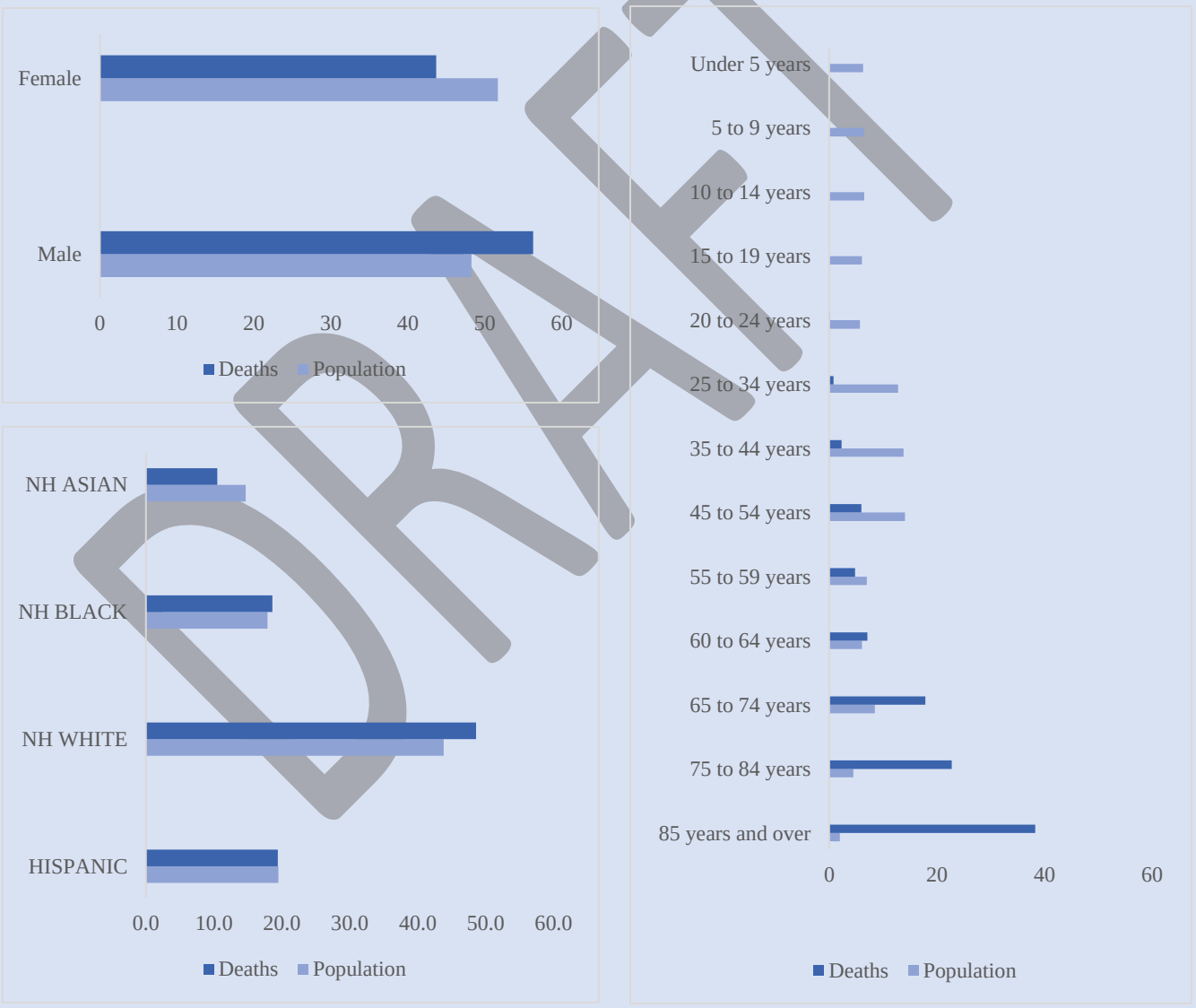
Percentage of Deaths vs Percentage of Resident Population

Figure 39 compare the proportion of all COVID-19 deaths to the proportion of the population by each demographic. This comparison allows for a closer examination of potential health disparities based on the population distribution of each subpopulation.

Deaths among male residents are disproportionately high compared to their percentage of the overall population. Without accounting for age, non-Hispanic white residents represent a greater share of COVID-19 deaths compared to their proportion of the overall population. Lastly, COVID-19 disproportionately affects older residents compared to their proportion of the overall population.

Figure 39. Percentage of COVID-19 Deaths by Sex, Race/Ethnicity, and Age Group, and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022



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Percentage of Deaths vs Percentage of Resident Population – by Multiple Demographics

In Figure 40, the distribution of COVID-19 deaths is heavily skewed towards older County residents, regardless of sex. However, in terms of magnitude, males are disproportionately affected. Males generally have a greater proportion of deaths compared to their population size than females. This is most clearly observed across age groups 20 to 24 through 60 to 64, where the male and female population is similar in size. However, males have a higher proportion of deaths than females. Among age groups 65 to 74 and 75 to 84, females comprise a greater share of the population than males, but the proportion of male deaths is still higher. In Figure 41, beginning with age group 65 to 74 and continuing through residents 85 and older, the percentage of deaths is disproportionately higher among all racial and ethnic groups relative to their proportion of the population. However, for Hispanic residents, this trend begins at age group 45 to 54.

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Figure 40. Percentage of COVID-19 Deaths by Sex and Age Group and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022

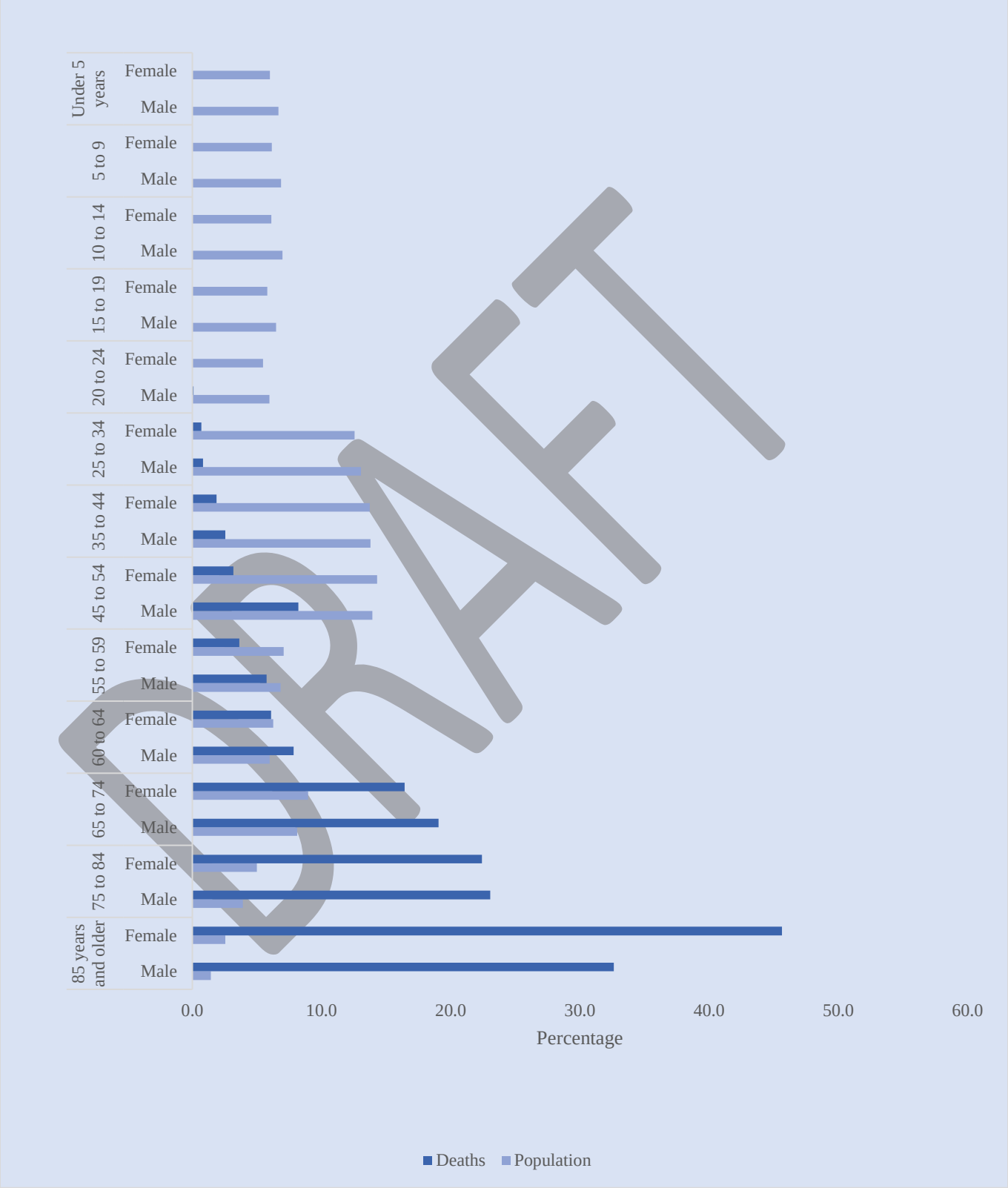
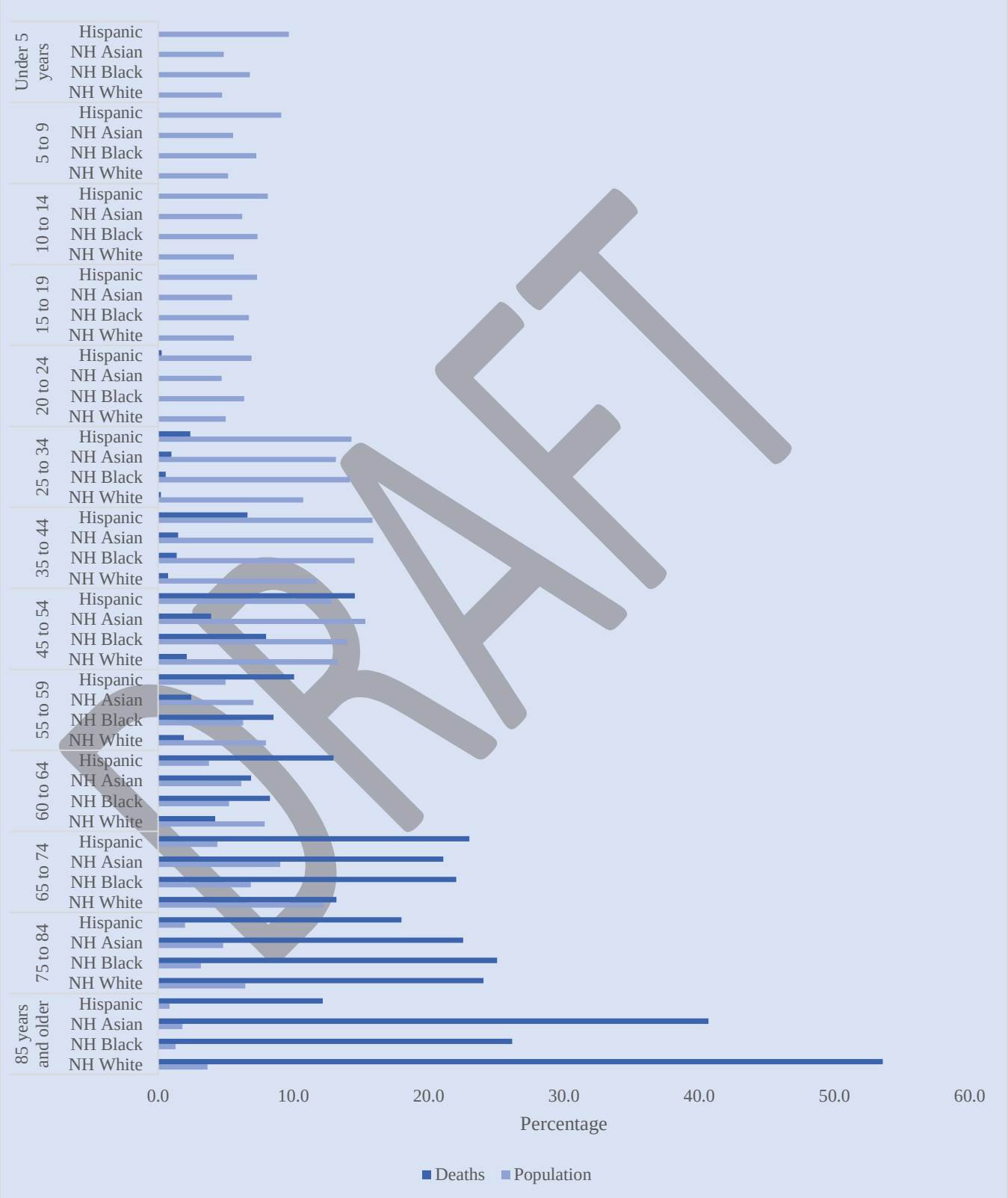


Figure 41. Percentage of COVID-19 Deaths by Race/Ethnicity and Age Group and Percentage of Resident Population, Montgomery County, MD, March 2020 – March 2022



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CHAPTER VI: VACCINATIONS

COVID-19 Vaccine Distribution in Montgomery County

As of March 2022, there were nearly 1.9 million doses administered in the County, of which 81% were administered to County residents. Figure 42 shows the count of doses administered in the County by day and compares the 7-day moving average doses administered in the County to the state. Most Montgomery County residents received the Pfizer vaccine as their first dose (Figure 43). At the time of this report, it is estimated that 95% of the residents in Montgomery County received at least one COVID-19 vaccine (Centers for Disease Control and Prevention, 2022). The CDC caps estimates of vaccination coverage to 95% to allow for differences in data quality issues, part-time residents, or data reporting errors. Figure 44 compares the cumulative percentage of residents 5 years of age and older who are considered fully vaccinated over time in Montgomery County to the state and the U.S.

Figure 42. Daily Count of Doses by Date of Vaccine Administration, Montgomery County, MD, December 2020 - March 2022

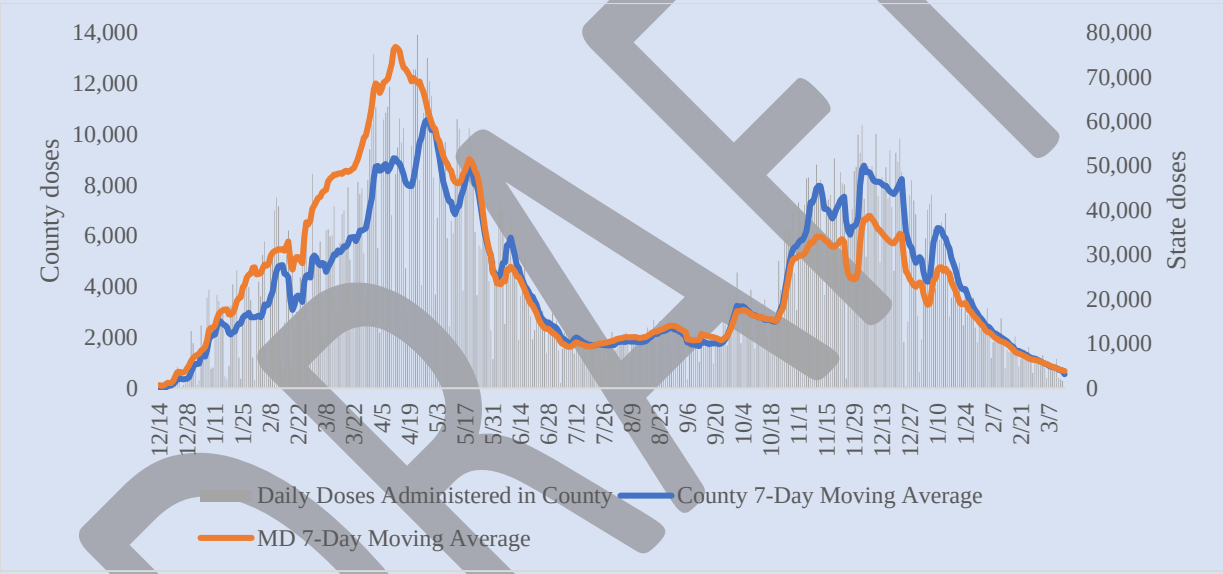

Figure 43. Percentage of County Residents Receiving a COVID-19 Vaccine by First Dose Manufacturer, Montgomery County, MD, December 2020 – March 2022

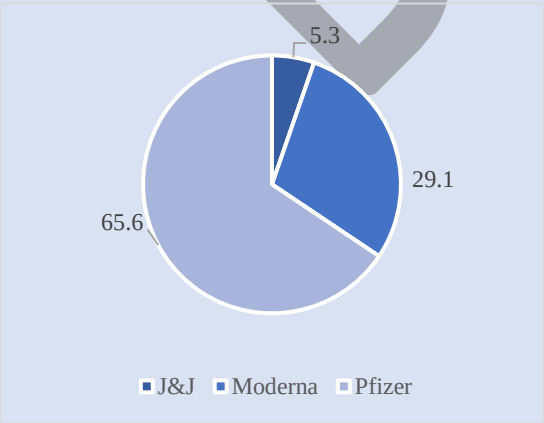

Figure 44. Cumulative Percent Fully Vaccinated Among Residents 5+ by Date of Vaccine Administration, Montgomery County, MD, December 2020 - March 2022

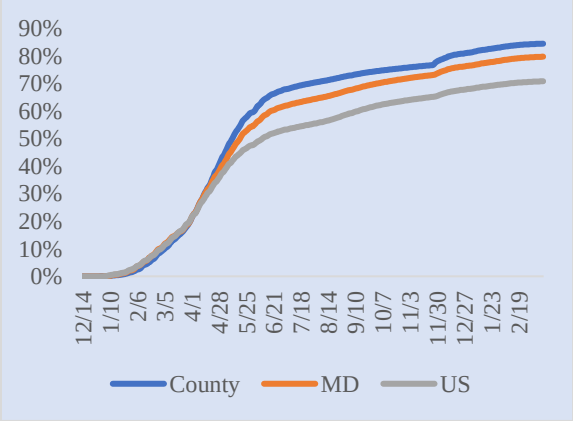

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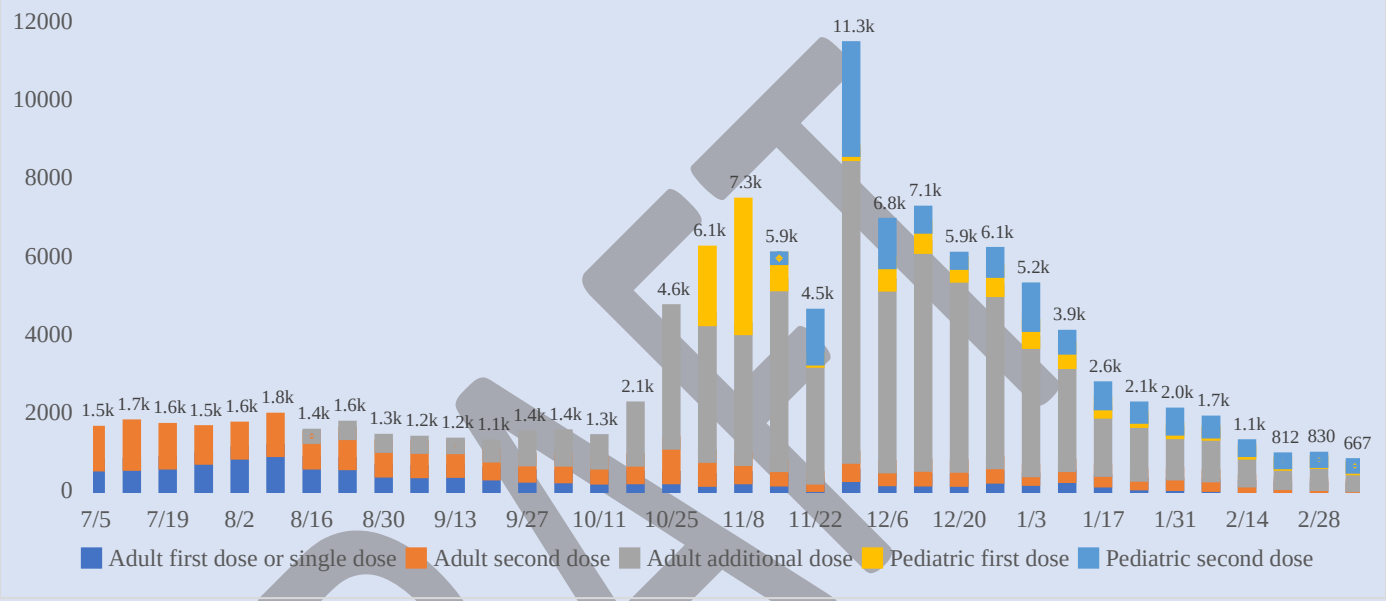
Figure 45 shows the number of weekly doses administered in Montgomery County by dose type. Adults in the county began to receive additional doses in the week of 8/16. Pediatric patients in the county began to receive first doses the week of 11/1 and began to receive second doses the week of 11/15. The week of 11/29 saw the most doses administered with over 68% of them being additional doses for adults.

Figure 45. Weekly Trends in Number of Doses Administered by Dose Type, per 100,000 residents, Montgomery County, MD, June 2021 - March 2022



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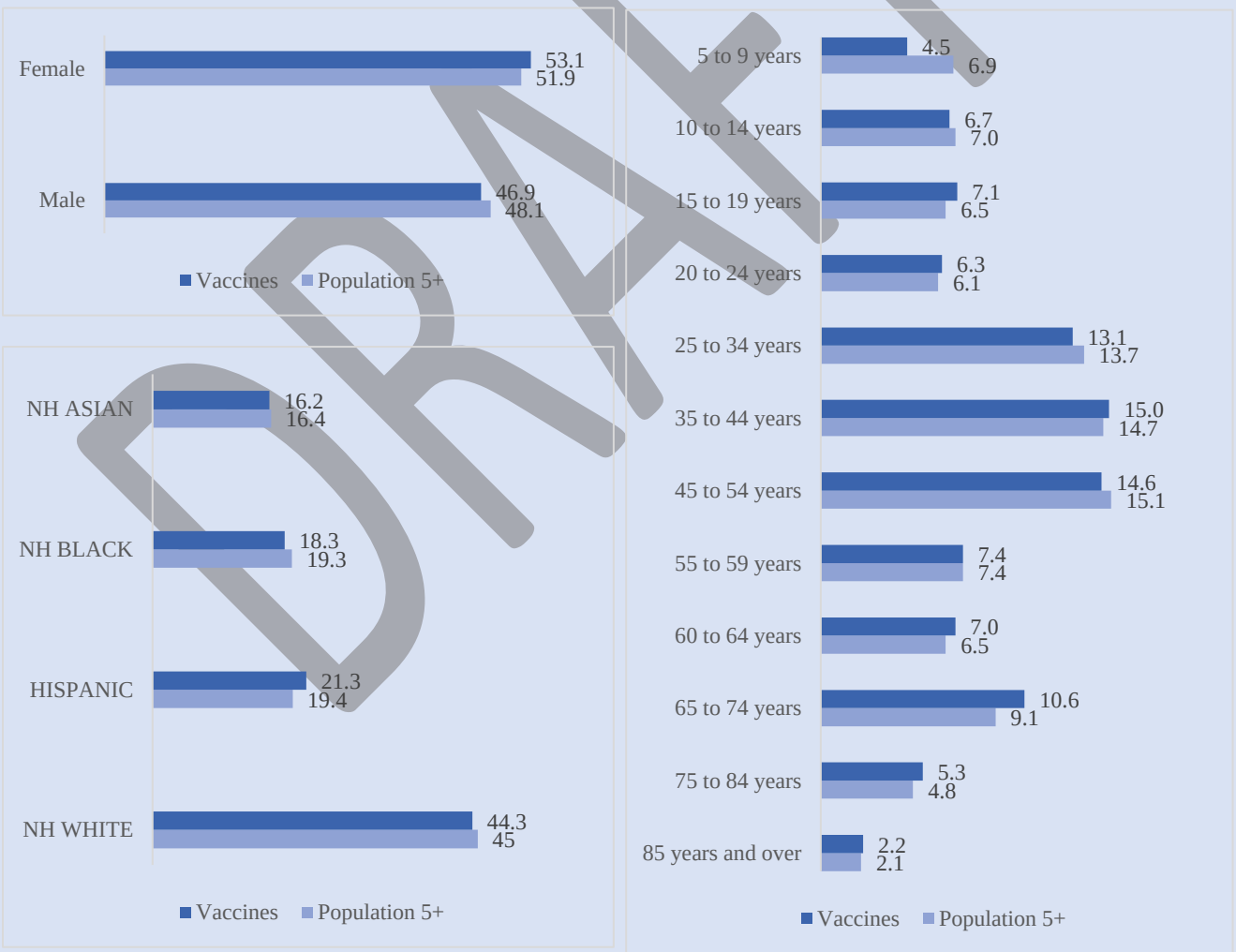
COVID-19 Vaccine Distribution by Demographics

At Least One COVID-19 Vaccine vs Percentage of Resident Population

Although 95% of county residents received at least one dose, Figure 46 compares the proportion of all individuals receiving at least one COVID-19 vaccine to the proportion of the eligible population, by demographic. As of March 2022, only minor differences are observed in the proportion of most subgroups receiving a COVID-19 vaccine compared to their share of the County population. When examining proportions by race/ethnicity and sex, females and Hispanic residents comprise a slightly larger proportion of individuals receiving at least one COVID-19 vaccine relative to their population size. Among age groups, residents between the ages of 5 to 9-years-old represent a smaller proportion of individuals who received at least one COVID-19 vaccine relative to their population size. However, as CDC reports 95% of Montgomery County residents 5 years and older have received at least one COVID-19 vaccine, differences observed below may be due to a data lag.

Figure 46. Percentage of Residents Receiving At Least One COVID-19 Vaccinations by Sex, Race/Ethnicity, and Age Group, and Percentage of Resident Population 5+, Montgomery County, MD, December 2020 – March 2022



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Levels of COVID-19 Vaccination by Demographics

Fully Vaccinated vs Boosted Residents

At the time of this report, 902,612 County residents were considered fully vaccinated, representing 85.9% of the total population. Of fully vaccinated residents, 52.9% received their booster dose.

Figure 47 and 48 show the proportion of the population considered fully vaccinated and boosted by each age group cutoff, respectively (Centers for Disease Control and Prevention, 2022).

Figure 47. Percent of Population Fully Vaccinated, By Age Group, Montgomery County, MD, March 2022

Figure 48. Percent of Fully Vaccinated with Booster Dose, By Age Group, Montgomery County, MD, March 2022

The percentage of the booster eligible resident population receiving a booster dose is displayed in Figure 49. Non-Hispanic white and Asian residents have the highest proportions of the eligible population with a booster dose compared to their counterparts.

Figure 49. Percentages of Booster Eligible Population with and without a Booster Dose, by Race/Ethnicity, Montgomery County, MD, March 2022

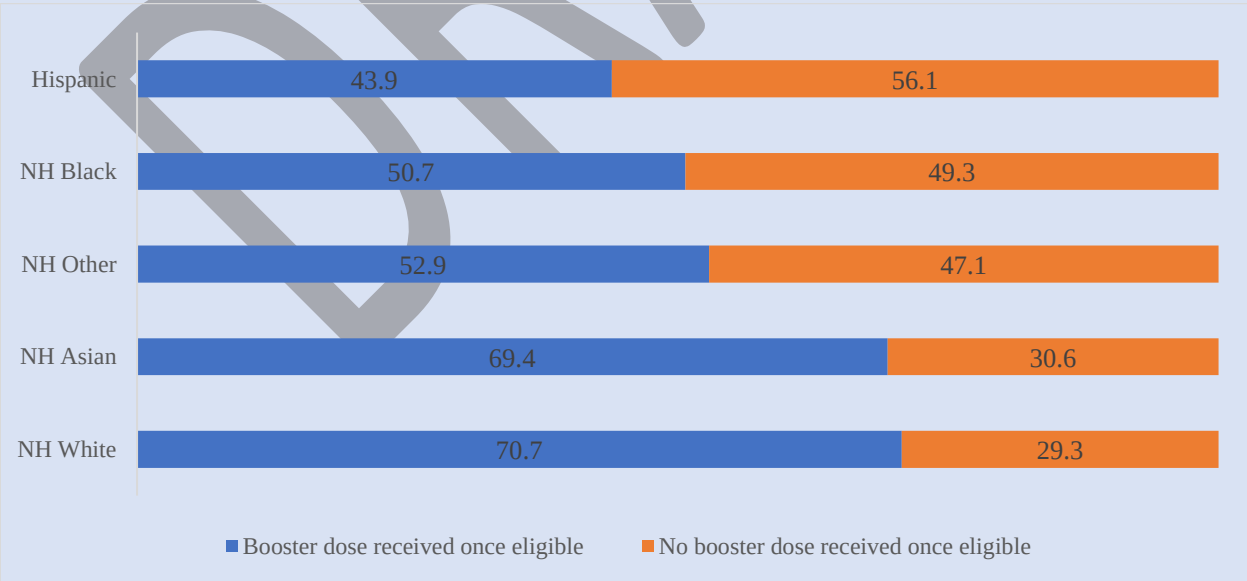

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Figure 50 and Figure 51 depict the distribution of fully vaccinated and boosted residents by sex and age group, compared to the distribution of the resident population. Although 91.5% of the County population, 5 years and older, is considered fully vaccinated, small differences can be observed between the proportion fully vaccinated and the proportion of the population among residents aged 5 to 9 and 25 to 34 years (Figure 50). Residents 45 years and older comprise a greater proportion of boosted residents relative to their population size, compared to younger age groups (Figure 51). Major differences between males and females across all age groups are not observed among fully vaccinated or booster distributions.

Figure 50. Distribution of Fully Vaccinated vs Percent of Resident Population, by Sex and Age Group, Montgomery County, MD, December 2020 - March 2022

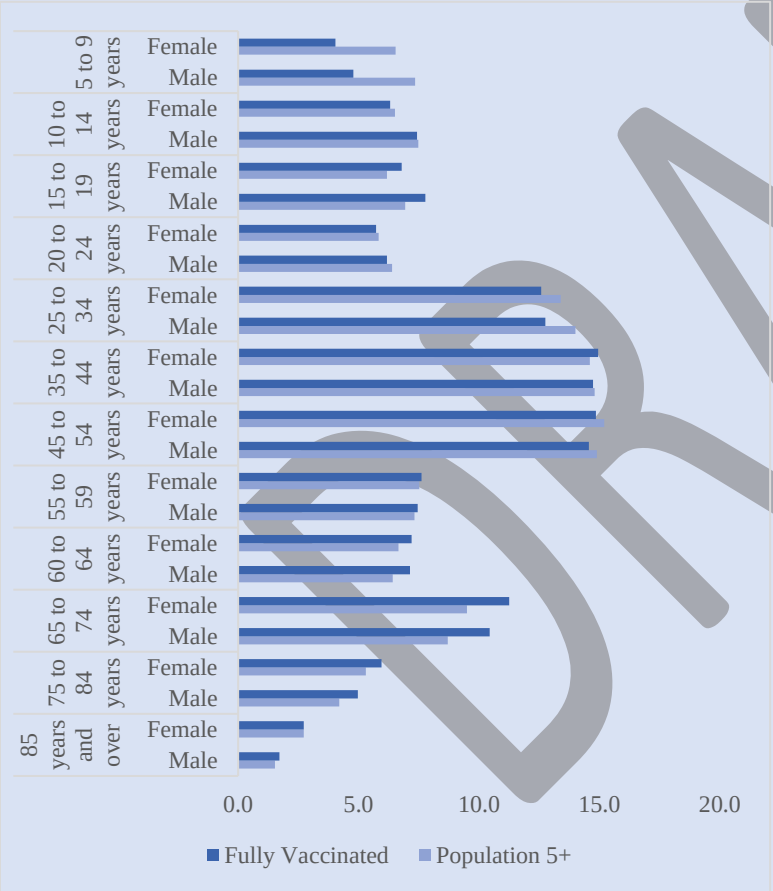

Figure 51.Distribution of Booster Dose Recipients vs Percent of Resident Population, by Sex and Age Group, Montgomery County, MD, August 2021 - March 2022

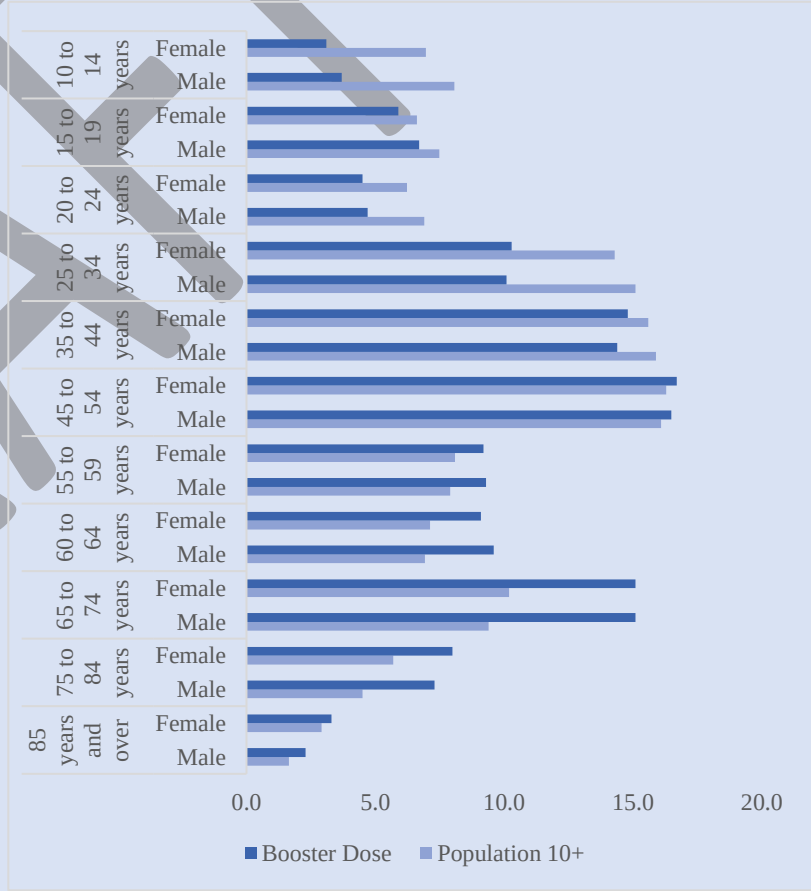

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Figure 52 shows the distribution of fully vaccinated and boosted residents by race, ethnicity, and age group, compared to the distribution of the resident population. Although residents between the ages of 5 to 9 years of age are disproportionately considered under vaccinated compared to their population size across all race/ethnicity subgroups, Hispanic and non-Hispanic black residents within this age group have the greatest difference relative to their population size. Other potential target areas include Hispanic residents aged 10 to 14; non-Hispanic black residents aged 25 to 34; non-Hispanic Asian residents aged 25 to 34 and 35 to 44; non-Hispanic white residents aged 25 to 34.

The distribution of booster dose recipients compared to the distribution of the resident population is displayed in Figure 53. Residents 45 years and older comprise a greater proportion of boosted residents relative to their population size, compared to younger age groups. Among the younger age groups, only non-Hispanic Asian residents aged 15 to 19 and 20 to 24 and non-Hispanic white residents aged 35 to 44 are proportionately vaccinated, in terms of receiving a booster dose, relative to their population size.

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Figure 52. Distribution of Fully Vaccinated vs Percent of Resident Population by Race/Ethnicity and Age Group, Montgomery County, MD, December 2020 - March 2022

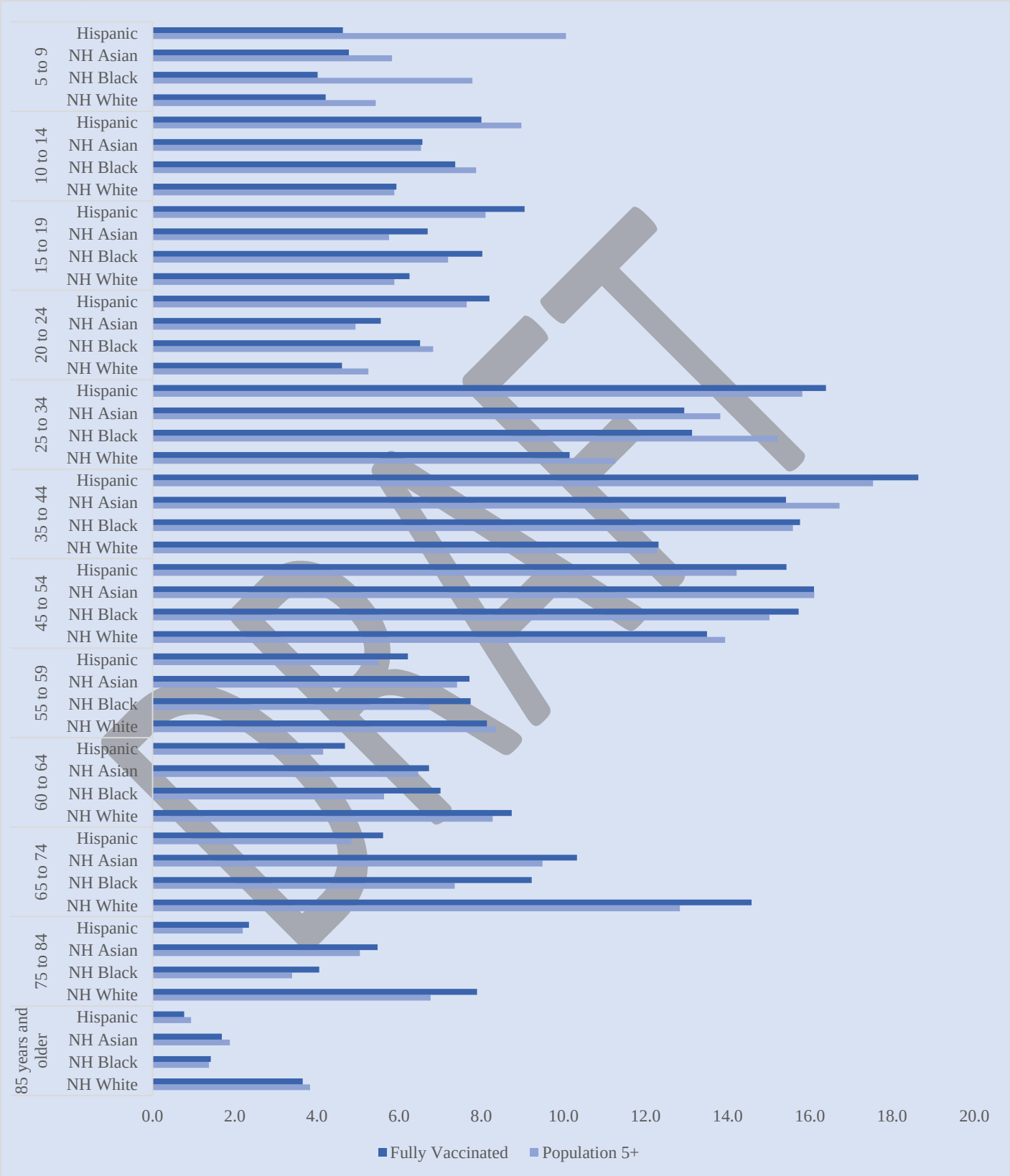
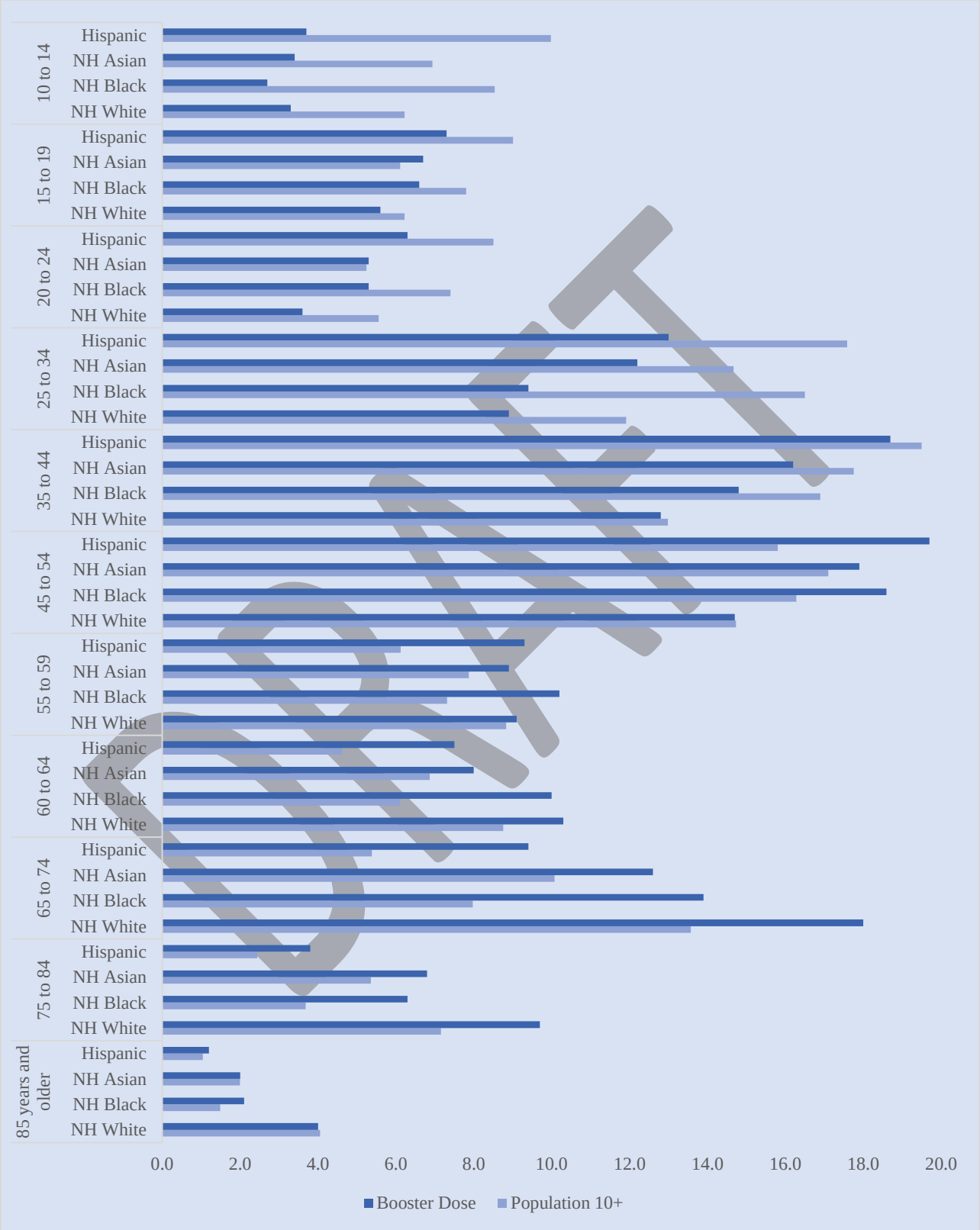


Figure 53. Distribution of Booster Dose Recipients vs Percent of Resident Population, by Race/Ethnicity and Age Group, Montgomery County, MD, August 2021 - March 2022

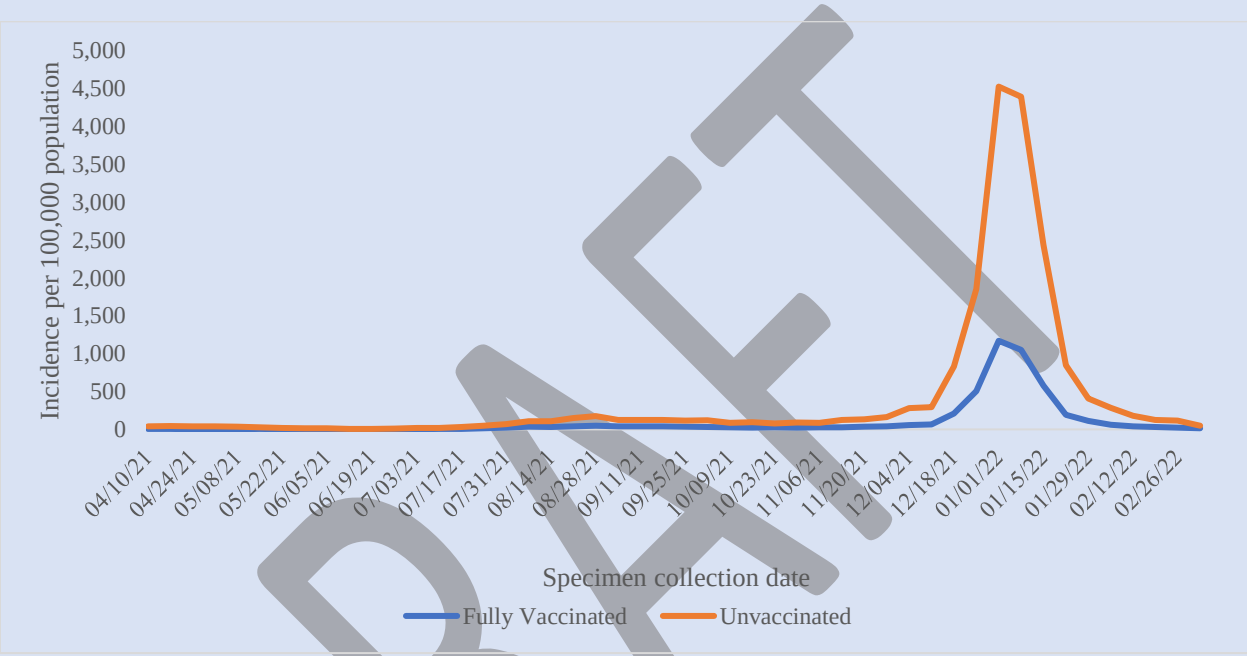


COVID-19 Metrics by Vaccination Status

Cases

In Figure 54, the age-adjusted rate of COVID-19 cases among Montgomery County residents can be observed by vaccination status. During Omicron, the weekly rate of new cases peaked at 4,525 cases per 100,000 unvaccinated residents. However, among fully vaccinated residents, the highest weekly rate observed was 1,170 cases per 100,000.

Figure 54. Age-adjusted Rates of COVID-19 Cases by Vaccination Status, Montgomery County, MD, April 2021 - March 2022



Hospitalizations

Similarly, the age-adjusted rate of COVID-19 new hospital admissions among Montgomery County residents, by vaccination status, is displayed in Figure 55. Increased rates of hospitalizations among unvaccinated residents are observed during the Alpha, Delta, and Omicron surges, while increased rates among fully vaccinated residents are observed only during the Omicron surge. During the Omicron surge, the peak weekly rate of hospitalizations among unvaccinated residents was 112 per 100,000. Among fully vaccinated residents, the peak rate was only 13.7 per 100,000 during the same time period.

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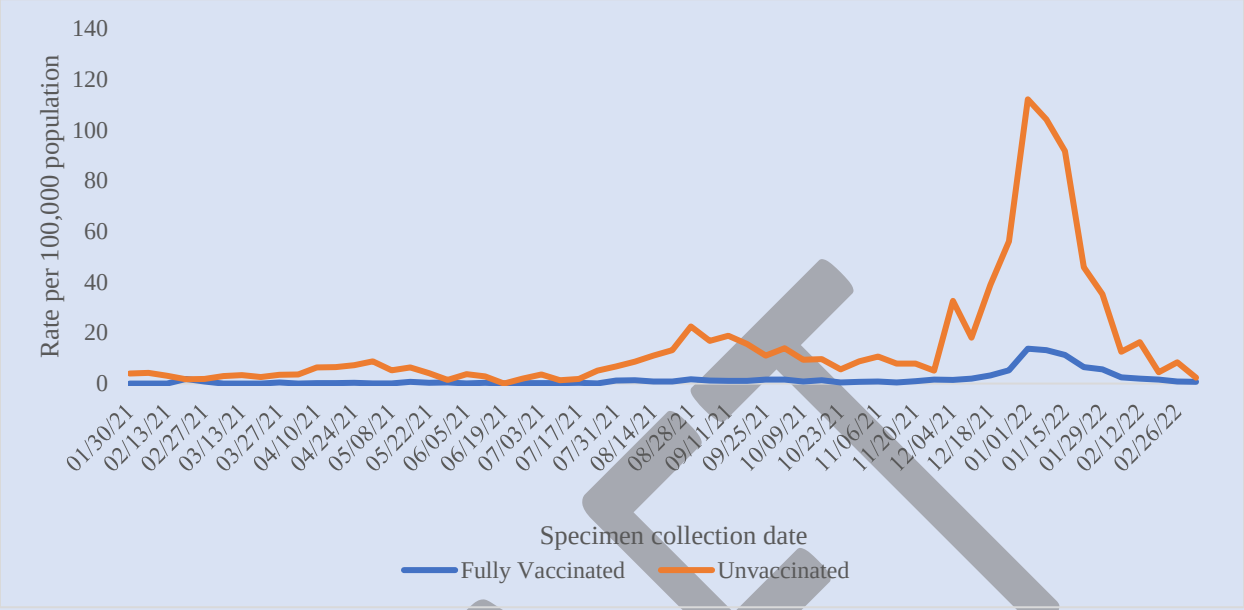
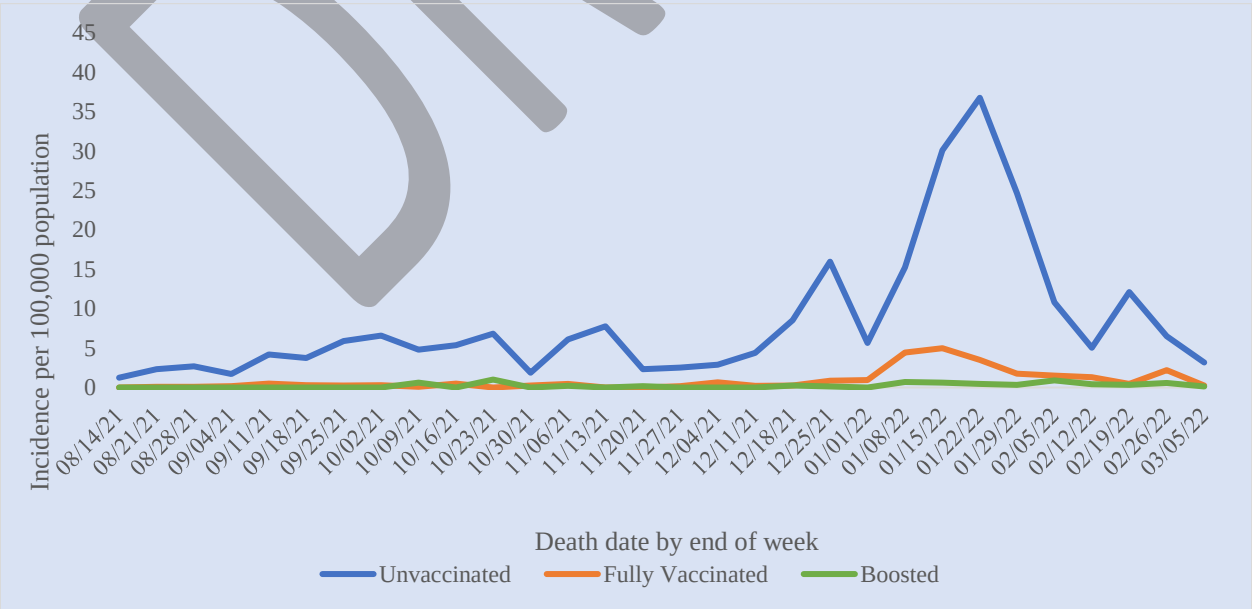
Figure 55. Age-adjusted Rates of COVID-19 Hospitalizations by Vaccination Status, Montgomery County, MD, January 2021 - March 2022



Deaths

The age-adjusted rate of COVID-19 deaths among Montgomery County residents, by vaccination status and booster dose, is displayed in Figure 56. During the Omicron surge, the weekly rate among unvaccinated residents peaked at 36.7 per 100,000, while the rate among fully vaccinated residents peaked at 7 per 100,000. The rate among boosted residents remained low throughout the August 2021 to March 2022 time period.

Figure 56. Age-adjusted Rates of COVID-19 Deaths by Vaccination Status and Booster Dose, Montgomery County, MD, August 2021 - March 2022



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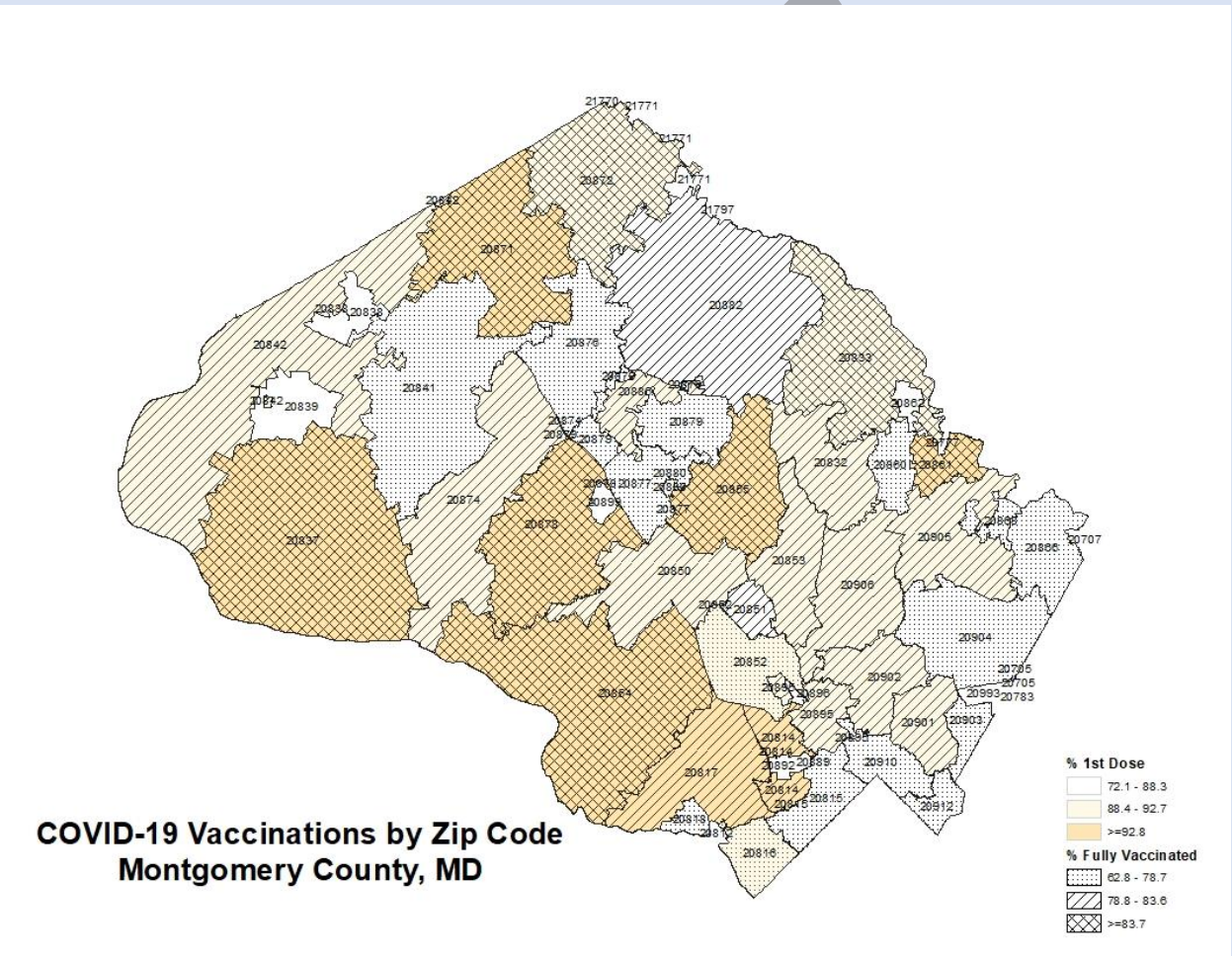
By ZIP Code

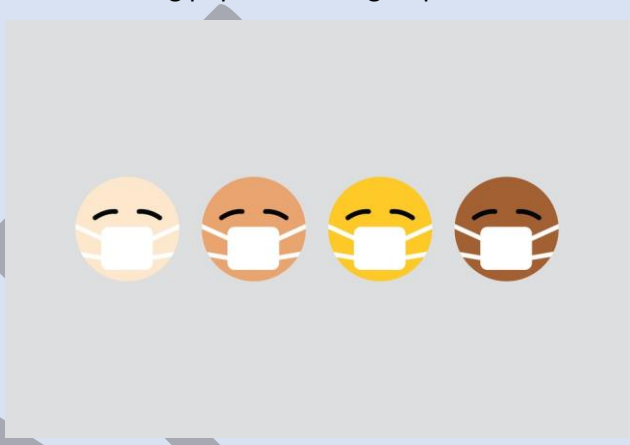
Map 5 shows the percent of residents who received their first dose and those who are fully vaccinated, by ZIP Code in Montgomery County. ZIP Codes with a darker gradient represent areas with high first-dose vaccination rates. Alternatively, ZIP Codes with a lighter gradient represent areas of lower first-dose vaccination rates among residents. Areas with lower vaccination coverage are consistent with those with higher disease burden and SDI. Continued efforts are needed to implement intervention strategies and outreach among these communities.

Map 5. COVID-19 Percent Vaccination by ZIP Code, Montgomery County, MD, December 2020 - March 2022



CONCLUSION

As of June 2022, the current COVID-19 Community Level of Montgomery County is in the "Medium" category of the CDC COVID-19 Community Levels map. However, this may likely change as the new variants and sub-lineages continue to evolve over time. In general, the rates in Montgomery County followed a similar trend to Maryland since the start of the pandemic. However, the County experienced a greater impact during the first wave of the pandemic compared to the state of Maryland and the rest of the country. Until the Omicron surge, the County continued to perform better than the rest of the country after the first wave. Nevertheless, disparities exist among population subgroups and communities. These highlighted areas can be used to inform and target efforts and resources to combat the spread of the virus. Major findings from the Montgomery County, Maryland COVID-19 Surveillance Report indicate that Hispanic and non-Hispanic black residents, elderly individuals, and males were disproportionately affected by COVID-19 in the County, when compared to other subgroups. The importance of addressing social determinants of health as the root cause to mitigate disease burden in the population subgroups and communities cannot be overemphasized.



From the start of the pandemic, Montgomery County DHHS has responded to the threat of the novel coronavirus by taking science-based approaches and implementing data driven strategies to protect its residents. Reducing health disparities that have been exacerbated by COVID-19 has been at the forefront of these efforts. Major milestones of the COVID-19 response include developing and implementing a comprehensive testing plan and a series of vaccination plans (general, pediatric, and booster doses); increasing community awareness and access to services through public information and call center initiatives; coordinating and providing resources to private sector and non-profit health care providers to increase county capacities; and developing and implementing an Equity Framework to ensure equitable access to COVID-19 resources for all residents of the county.

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APPENDICES

APPENDIX A: TERMS AND DEFINITIONS

TERM	DEFINITION
7-day moving average number	Average cases, deaths, or hospitalizations in the last 7 days
7-day moving average rate	Average cases, deaths, or hospitalizations in the last 7 days per 100,000 population
7-day rate	Number of cases, deaths, or hospitalizations in the last 7 days per 100,000 population
Cumulative rate	Total number of cases, deaths, or hospitalizations per 100,000 since beginning of pandemic
COVID-19 hospital admission rate	Number of new hospital admissions of patients with confirmed COVID-19 per 100,000 population
Age-specific rate	Number of cases, deaths, or hospitalizations among individuals in a specific age group per 100,000
Race and ethnicity – specific rate	Number of cases, deaths, or hospitalizations among individuals in each racial-ethnic group per 100,000
Sex – specific rate	Number of cases, deaths, or hospitalizations among individuals of each sex per 100,000
Age, sex – specific rate	Number of cases, deaths, or hospitalizations among individuals of each sex and specific age group per 100,000
Age, race/ethnicity – specific rate	Number of cases, deaths, or hospitalizations among individuals in each racial-ethnic group and specific age group per 100,000

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APPENDIX B: TECHNICAL NOTES

Data Sources

The Office of Health Planning and Epidemiology uses a variety of data to compile COVID-19 statistics in Montgomery County. Case and hospitalization data were collected and managed using REDCap electronic data capture tools hosted at the Maryland Department of Health (Harris, 2009; Harris P. T., 2019). REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources. Data pertaining to testing were sourced by NEDSS and MDH. Data pertaining to mortality were sourced by the Vital Statistics Administration, MDH. Vaccination data were accessed via ImmuNet from the MDH. Data for state and national estimates were obtained via the CDC COVID Data Tracker website. Data sources pertaining to the various COVID-19 metrics were used containing data as of March 2022.

The U.S. Census Bureau and CDC, NCHS, National Vital Statistics System (NVSS) population data estimates for Montgomery County were used to calculate rates and proportions.

Data Quality and Confidentiality

All data collected and housed by the Office of Health Planning and Epidemiology complies with the state and federal privacy and confidentiality regulations. Data or data analysis may be requested through the Office of Health Planning and Epidemiology.

Rate

The rates provided in this report are estimations of the proportion of the respective population with various COVID-19 metrics. This rate is usually expressed as per 100,000 population and is calculated by the formula:

Rate = (Number of Persons with Specific Metric/Total Population) *100,000

Graphs

Graphs have varying scales depending on the range of the data displayed. Therefore, caution should be exercised when comparing data in one graph to another.

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APPENDIX C: PUBLIC HEALTH EMERGENCY PREPAREDNESS AND RESPONSE

Mission and Organization

The Montgomery County Public Health Emergency Preparedness and Response Program (PHEPR) has the delegated responsibility to develop, maintain, enhance, and coordinate the capabilities for responding to public health threats and other emergencies on behalf of the Public Health Services (PHS) of the Montgomery County Department of Health and Human Services (DHHS). DHHS is the lead agency for Emergency Support Function (ESF) #8 – Health and Medical, with PHEPR providing operational and subject matter support to the County Emergency Management Group (EMG).

PHEPR is located within the Communicable Disease and Epidemiology Division (CD&E) of PHS. Previously, PHEPR was called the Bioterrorism program. PHEPR sustains and improves readiness through a continuous cycle of planning, practice, response, and evaluation activities. PHEPR coordinates with public health, healthcare, and other county partners to evaluate plans and procedures following real-life incidents and simulated exercises to garner lessons learned that will improve future response efforts.

Established partnerships are essential to the success of emergency preparedness and response efforts. PHEPR continually engages in outreach and coordination with public and private sector partners within the County, the State, and the National Capital Region to facilitate effective, collaborative responses to man-made or natural public health threats and emergencies.

PHEPR conducts public health surveillance activities to effectively monitor, prepare for, and respond to potential public health emergencies related to disease outbreaks or other biological threats in the County. To improve disease detection capabilities, PHEPR also conducts daily review of pre-diagnostic, syndromic data. Public health surveillance is possible through partnerships and routine communications with DHHS' Disease Control and School Health Services, the Maryland Department of Health, neighboring health departments, the National Capital Poison Center, and a coalition of healthcare facilities across the county, state, and region.

Planning – High Impact Infectious Disease Threats

Public health emergency preparedness in Montgomery County focuses on a range of threats including biological, chemical, radiological, terrorism, and natural disasters. Biological incidents can be a naturally occurring outbreak such as a pandemic or epidemic or can be the result of an accidental or intentional release of a biological pathogen.

PHEPR is tasked with coordinating the development of agency plans and capacities to respond to large scale epidemics and pandemics as well as bioterrorism agents and other emerging pathogens that are rarely seen in the United States. High-priority agents include organisms that pose a risk to national security because they:

- can be easily disseminated or transmitted from person to person;
- result in high mortality rates and have the potential for major public health impact;
- might cause public panic and social disruption; and

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- require special action for public health preparedness.

Table 11. Category A Bioterrorism Diseases

Category A agents are the highest priority, followed by Categories B and C (not shown, see references for more information). Causative agents are in parentheses.
Anthrax (*Bacillus anthracis*)
Botulism (*Clostridium botulinum* toxin)
Plague (*Yersinia pestis*)
Smallpox (variola major)
Tularemia (*Francisella tularensis*)
Viral hemorrhagic fevers, including
Filoviruses (Ebola, Marburg)
Arenaviruses (Lassa, Machupo)

Since 2001, Montgomery County has responded to public health threats that include anthrax, SARS, Ebola, and H1N1 influenza.

Planning – Public Health Emergency Capabilities

PHEPR organizes emergency planning and operational response capability to align with the 15 public health preparedness capabilities as outlined by the *CDC's Public Health Preparedness Capabilities: National Standards for State and Local Planning*.

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Table 12. Public Health Preparedness and Emergency Response Capabilities

Preparedness Domain	Public Health Emergency Response Capability
Biosurveillance	Public Health Surveillance and Epidemiological Investigation
	Public Health Laboratory Testing
Community Resilience	Community Preparedness
	Community Recovery
Incident Management	Emergency Operations Coordination
Information Management	Emergency Public Information and Warning
	Information Sharing
Countermeasures and Mitigation	Medical Materiel Management and Distribution
	Medical Countermeasure Dispensing
	Non-Pharmaceutical Interventions
	Responder Safety and Health
Surge Management	Mass Care
	Medical Surge
	Volunteer Management
	Fatality Management

Medical Countermeasures Dispensing

The anthrax attacks in 2001 raised awareness of the importance of public health and medical capabilities necessary to counter the effects of bioterrorist attacks and other large-scale biological threats. Through partnerships with the CDC, MDH, and many public and private agencies within Montgomery County, PHEPR has engaged in significant planning and preparedness activities focused on quickly distributing and dispensing emergency medical countermeasures (MCMs) to help prevent the spread of disease. MCMs include medications, medical devices, and personal protective equipment used to prevent illness or death from intentional or unintentional exposures to chemical, biological, radiological, or nuclear threats.

One of greatest challenges that we prepare for is the ability to mass dispense medications to the *entire* local population within 48 hours of awareness of an incident.

Training

PHEPR organizes numerous trainings throughout the year to prepare governmental and community partners for their roles and responsibilities in emergency response to a large scale or emerging infectious disease. Examples of such training and exercise activities in recent years include:

- Epidemiological and foodborne illness investigation training for County staff and volunteer surge staff
- Personal protective equipment (PPE) and respirator fit testing for clinical response staff
- Incident Command System trainings for response staff

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- Operations training for medical countermeasure dispensing through PODs

Exercises, Evaluation, and Improvement Planning

PHEPR evaluates agency response during real world events and preparedness exercises in accordance with national standards set forth by the U.S. Government in its Homeland Security Exercise and Evaluation Program (HSEEP). Based on these standards, exercises are designed and evaluated to identify strengths and areas for improvement in a jurisdiction's emergency response capabilities, and to recommend corrective actions for improvement planning to enhance these response capabilities.

Table 13. Exercises Involving Public Health Response Capabilities, Montgomery County, MD, 2016-2018

Date	Exercise	Capability
2018, May	No-notice emerging infectious disease drill (functional)	Public Health Surveillance and Epidemiological Investigation; Information Sharing
2018, May	Mass casualty terrorism incident (regional full scale; county-wide command post)	Emergency Operations Coordination; Medical Surge; Mass Care; Information Sharing
2017, Nov	Mass vaccination clinics (full scale)	Medical Countermeasure Dispensing; Emergency Operations Coordination
2017, Oct	Emerging infectious disease/Ebola (state and regional tabletop)	Responder Safety and Health; Community Preparedness; Medical Surge; Information Sharing; Non-Pharmaceutical Interventions
2017, June	Mass fatality incident (state tabletop)	Fatality Management
2017, May	Emerging infectious disease (tabletop)	Public Health Surveillance and Epidemiological Investigation; Information Sharing; Non-Pharmaceutical Interventions; Public Information and Warning
2017, May	Severe weather/flood response (command post)	Information Sharing; Emergency Operations Coordination
2016, Nov	Mass vaccination clinics (full scale)	Medical Countermeasure Dispensing; Emergency Operations Coordination
2016, Apr	Complex coordinated attack (full scale)	Emergency Operations Coordination; Medical Surge; Mass Care; Information Sharing
Ongoing	Staff notification and activation drills	Emergency Operations Coordination; Public Information and Warning
Ongoing	Communication system testing; radios (weekly); web-EOC (monthly); Satellite phones (quarterly)	Information Sharing; Emergency Operations Coordination;

Additionally, PHEPR participants in local and regional assessments of community health vulnerabilities and operational readiness to respond to public health emergencies to identify areas

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for improvement planning. Based on these evaluation and improvement activities, PHEPR may reallocate its resources and efforts to pursue recommended corrective actions.

Public Health Response Activations

PHEPR supports both planned events and emergency incidents by activating one or more of the ESF#8 emergency response capabilities. PHEPR has coordinated the county's emergency response to significant local public health threats, including Ebola virus (2016), H1N1 (2013), West Nile virus (2003), and anthrax attacks (2001).

Full Activations include response to significant public health incidents or other incidents that require a multi-agency response, organization of response under the Incident Command System, and/or activation of the county's Public Health Operations Center. Examples include response to large infectious disease exposures or outbreaks, epidemics, or pandemics, or incidents causing mass casualties or threatening health and medical infrastructure.

Partial Activations include activation of one or two public health capabilities or response plans to support any community incident, including support to the County Emergency Management Group (EMG) or the County Emergency Operations Center (EOC). Examples include: monitoring and information sharing between public health and healthcare partners and the rest of the EMG during a weather emergency or planned National Special Security Event (i.e. Presidential Inauguration); medical surge support during an emergency shelter response; or coordination of agency resources to an ongoing disease outbreak.

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Table 14. Public Health Activations, Montgomery County, MD, 2016-2018

Date	Incident	Capabilities Activated	Activation Level
2016			
Jan-Dec	Zika Virus	Surveillance and disease control; public information & warning; information sharing; public health team deployments	Full
Aug	Piney Branch Road Apartment Fire	Medical surge support in emergency shelters	Partial
Nov	Potomac Oil Spill	ESF#8 Monitoring and information sharing	Partial
Dec	Resource Recovery Facility Fire	EMG activation; public information and warning	Partial
Jan-Dec	Zika Virus	Surveillance and disease control; public information and warning; information sharing	Partial
2017			
Jan	Presidential Inauguration	EOC activation; monitoring and information sharing	Partial
Mar	Severe Weather Event, High Wind/Thunderstorms	ESF#8 Monitoring and information sharing	Partial
Mar	Severe Weather Event, Nor'easter/Snowstorm	ESF#8 Monitoring and information sharing	Partial
Jun	Hepatitis A Exposure Investigation	Activation of surge epidemiology team to conduct rapid contact investigation and disease control	Partial
Jul	Condo Water Main Break	Medical surge support in emergency shelters	Partial
Jul	Severe Weather Event, Rain Storm/Flooding	ESF#8 Monitoring and information sharing	Partial
Oct	Pooks Hill Road Apartment Fire	Medical surge support in emergency shelters	Partial
2018			
Jan-Jul	Legionella Outbreak	Epidemiological investigation and disease control	Partial
Feb	Monroe Street Apartment Fire	Medical surge support in emergency shelters	Partial
Mar	Severe Weather Event, Snowstorm	ESF#8 Monitoring and information sharing	Partial
May	Measles Case and Exposures	Epidemiology and disease control; public information and warning	Partial
Jul	Severe Weather Event, Hospital Flooding/Power Loss	Medical surge support; information sharing	Partial
Jul-Aug	Rabies Exposure and Investigation	Epidemiology and disease control	Partial
2019			
Apr	Measles Exposure	Vaccination support to affected community	Partial
2020			
Feb - Dec	COVID-19	Public Health Incident Command; Epidemiological Surveillance; PPE Prioritization and Distribution; Mass Testing; Public Information and Warning; Medical Surge	Full
2021			
Jan - Dec	COVID-19	Public Health Incident Command; Epidemiological Surveillance; Mass Vaccinations; Mass Testing; Public Information and Warning;	Full

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Early Detection of Infectious Diseases

PHEPR supports DHHS public health surveillance efforts through the uses of ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics), a web-based syndromic surveillance system designed for the early detection of disease outbreaks, suspicious patterns of illness, and public health emergencies. ESSENCE collects de-identified data from emergency department visit chief complaints, over-the-counter medication sales, school absenteeism, and poison center calls. The system applies statistical tools to this pre-diagnostic data to **detect, monitor, and characterize unusual activity for further public health investigation or response.**

This system is also used by state and local health departments and nationally by the CDC:

- Maryland Public Health Preparedness and Situational Awareness (PHPSA) Reports
- CDC's National Syndromic Surveillance Program (NSSP)

The near real-time data in ESSENCE offers a unique advantage for public health surveillance by improving situational awareness and responsiveness to hazardous events and disease outbreaks**.** By using **automated data acquisition and generation of statistical signals,** continual monitoring of threat and disease indicators is possible. Biosurveillance using ESSENCE is optimized in our county by the establishment and maintenance of communication channels within Montgomery County programs, as well as with Maryland, Virginia, and DC biosurveillance teams, and with local, state and regional hospital partners.

Public health surveillance using ESSENCE may be directed toward early detection and post-event case identification for:

- Potential agents of bioterrorism including anthrax, tularemia, plague, botulism, and smallpox
- Outbreaks and pandemics (Enterovirus D68, H1N1 and other influenzas, Norovirus, Zika, Ebola)
- Other emerging infectious diseases
- Routine surveillance and trend analysis (influenza-like illnesses (ILIs), heat/cold-related illness, other conditions of interest)
- Enhanced surveillance for mass gatherings (Inauguration, Papal visit, protests) or events with public health impact (severe weather, tracking mass casualties)
- Case identification in natural and man-made disasters, injuries (falls, bicycle-related injuries, drownings), drug overdoses, chronic conditions

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ESSENCE use in Montgomery County includes daily review of alerts as well as evaluation of information gathered during enhanced surveillance periods. System alerts produced in ESSENCE trigger clinical analysis of data details for ED visits, categories of over-the-counter pharmacy sales, and school absenteeism. This may prompt investigation, enhanced monitoring, or spot reporting in collaboration with public health and community partners. This data is supplemental to other public health surveillance systems including, but not limited to, reportable conditions/diseases, outbreak investigations, population and healthcare surveys, and environmental monitoring.

The Montgomery County PHEPR program produces a weekly Public Health Preparedness and Situational Awareness Report distributed to county leadership and hospital partners. Spot reports may be sent when conditions of concern arise.

ESSENCE Alerts are produced within syndrome categories, representing clinical manifestations of illness. Approximate number of alerts for all age groups combined are summarized below.

Alerts are also received and reviewed by age-groupings to increase detection sensitivity. With an average of 1,864 age-grouped alerts per year, Montgomery County's ESSENCE program reviews more than 2,300 total syndromic alerts each year, on average 6+ alerts/day.

2017-18 Influenza Surveillance and Response

DHHS monitors influenza-like illnesses (ILI) in Montgomery County through emergency department visits, over-the-counter sales, and school absenteeism reports. The 2017-2018 flu season, defined as Oct 1-April 30, saw significant increases in illness data from previous seasons and was the first season to be classified across the Nation as a high severity *across all age groups* since the CDC began this classification system in 2003.

Table 15. Emergency Department Visits for ILI by Flu Season, 2012-2018

Flu Season	Emergency Department Visits for ILI	Peak Month
2017-2018	6994	January - 1822
2016-2017	5273	February - 1171
2015-2016	4913	December - 932
2014-2015	7016	December - 1614
2012-2013	3819	January - 1180

After reviewing consolidated county data for influenza-like illnesses, as provided in weekly ESSENCE reports, the Montgomery County hospitals decided in February of 2018 to implement stricter visitor restrictions to protect patients and staff and requested DHHS to issue related media alerts and public messaging from the Health Officer.

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Opioid Overdose Surveillance

Following the noted rise in opioid-related overdoses and deaths across Maryland and the United States and the 2017 declaration of emergency by the Governor, DHHS adopted increased surveillance activity of opioid use in Montgomery County. In collaboration with Behavioral Health and Crisis Services and the Johns Hopkins Applied Physics Lab, PHEPR developed ESSENCE queries to collect Opioid-related, Acute Poisoning, and Self Injury-related emergency department visit data.

The use of ESSENCE collected emergency department data has improved surveillance information from a 2-month delay to *near real-time availability*. This information is now shared with Behavioral Health and Crisis Services and other DHHS officials in the weekly report.

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APPENDIX D: MAJOR MILESTONES OF COVID-19 RESPONSE

Date	Event
1/30/2020	Federal Public Health Emergency Declaration
3/6/2020	Command Center Activated
3/9/2020	First Montgomery County Case with 4 cases
3/9/2020	Initial Isolation/Protocol Recommendations Issued to individuals identified as case contacts
3/12/2020	First cases of community transmission in MD
3/12/2020	Maryland Public Schools closed Monday 3/16-3/27
3/12/2020	MD National Guard Activated
3/12/2020	Montgomery County Public Health Call Center Initiated
3/12/2020	31 out of 34 Montgomery County Nursing Homes implement "No Visitation" policies
3/15/2020	Expanded Call Center
3/15/2020	Formal Incident Management Team (IMT) request submitted
3/16/2020	State begins receiving SNS shipments
3/16/2020	State order to close all restaurants, bars, movie theaters and gyms at 5:00 pm
3/16/2020	Contact Tracing Initiated Locally
3/16/2020	Schools Closed (no school)
3/23/2020	1st Death in Montgomery County
3/23/2020	28 Covid-19 Test Kits arrived
3/24/2020	MD Governor issues shut down of all non-essential businesses at 5 pm
3/24/2020	Montgomery County Hospitals all report an increase of at least 50% more visits to the ER
3/24/2020	300 volunteers registered with the MRC
3/25/2020	MCPS closed through 4/24/2020
3/26/2020	Emergency Medical PPE distribution begins to Assisted Living Facilities and Hospitals
3/27/2020	MD Governor issues shut down of childcare providers unless serving essential personnel
3/30/2020	MCPS feeding families
3/31/2020	Fatality Management Planning Initiated
3/31/2020	MRC volunteer numbers

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4/7/2020	First County drive through testing clinic
6/25/2020	First Community indoor testing site. Testing registration portal goes live allowing increased testing.
7/15/2020	Online Testing scheduling goes live
7/31/2020	DHHS completes 13,000+ testing in July
11/1/2020	Medical PPE Supply Chain Re-established, Emergency Healthcare PPE distributions reduced. In total with extensive support from DGS and the MD Wing, Civil Air Patrol: 7.5M surgical gloves; 1.5M surgical masks; 1M N95 respirators; 545k KN95 respirators; 314k isolation gowns; 313k face shields distributed.
12/23/2020	First COVID-19 vaccinations administered in County
1/6/2021	Vaccination Invites to Provider Pre-Registration List Initiated
1/15/2021	Vaccination Pre-Registration List opened to 75+ populations with multi-language support on-line and through Call Center
1/25/2021	107,202 pre-registrations completed for vaccination appointments; Pre-Registration expanded to priority groups in 1b and 1c
1/26/2021	First DHHS clinics for 75+ populations are held; appointments are allocated using the Equity Framework
2/10/2021	304,606 pre-registrations completed, representing ~30% of the county's population. First DHHS Pop-up Vaccination Clinic.
2/27/2021	First Community Partner Vaccination Clinic
3/1/2021	Public Schools Re-open (In-person)
3/4/2021	First DHHS clinics for 65+ populations are held; appointments are allocated using the Equity Framework
3/11/2021	Text/SMS messaging used to contact pre-registrants to increase 75+ vaccination rates
5/13/2021	First DHHS 12-15 year old clinic
8/20/2021	First DHHS 3rd dose clinic (immunocompromised)
9/24/2021	First DHHS booster dose clinic
11/6/2021	First DHHS 5-11 year old County clinic
12/3/2021	First Rapid Antigen Test Kit Distribution (focused groups)
1/10/2022	First Rapid Antigen Test Kit Distribution (public)
1/21/2022	First Medical-Grade Mask Distribution (public)

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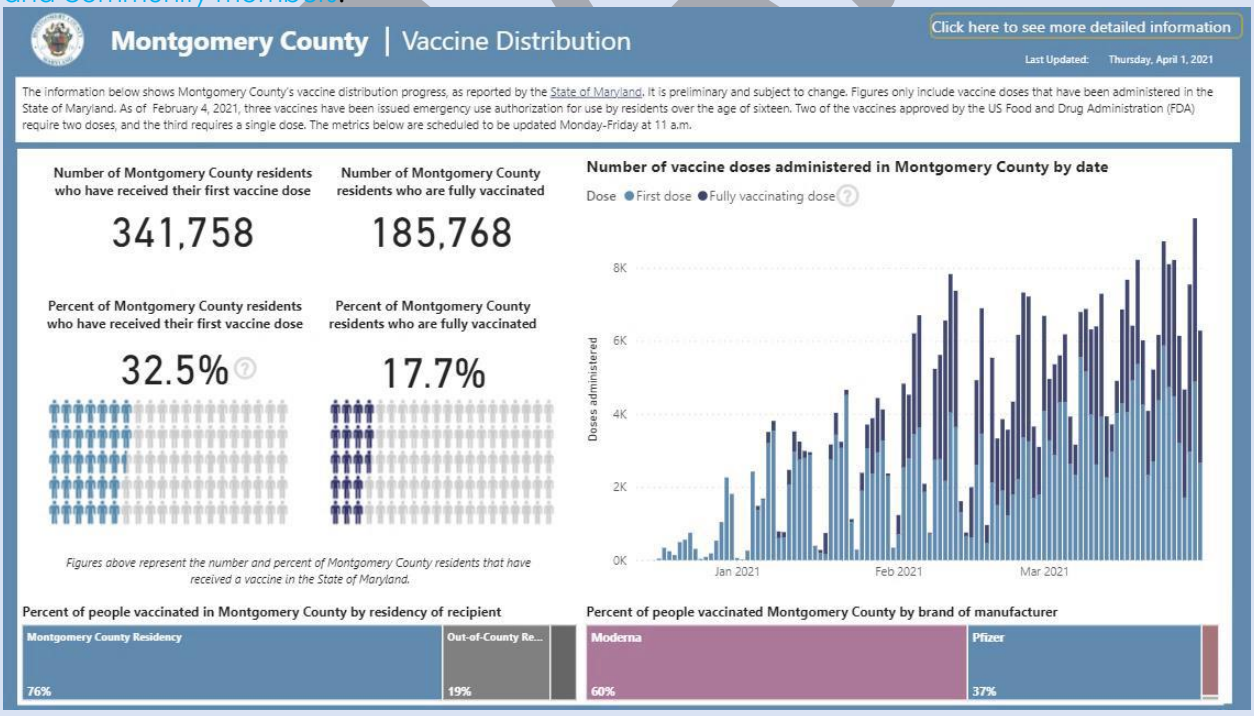
APPENDIX E: FRAMEWORK FOR EQUITABLE ACCESS TO COVID-19 VACCINATION

The purpose of this Equity Framework was to ensure increased access to vaccines, promote vaccination in communities hardest hit by Covid-19, and prevent a recurrence of the historic and continuing racial and ethnic healthcare disparities in Montgomery County. The content below was last updated on March 15, 2021 and subsequently released on April 1, 2021.

BACKGROUND

Local and national data over the past year, in concert with historic racial and ethnic health disparities, make it clear that those who are at greatest risk are once again in danger of being under served during this pandemic. We must be deliberate in our efforts to increase access to lifesaving vaccines in vulnerable communities, especially communities of color, that have been hardest hit. This Equity Framework will help to ensure that those at greatest risk are fully informed about their vaccine options and have increased opportunities to receive the vaccine.

The County has identified three core elements essential to ensure that no community is left behind as we combat this disease. This plan is a partnership between County Government, providers and the residents of Montgomery County. It is also the intent of the County to leverage elements of this plan in partnership with the State and other sources of vaccination available to County residents. The County does not have authority over Federal, or State sponsored vaccination efforts, or a voice in the priorities and timelines set by the State. Nonetheless, while this plan is primarily focused on how Montgomery County will promote access through County sponsored vaccination efforts, we will make every possible effort to partner and coordinate with the State and others to increase the availability and equitable distribution of vaccines to communities that have been most severely impacted by the pandemic. Ending this threat to the health and wellbeing of all County residents will depend on the collective efforts of our partners and community members.



The County's public vaccination dashboard provides real-time information on the progress of the County's vaccination efforts.

CORE ELEMENTS OF THE MONTGOMERY COUNTY EQUITY FRAMEWORK

I. TRACKING THE VIRUS TO INFORM VACCINE ALLOCATION.

A. IDENTIFICATION OF HOT SPOTS THROUGH THE USE OF DATA AND LOCAL KNOWLEDGE

✦ The County will continuously assess COVID-19 case and death rates by zip code, Census tract, and race/ethnicity. Using data collected across the life of the pandemic and through continuous monitoring of case rates, we have an understanding of where COVID-19 is most active in Montgomery County, and which communities have and continue to face the greatest risk. We identify zip codes where the case rates are highest, and census tract areas within those zip codes where the coronavirus has been most active over the last 90 days. This monitoring process, made possible through the continued high volumes of testing the contact tracing, serves as our radar and guide our efforts to inform the public and allocate vaccines.

✦ Recognizing that data may not identify areas where the virus may be active, we rely on our community partners who have local and regional knowledge and access to communities that should be prioritized for vaccination. Partners in this effort include Regional Service Centers and their advisory communities, Consolidated Services Hubs, Minority Health Initiatives, Housing Authorities, health care and social service providers, the faith community and others.

B. ALLOCATION OF VACCINE AVAILABILITY BY ZIP CODE, RACE/ETHNICITY, AND COMMUNITY

✦ As hotspot zip codes are identified, the County will allocate a higher percentage of its available vaccine for distribution within those zip codes.

✦ The data is also used to identify census tracts where the virus is most active within a zip code and the degree to which communities of color have faced disproportionately higher rates of infection.

✦ Allocation of doses and priority zip codes will be reviewed and updated monthly based on changes in the case rates.

✦ Within each zip code, doses of vaccine are made available by race and ethnicity based on the relative rates of infection.

✦ For each County-supported vaccination site, invitations to schedule an appointment are allocated based on the data for each 'hotspot' zip code.

04.01.21 UPDATE

- Vaccination rates in hotspot zip codes and Census tracts will be monitored to guide future prioritizations to halt and reverse growing gaps in vaccination rates across neighborhoods.
- As the County's capacity to coordinate 'localized', targeted vaccinations to residents of high-risk communities increases, we may adjust the process for pre-registration to simplify scheduling.

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II. ENSURING ACCESS TO VACCINATION.

A. LEVERAGING PREREGISTRATION AND PROVIDING SCHEDULING ACCESS

✦ Disparities in access to vaccination have been observed since the beginning of the State-wide vaccination effort and are the result of the 'digital divide,' language and literacy issues, mobility constraints and the location of vaccines, and a 'first-come-first serve' appointment process. Montgomery County created a pre-registration process for County residents as a means of ensuring the equitable distribution of opportunity to receive the vaccine. First-come-first-serve scheduling rewards those who have time to monitor when doses are available and easy access to a computer. Pre-registration, by contrast, is intended to ensure that residents do not have to chase a vaccine. Once pre-registered, individuals are assured that when vaccines are available, they will be contacted and given an opportunity to schedule an appointment. The County uses its allocation process as the basis for issuing appointment and scheduling from the pre-registration list.

✦ Recognizing that even with preregistration there will still be barriers, the County created a Call Center to assist persons with both preregistration and scheduling. The Call Center provides support for pre-registration in multiple languages with the assistance of interpreter services.

✦ To further assist community members facing obstacles to access, the County coordinates with Community Partners who have access to—and trusting relationships with—culturally and linguistically diverse communities to assist with preregistering and, as the time comes, scheduling an appointment. Our Community Partners include but are not limited to: Religious and faith community leaders, local multicultural organizations, regional teams coordinated by the Office of Community Partnerships and Regional Service Centers, the Minority Health Initiatives/Programs, and volunteer groups. Community partners also host preregistration activities tied to testing, faith-based events, and food distributions.

B. INCREASING THE AVAILABILITY OF VACCINATION OPPORTUNITIES

✦ County efforts include large-scale vaccination sites as well as targeted vaccination sites located in highly impacted regions of the county to increase availability for those who have work and transportation limitations. In addition, our "Last-Mile' efforts offer transportation to those who cannot drive to a vaccination site.

✦ In addition to moving our vaccination efforts into highly impacted regions such as East County and Germantown, Aging and Disability Services in Health and Human Services, together with the senior living and developmental disability communities, has identified independent living sites and low-cost housing communities at which to directly administer vaccinations to our older residents.

✦ Ensuring equity also requires a special focus on serving residents who are homebound. To reach this population, we are contracting with providers who will administer home-based vaccinations to those persons who have mobility and health issues that make travel difficult or impossible.

✦ We are working with our Minority Health Initiatives and Programs and other trusted and culturally experienced providers to expand localized opportunities for

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vaccination in hard hit communities while also decreasing concerns about being vaccinated. As more vaccine becomes available, we will increasingly rely on this expanded, targeted capacity for vaccination.

C. COORDINATION AND PARTNERSHIP

✦ We will continue our efforts to partner with local hospitals, and pharmacies where possible, sharing doses and prioritization lists to ensure that we are working collectively to vaccinate individuals who live in hotspots.

✦ The DHHS Public Health leadership has been working with the State throughout this process to increase the availability of doses to local health office sites, hospitals, and State vaccination sites. Our shared objective is to expand the availability of vaccination opportunities within Montgomery County.

✦ We continue to advocate for the development and implementation of an equity framework by the State of Maryland as it expands its vaccination efforts. We are pleased to see their progress in announcing an Equity plan and will continue to advocate for a closer, better coordinated process. To facilitate this, we have added a County Liaison to the State equity Taskforce/Workgroup and have shared our initial Equity Framework and process.

04.01 UPDATE

- The State has announced and is moving ahead with plans to open a Mass Vaccination Site in Germantown in Partnership with DHHS, Holy Cross Hospital, Montgomery College, and the County's Office of Emergency Management and Homeland Security. The site is scheduled to officially open on April 8th, 2021.

III. PROMOTING PUBLIC EDUCATION AND AWARENESS.

A. PUBLIC AWARENESS CAMPAIGN

✦ Making vaccines available through the County's prioritization process and equity framework is an essential first step, but we must also work to make residents aware of the opportunity and encourage them to take advantage when it comes. Our public information campaign is a joint effort coordinated between the County Executive and County Council Public information Offices (PIO), DHHS PIO, and the Office of Community Partnerships. We are also aligning our efforts with the State's "Go-Vax" campaign, drawing on their materials and resources.

✦ Our campaign is focused on providing information on the facts regarding the virus and the vaccines, as well as information on how to obtain a vaccine, while addressing hesitancy among members of the community who are undecided.

✦ To ensure cultural competency, we have engaged members of our Community Partners teams to develop and 'own' linguistically and culturally appropriate messages to be delivered through a variety of channels including social media, television and radio, print media, and public forums.

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PRIORITIZATION NOTES AND UPDATES AS OF MARCH 15, 2021

✦ 50% of available doses will be allocated to priority zip codes and hotspot communities within those zip codes for the general population (75+, 65+, 16-64 with medical conditions, general population). 50% will be allocated to all other tiers.

✦ Within hotspot zip codes, we will increase the allocation of doses based on based disparities in case rates based on race and ethnicity. The Rate will be 1.5x the relative case rate.

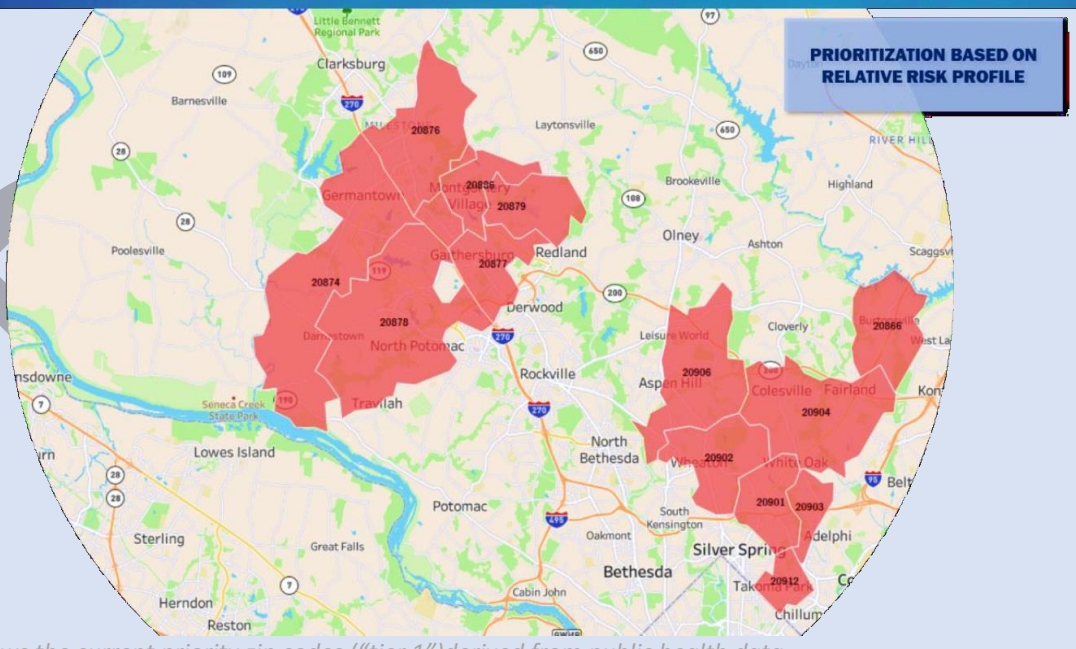
✦ When the hotspot zip codes are exhausted for Black and Latino communities, invitations will expand to county-wide selection for those highly impacted populations.

✦ When those lists are exhausted for the current age range, invitations will be offered to communities in the next Phase - first from hotspots, then county-wide.

04.01 UPDATE

- The equity framework, after progressing through subsequent phases, will follow the States timeline, resulting in eligibility for vaccination in all groups by the end of April. The County will continue to monitor and prioritize its dose distribution in zip codes and census tracts as described above.

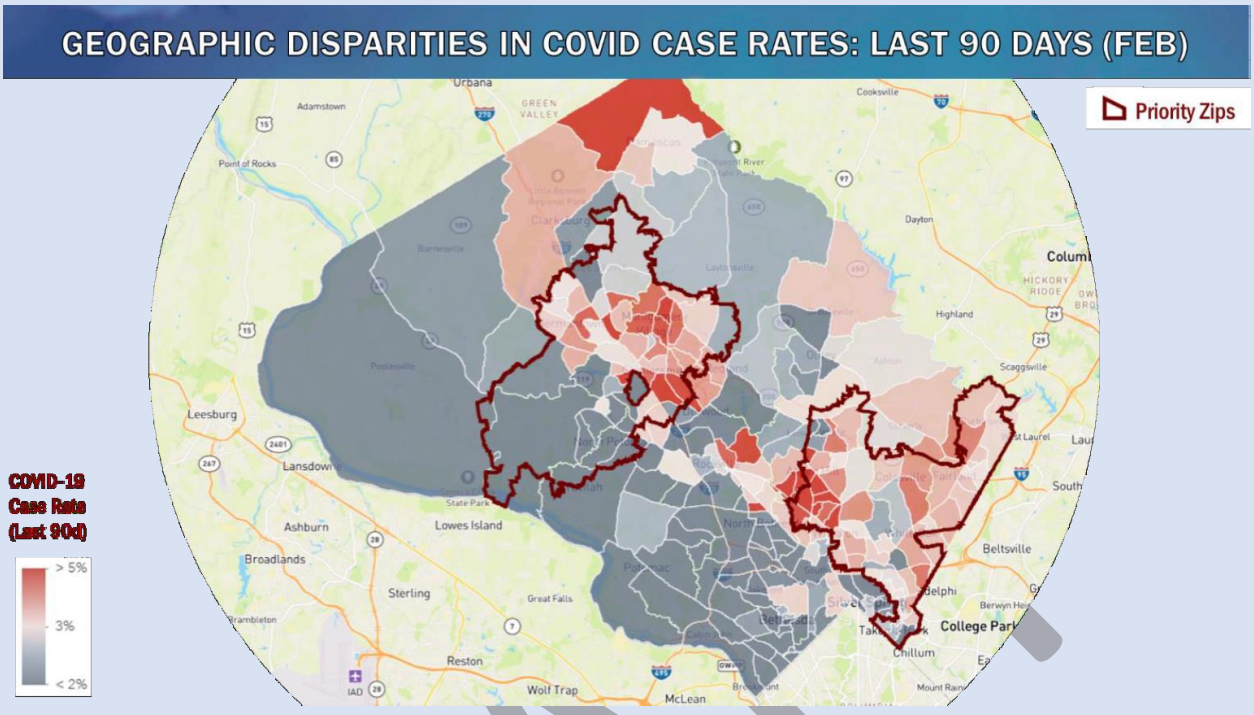
EQUITY FRAMEWORK—PRIORITY TIER-1 ZIP CODES



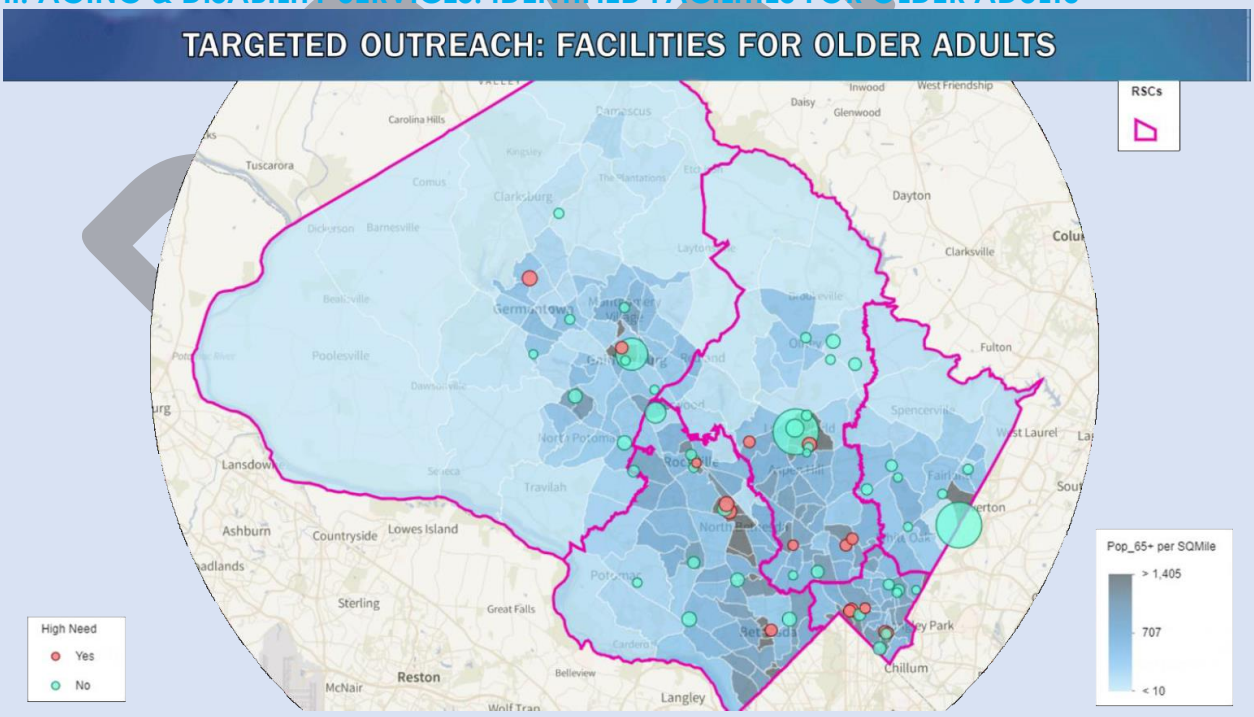
This map shows the current priority zip codes ("tier 1")derived from public health data

ADDENDUM: SUPPORTING DATA & ANALYTICS

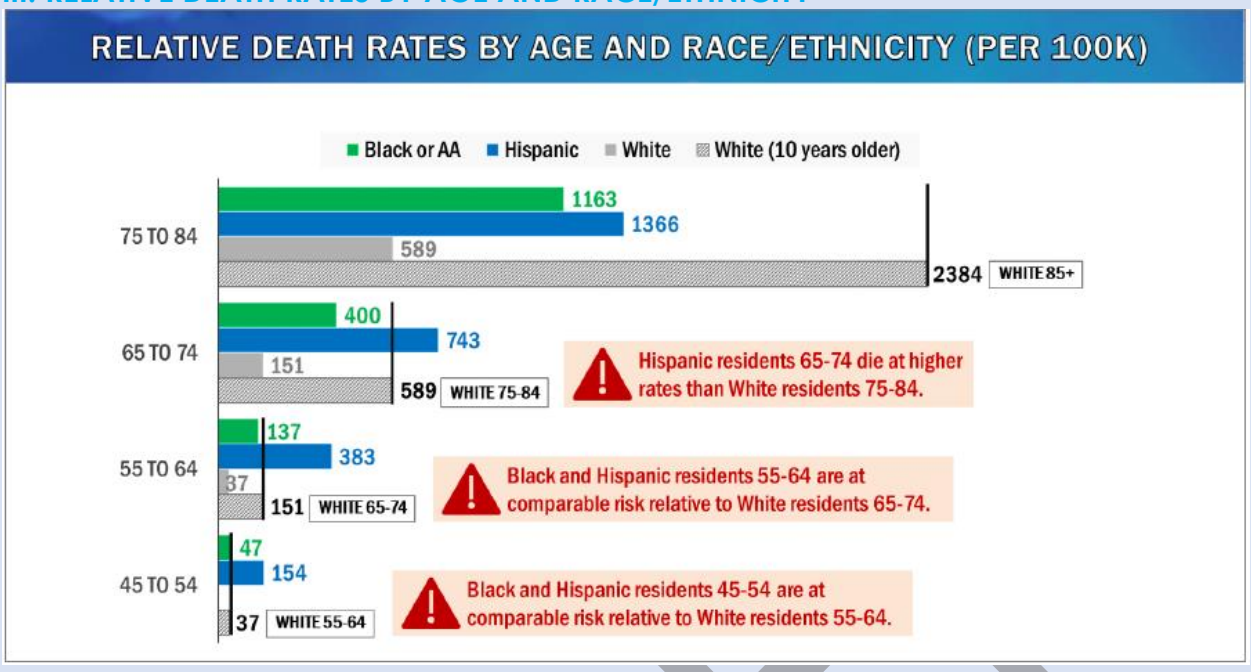
I. CENSUS TRACT HOTSPOTS



II. AGING & DISABILITY SERVICES: IDENTIFIED FACILITIES FOR OLDER ADULTS



III. RELATIVE DEATH RATES BY AGE AND RACE/ETHNICITY



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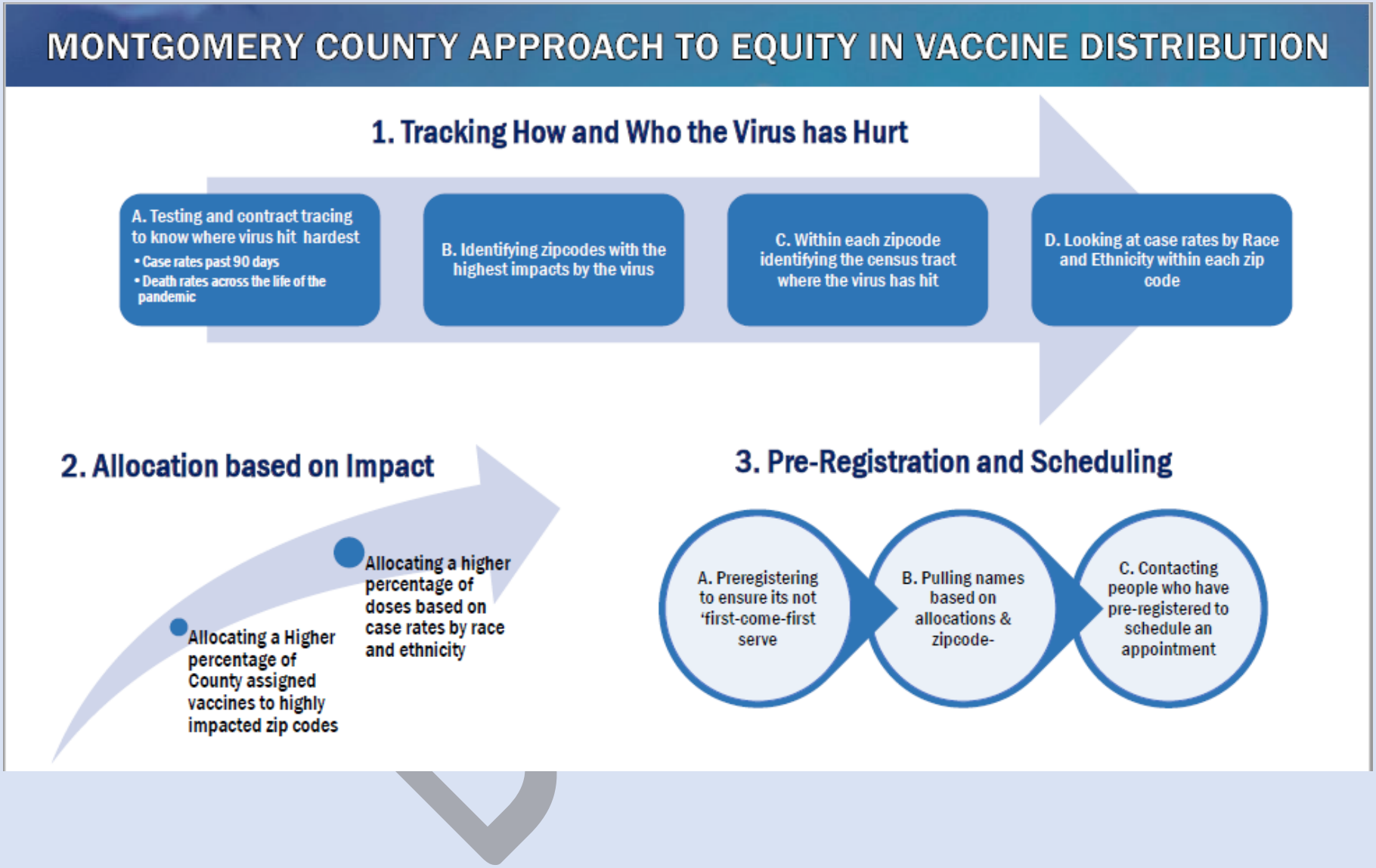
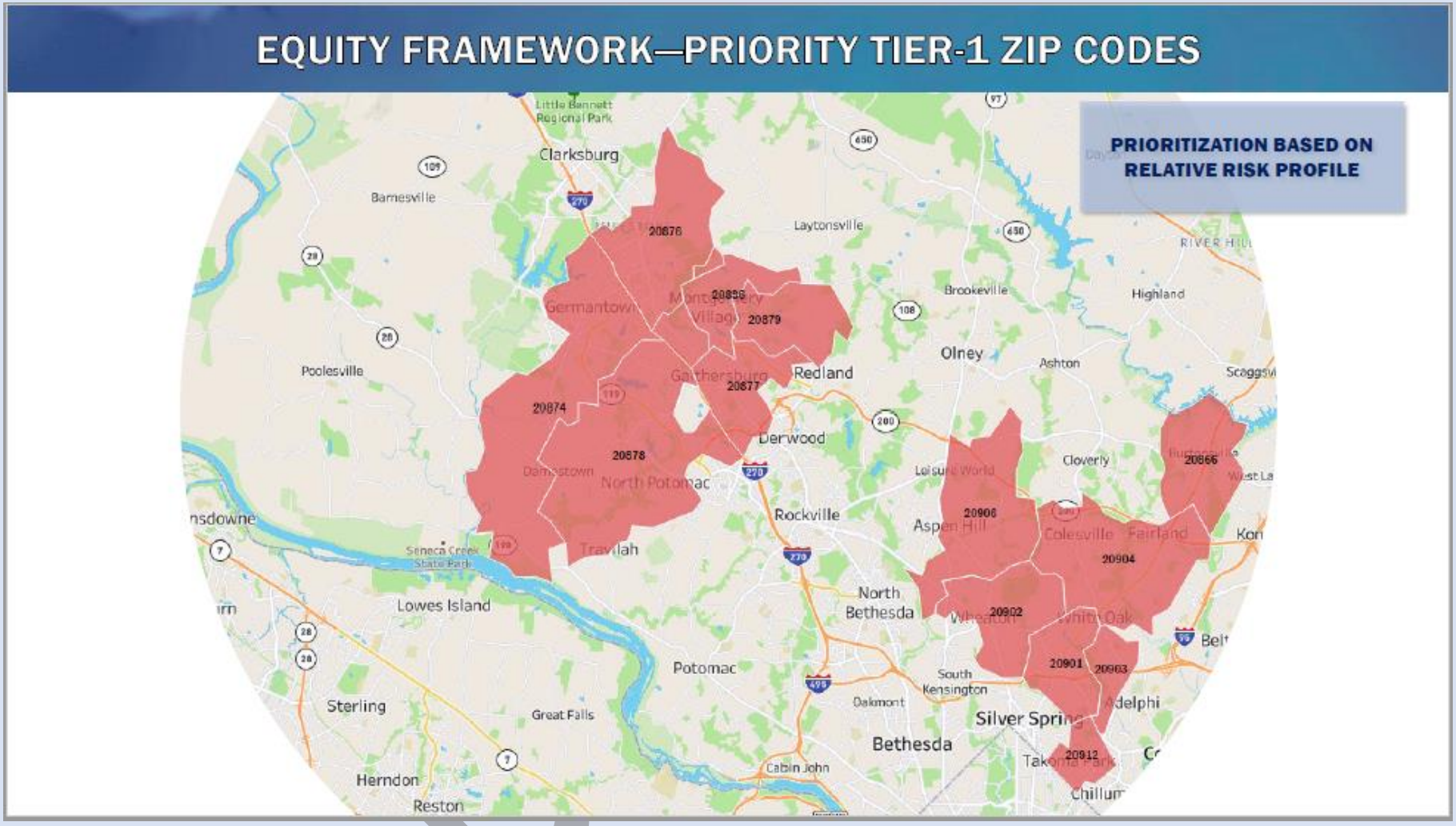
COVID-19 VACCINATIONS IN MONTGOMERY COUNTY

TRACKING THE EQUITY FRAMEWORK IMPLEMENTATION

Note: For the most up-to-date information, please see: montgomerycountymd.gov/covid19/vaccine/#dashboard


MONTGOMERY COUNTY APPROACH TO EQUITY IN VACCINE DISTRIBUTION
1. Tracking How and Who the Virus has Hurt
A. Testing and contract tracing to know where virus hit hardest
• Case rates past 90 days
• Death rates across the life of the pandemic
B. Identifying zipcodes with the highest impacts by the virus
C. Within each zipcode identifying the census tract where the virus has hit
D. Looking at case rates by Race and Ethnicity within each zip code
2. Allocation based on Impact
Allocating a Higher percentage of County assigned vaccines to highly impacted zip codes
Allocating a higher percentage of doses based on case rates by race and ethnicity
3. Pre-Registration and Scheduling
A. Preregistering to ensure its not 'first-come-first serve
B. Pulling names based on allocations & zipcode-
C. Contacting people who have pre-registered to schedule an appointment


EQUITY FRAMEWORK—PRIORITY TIER-1 ZIP CODES
PRIORITIZATION BASED ON RELATIVE RISK PROFILE
Clarksburg
Barnesville
Laytonsville
Germantown
Montgomery Village
Brookeville
Highland
Olney
Ashton
Poolesville
Gaithersburg
Redland
Derwood
Cloverly
Leisure World
North Potomac
Rockville
Aspen Hill
Colesville
Fairland
Travilah
Seneca Creek State Park
Lowes Island
North Bethesda
Wheaton
White Oak
Potomac
South Kensington
Oakmont
Silver Spring
Adelphi
Bethesda
Takoma Park
Cabin John
Sterling
Great Falls
Herndon
Reston
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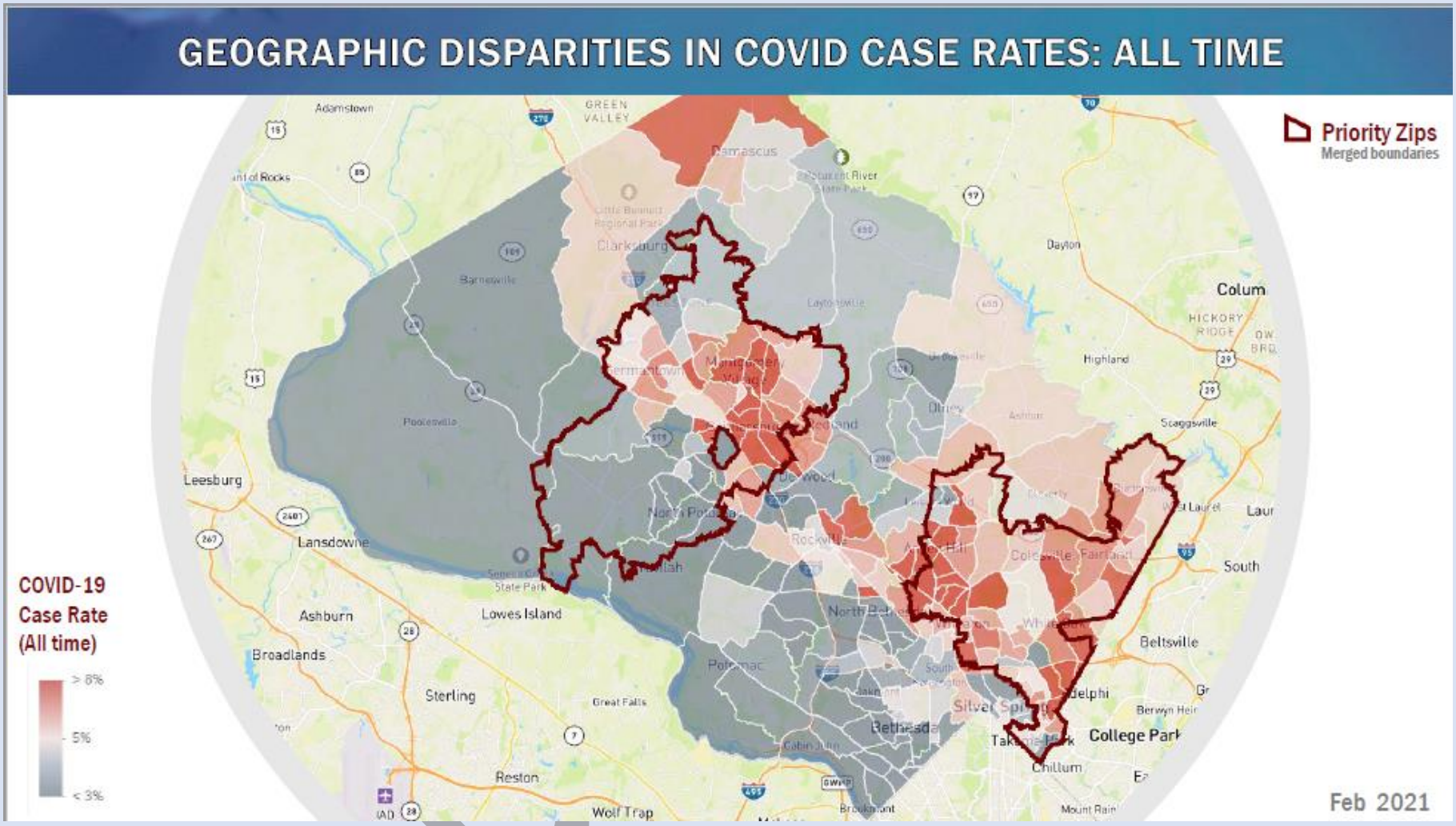
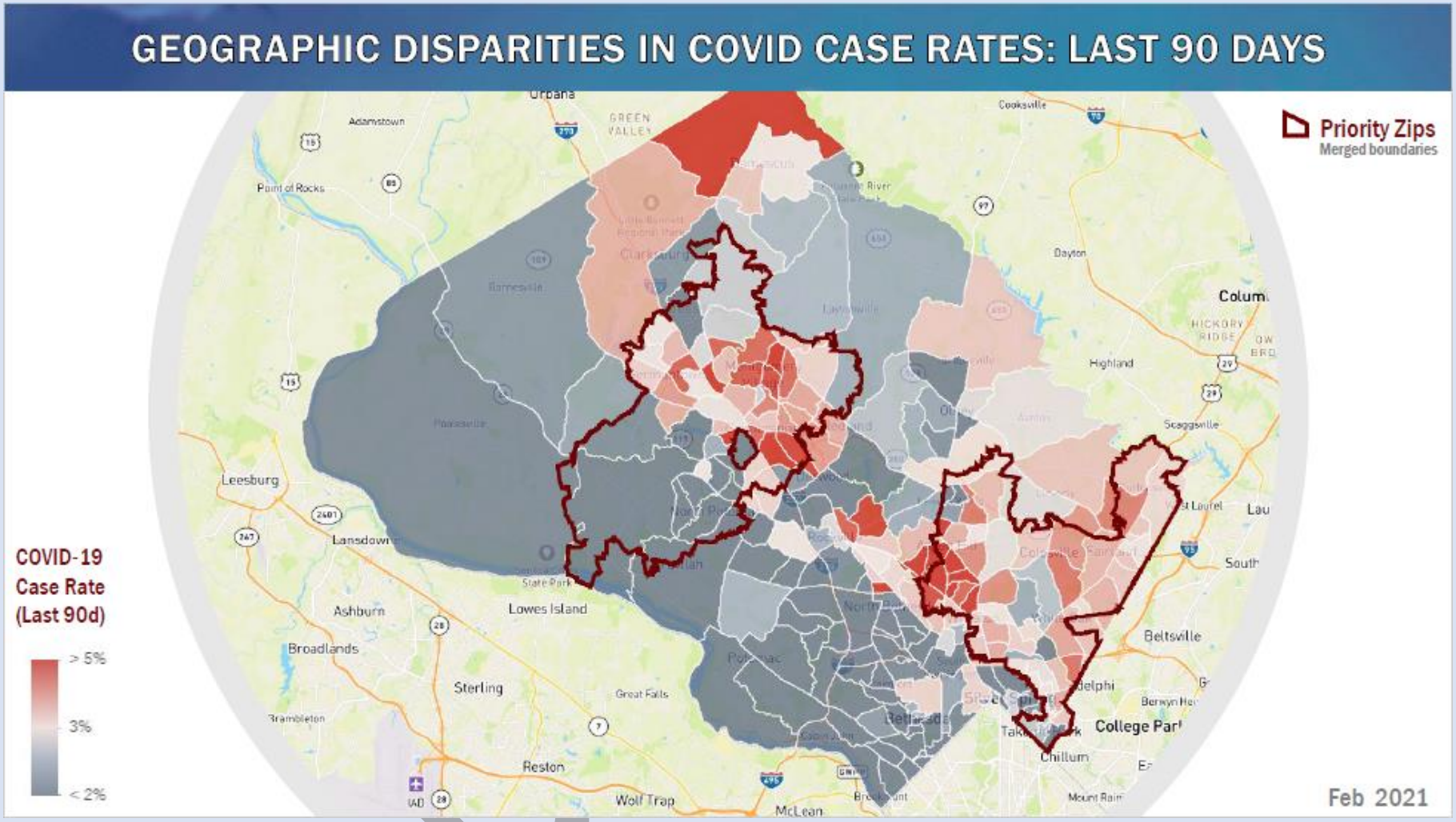
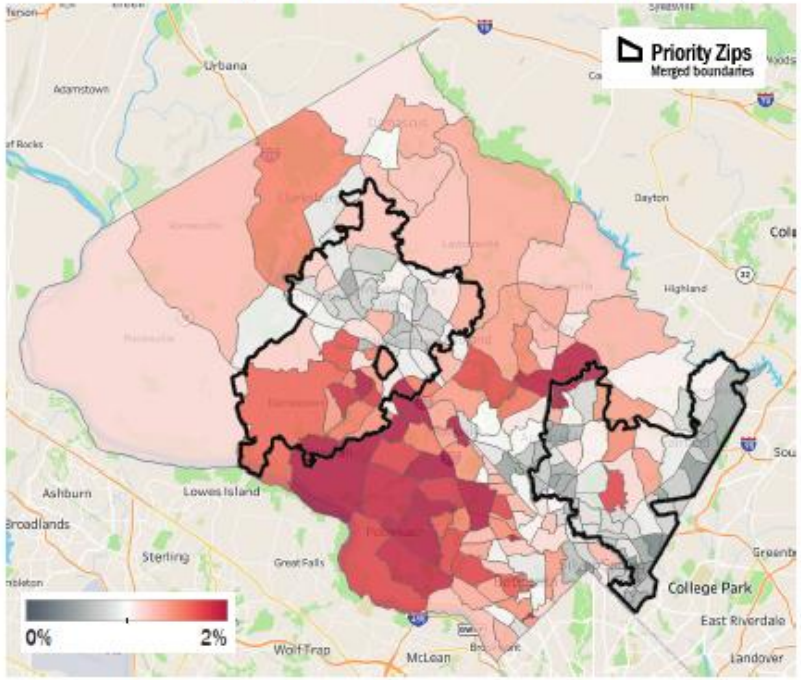

GEOGRAPHIC DISPARITIES IN COVID CASE RATES: ALL TIME
Priority Zips
Merged boundaries
COVID-19
Case Rate
(All time)
> 8%
5%
< 3%
Feb 2021
Adamstown
Damascus
Clarksburg
Barnesville
Dayton
Colum
Highland
Poolesville
Leesburg
Lansdowne
Ashburn
Lowes Island
Broadlands
Sterling
Great Falls
Reston
Wolf Trap
Rockville
Bethesda
Silver Spring
Takoma Park
College Park
Beltsville
Chillum
South
Laur
Staggsville


GEOGRAPHIC DISPARITIES IN COVID CASE RATES: LAST 90 DAYS
Priority Zips
Merged boundaries
COVID-19
Case Rate
(Last 90d)
> 5%
3%
< 2%
Feb 2021
Urbana
Adamstown
Point of Rocks
Cooksville
Dayton
Highland
Scaggsville
Leesburg
Lansdowne
Ashburn
Lowes Island
Broadlands
Sterling
Great Falls
Reston
Wolf Trap
McLean
Beltsville
College Park
Chillum

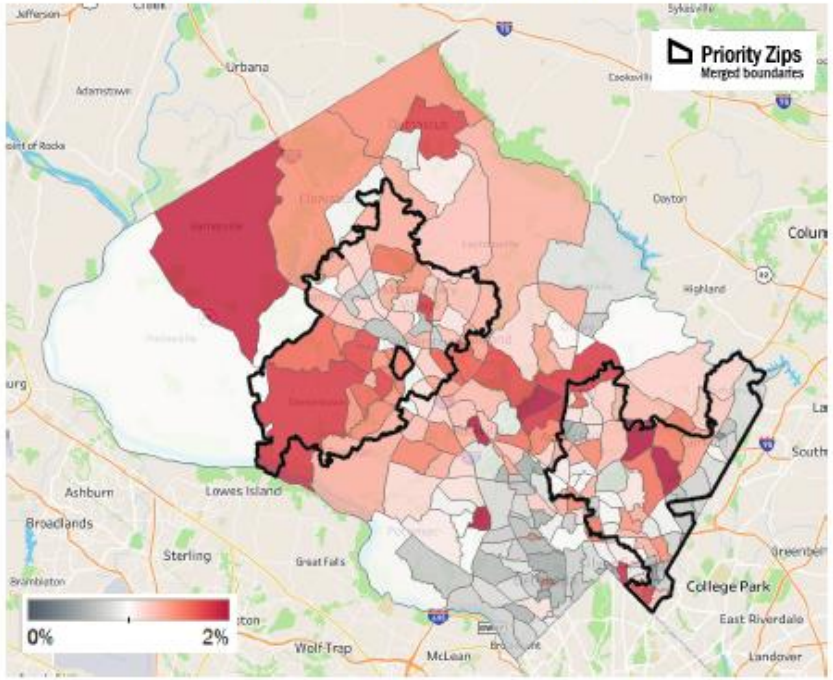
COUNTY-ADMIN VACCINATIONS: BY TRACT OVER TIME – ALL AGES

BEFORE IMPLEMENTING FRAMEWORK (< 2/11)



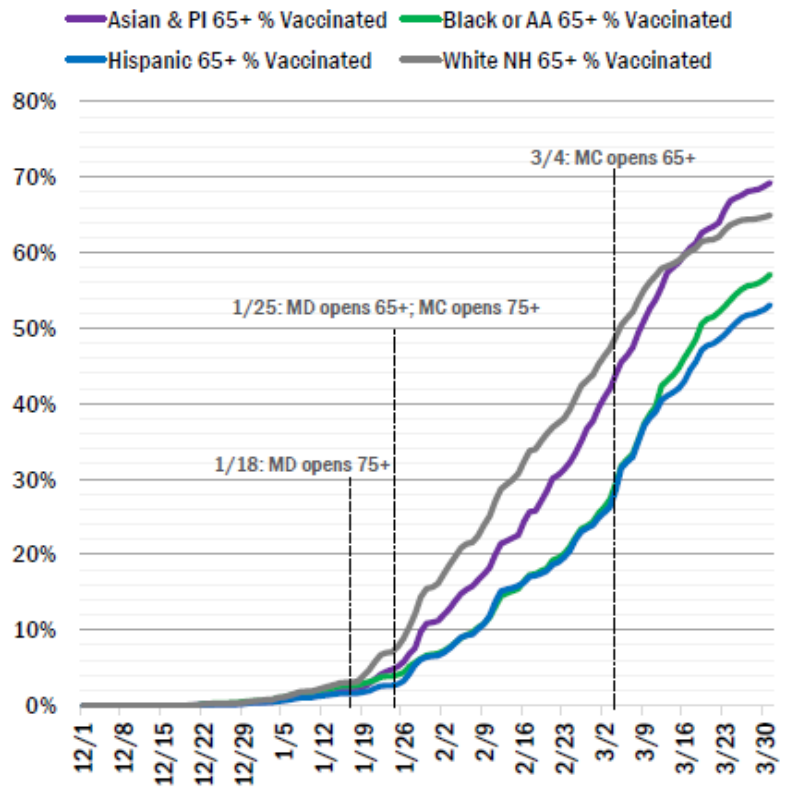
The color coding denotes the share of vaccines going to residents in each Census Tract over the specified time frame.

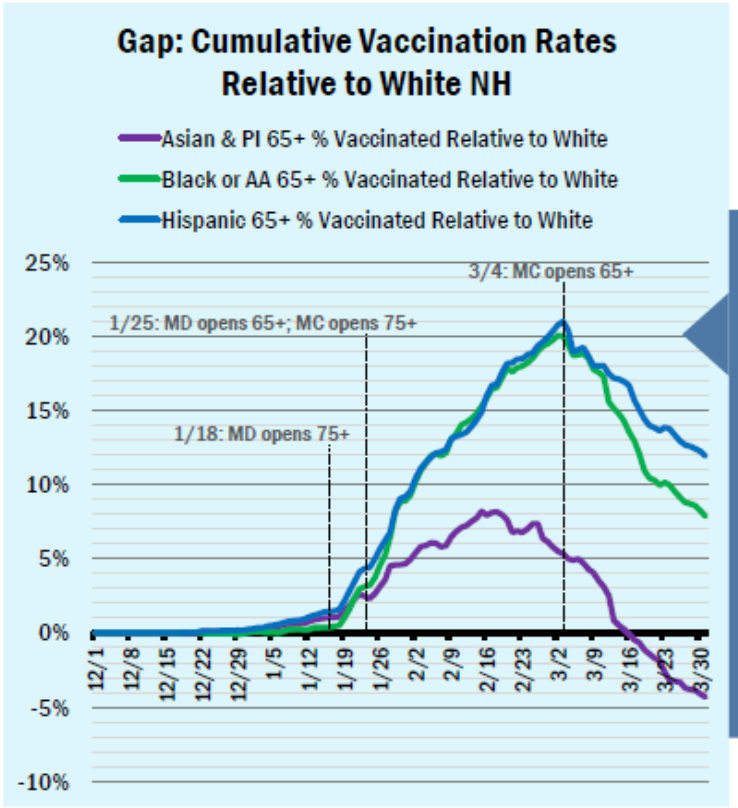
AFTER IMPLEMENTING FRAMEWORK (>= 2/11)



Note the shift to high-impact areas after the implementation of the Equity framework.

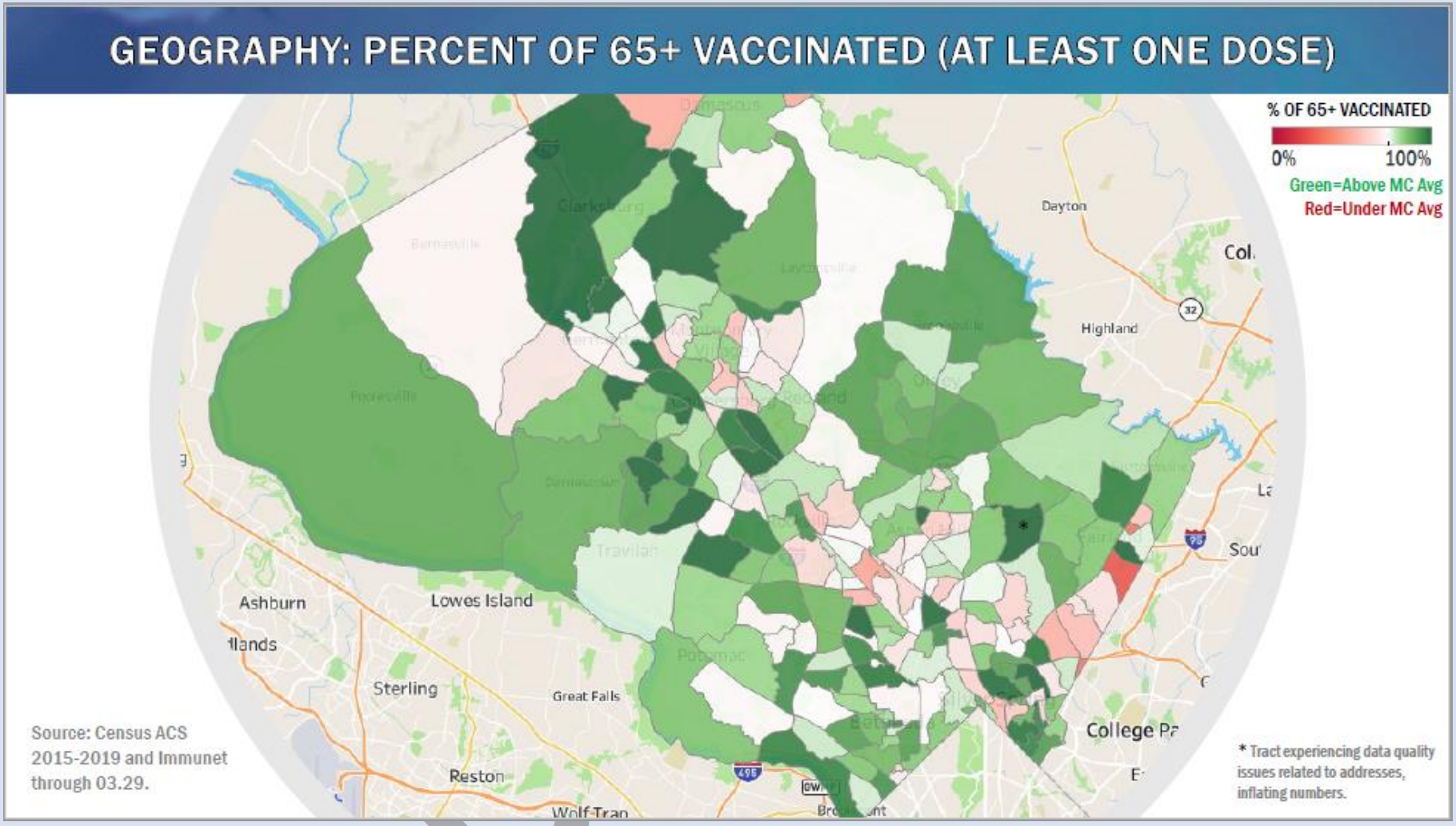
CUMULATIVE VACCINATION RATE OVER TIME: 65+ BY RACE/ETH

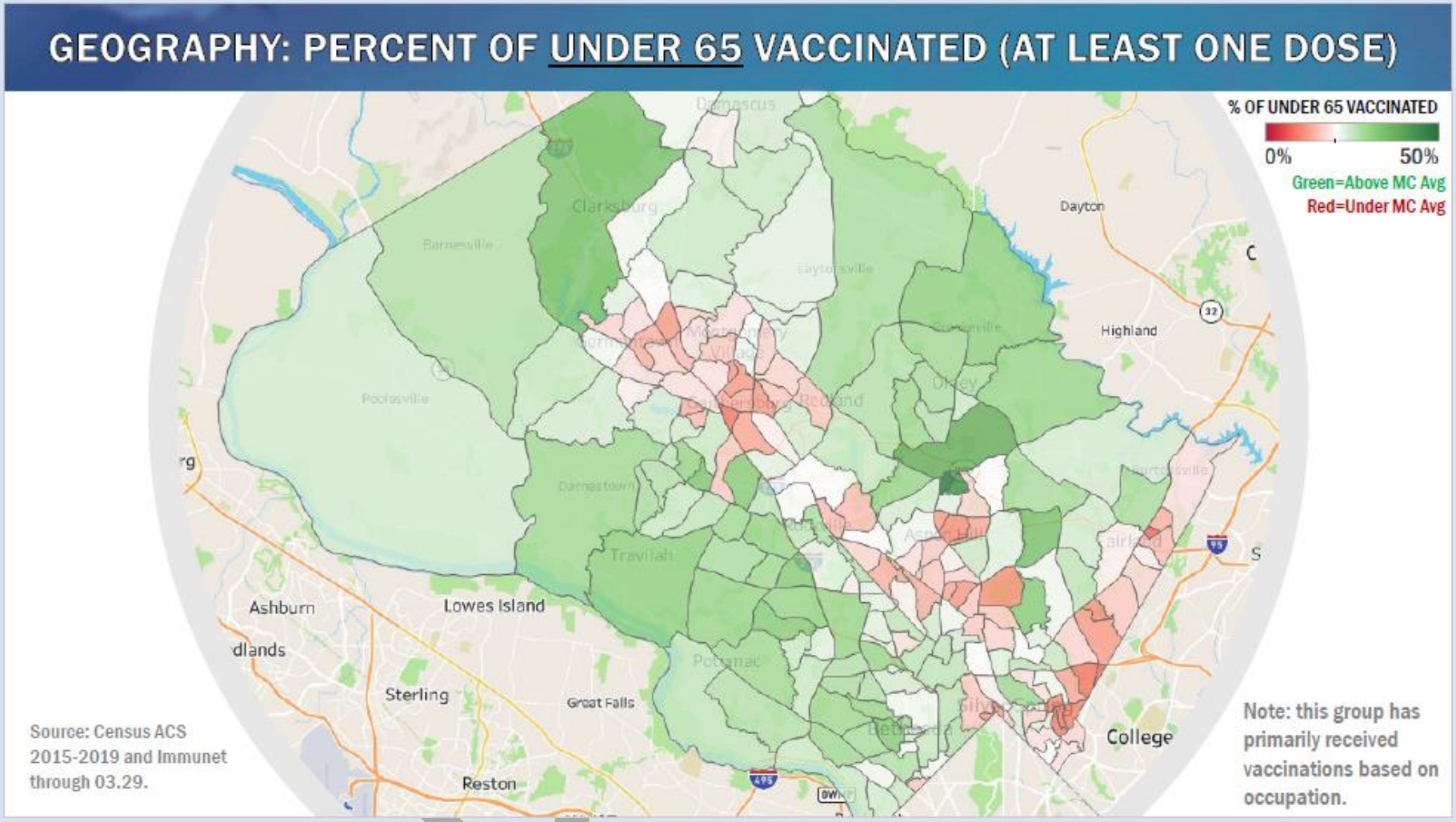


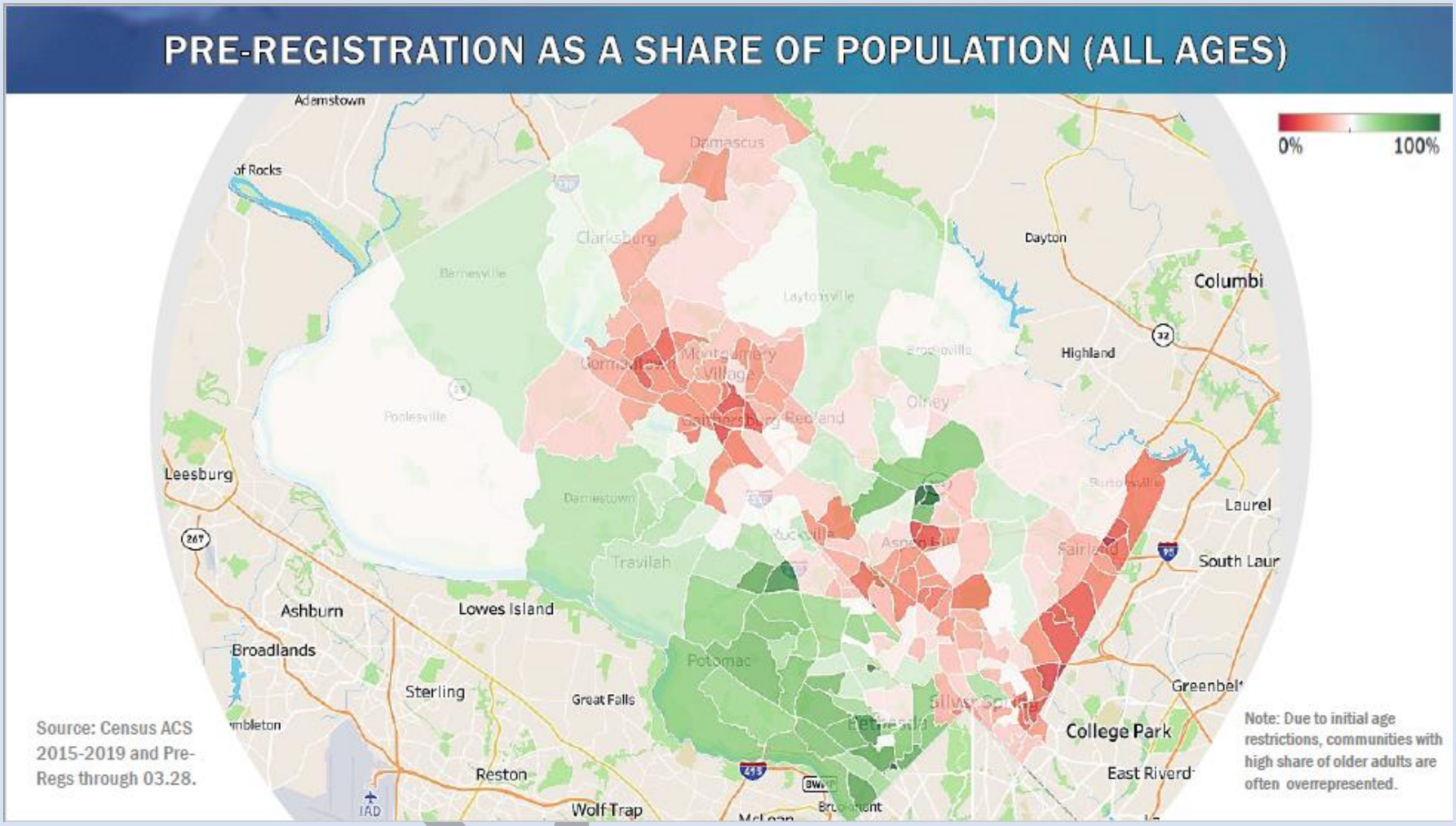


The vaccination rate gap for Black and Hispanic residents peaked at 20% relative to White NH residents. The gap for Black residents has been reduced to 8% since the County government opened to 65+, but has closed more slowly for Hispanic residents.

Source: IMMUNET. Note 1: Last day may not include all records due to slight delay between vaccine administration and reporting.
Note 2: Since 10-15% of records do not include complete race/ethnicity data, the actual vaccination rate by race/ethnicity is likely to be higher for each group than reported above.


GEOGRAPHY: PERCENT OF 65+ VACCINATED (AT LEAST ONE DOSE)
% OF 65+ VACCINATED
0%
100%
Green=Above MC Avg
Red=Under MC Avg
Dayton
Highland
Ashburn
Lowes Island
Sterling
Great Falls
Reston
Wolf Trap
College Pa
Source: Census ACS 2015-2019 and Immunet through 03.29.
* Tract experiencing data quality issues related to addresses, inflating numbers.

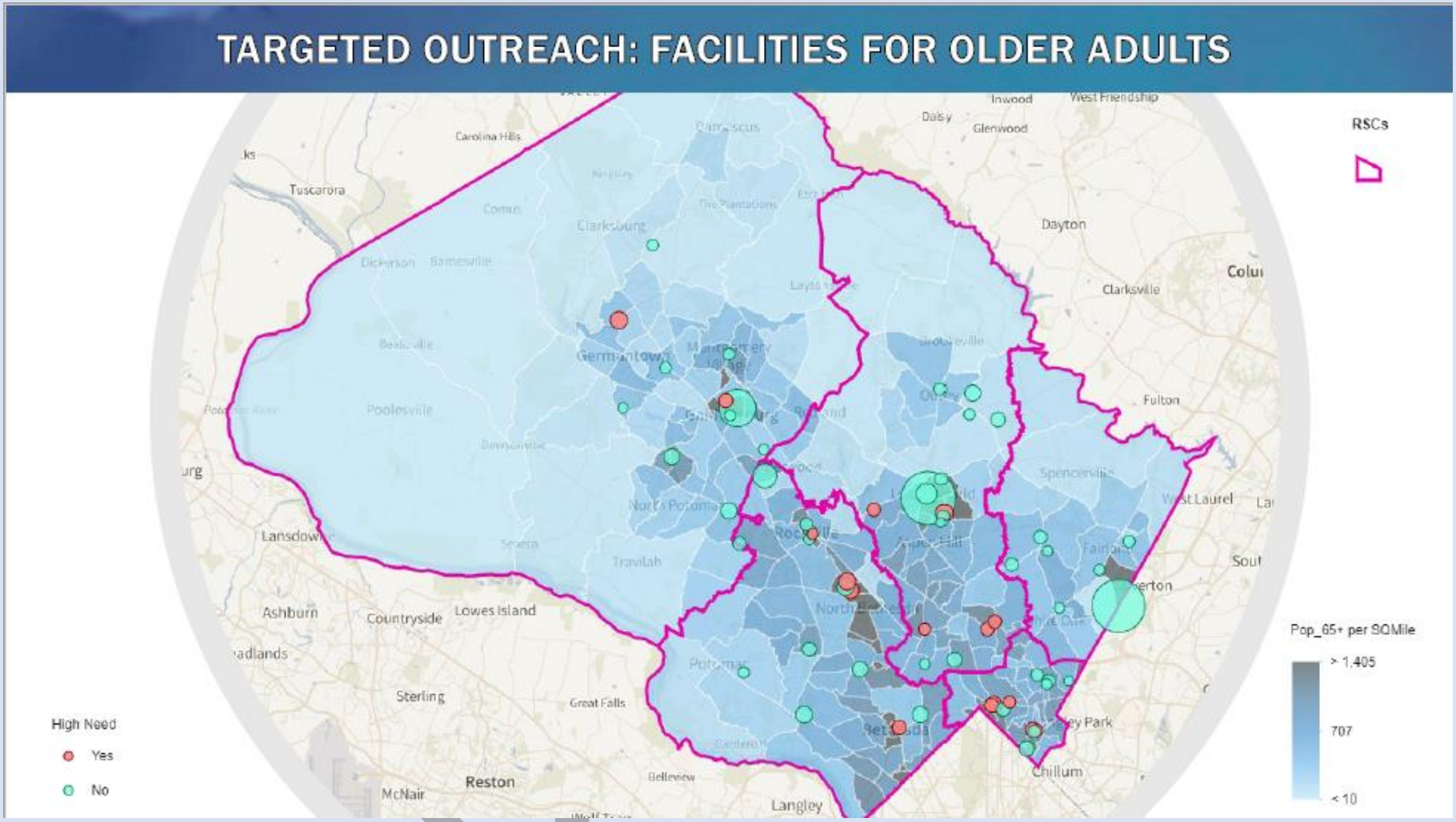

GEOGRAPHY: PERCENT OF UNDER 65 VACCINATED (AT LEAST ONE DOSE)
% OF UNDER 65 VACCINATED
0%
50%
Green=Above MC Avg
Red=Under MC Avg
Clarksburg
Barnesville
Dayton
Highland
Poolesville
Darnestown
Travilah
Ashburn
Lowes Island
Sterling
Great Falls
Potomac
Reston
College
Source: Census ACS 2015-2019 and Immunet through 03.29.
Note: this group has primarily received vaccinations based on occupation.


PRE-REGISTRATION AS A SHARE OF POPULATION (ALL AGES)
0%
100%
Adamstown
Damascus
Clarksburg
Dayton
Columbi
Highland
Leesburg
Ashburn
Lowes Island
Broadlands
Sterling
Great Falls
Reston
Wolf Trap
Potomac
Laurel
South Laur
Greenbel
College Park
East Riverd
Source: Census ACS 2015-2019 and Pre-Regs through 03.28.
Note: Due to initial age restrictions, communities with high share of older adults are often overrepresented.

TIER 1 ZIP CODES: TABLE

Zipcode	City	Tier	Analysis	Black NH Cases	Hispanic Cases	CVI Black	CVI Hispanic
20866	Burtonsville	1	High Case or death rates	17.53	**26.19**	1.09	1.63
20874	Germantown	1	High Case or death rates	**24.08**	30.01	2.09	2.61
20876	Germantown	1	High Case or death rates	17.66	29.74	1.30	2.19
20877	Gaithersburg	1	Highest Case Rates Past 90 days	**28.09**	37.71	1.51	2.03
20878	Gaithersburg	1	Highest Case Rates Past 90 days	18.74	39.15	1.64	3.42
20879	Gaithersburg	1	Highest Case Rates Past 90 days	20.51	**43.74**	1.51	3.22
20886	Mont Village	1	Highest Case Rates Past 90 days	22.24	29.97	1.37	1.84
20901	Silver Spring	1	Highest Case Rates Past 90 days	16.27	**32.59**	1.42	2.85
20902	Silver Spring	1	Highest Case Rates Past 90 days	21.14	33.44	1.69	2.68
20903	Silver Spring	1	Highest Case Rates Past 90 days	13.84	23.51	1.20	2.04
20904	Silver Spring	1	Highest Case Rates Past 90 days	**25.18**	**46.52**	1.55	2.86
20906	Silver Spring	1	Highest Case Rates Past 90 days	18.81	**43.22**	1.25	2.86
20912	Takoma Park	1	High Case or death rates	19.8	32.93	2.48	4.12

Purple = Top 10


TARGETED OUTREACH: FACILITIES FOR OLDER ADULTS
RSCs
High Need
Yes
No
Pop_65+ per SQMile
> 1,405
707
< 10
Inwood
West Friendship
Daisy
Glenwood
Carolina Hills
Tuscarora
Clarksburg
Dayton
Clarksville
Germantown
Poolesville
Fulton
Lansdowne
Ashburn
Countryside
Lowes Island
Sterling
Great Falls
Reston
McNair
Langley
Chillum
West Laurel