



# The Hilltop Institute

## UMBC



Evaluation of the  
Maryland Medicaid  
HealthChoice Program:  
CY 2017 to CY 2021

report



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# Evaluation of the Maryland Medicaid HealthChoice Program: CY 2017 to CY 2021

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## List of Abbreviations

ACA	Affordable Care Act
ACCU	administrative care coordination unit
ACG	Adjusted Clinical Groups
ACIP	Advisory Committee on Immunization Practices
ACIS	Assistance in Community Integration Services
ACS	American Community Survey
AHRQ	U.S. Agency for Healthcare Research and Quality, HHS
AMR	asthma medication ratio
ART	antiretroviral therapy
ASAM	American Society of Addiction Medicine
ASO	administrative services organization
BHA	Behavioral Health Administration
CD4	A test of the quantity of immune system cells used to diagnose and monitor HIV disease
CDC	Centers for Disease Control and Prevention
CHIP	Children’s Health Insurance Program
CI	confidence interval
CLR	Childhood Lead Registry
CMC	Corrective Managed Care
CMMI	Center for Medicare and Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
CoCM	Collaborative Care Model
COMAR	Code of Maryland Regulations
COPD	chronic obstructive pulmonary disease
CPS	Child Protective Services
CPT	current procedural terminology
CRISP	Chesapeake Regional Information System for Our Patients
CY	calendar year
DPP	Diabetes Prevention Program
ED	emergency department

EID	Employed Individuals with Disabilities
EPSDT	Early and Periodic Screening, Diagnostic, and Treatment
EQRO	external quality review organization
EID	Employed Individuals with Disabilities
EVS	electronic verification system
ET3	Emergency Triage, Treat, and Transport
EVS	Maryland's electronic verification system
F&C	Families and Children
FFCRA	Families First Coronavirus Response Act
FFS	fee-for-service
FOBT	fecal occult blood test
FPL	federal poverty level
FQHC	federally qualified health center
FROG	Family Resource and Opportunities for Growth
FUA	Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence
FUM	Follow-Up After Emergency Department Visit for Mental Illness
FY	fiscal year
GED	General Education Diploma
HbA1c	hemoglobin A1c screening
HCBS	home and community-based services
HEDIS®	Healthcare Effectiveness Data and Information Set®
HFA	Healthy Families America
HHS	U.S. Department of Health and Human Services
HPV	human papillomavirus
HR	Hazard ratio
HSCRC	Health Services Cost Review Commission
HSI	Health Services Initiatives
HVS	Home Visiting Services
ICS	Increased Community Services
IMD	institutions for mental disease

IOP	intensive outpatient
IUD/IUS	intrauterine device or system
JHU	Johns Hopkins University
LAA	local access area
LE	lead entity
LEPAC	Lead Exposure and Prevention Advisory Committee
LOS	length of stay
MAGI	modified adjusted gross income
MARR	Maryland Average Reportable Rate
MAT	medication-assisted treatment
MCH	Maternal and Child Health
MCHP	Maryland Children’s Health Program
MCO	managed care organization
MDH	Maryland Department of Health
MFR	Managing for Results
MHBE	Maryland Health Benefit Exchange
MHD	mental health disorder
MMIS2	Maryland Medicaid Management Information System
MOE	Medicaid maintenance of eligibility
MOM	Maternal Opioid Misuse
MOU	memoranda of understanding
MPC	Maryland Physicians Care
MDE	Maryland Department of the Environment
MY	measurement year
NCI	National Cancer Institute
NCQA	National Committee for Quality Assurance
NF	Nursing Facility
NFP	Nurse Family Partnership
NPI	National Provider Identifier
NQF	National Quality Forum
NYU	New York University



OOCC	Opioid Operational Command Center
OPA	Office of Population Affairs
OR	odds ratio
ODD	opioid use disorder
Pap	Papanicolaou test for cervical cancer
PAC	Primary Adult Care program
PCP	primary care provider
PHE	public health emergency
PHIP	Population Health Incentive Program
PHQ-9	Patient Health Questionnaire-9
PMPM	per member per month
POS	plan of service
PPC	prenatal and postpartum care measure
PQI	Prevention Quality Indicator
PrEP	pre-exposure prophylaxis
QHP	qualified health plan
REM	Rare and Expensive Case Management
SAMHSA	Substance Abuse and Mental Health Services Administration
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SED	serious emotional disturbance
SIHIS	Statewide Integrated Health Improvement Strategy
SMI	serious mental illness
SPA	state plan amendment
SSI	Supplemental Security Income
SUD	substance use disorder
TANF	Temporary Assistance for Needy Families
VBP	Value-Based Purchasing
WIC	Women, Infants, and Children

# Evaluation of the Maryland Medicaid HealthChoice Program: CY 2017 to CY 2021

## Executive Summary

In 1997, Maryland implemented HealthChoice—a statewide mandatory Medicaid and Children’s Health Insurance Program (CHIP) managed care program—under authority of a waiver through §1115 of the Social Security Act. The provisions of the Affordable Care Act (ACA) that went into effect in 2014 marked another milestone by extending quality coverage to many more Marylanders with low income. Over 20 years after its launch, HealthChoice covers close to 90% of the state’s Medicaid and Maryland Children’s Health Program (MCHP) populations.<sup>1</sup>

Since the inception of HealthChoice, the Maryland Department of Health (MDH) has requested and received seven §1115 waiver renewals. The Hilltop Institute, on behalf of MDH, evaluates the program annually; this evaluation covers the period from CY 2017 through CY 2021.

The goal of the HealthChoice §1115 demonstration is to improve the health status of Marylanders with low income by:

- Improving access to health care for the Medicaid population, including special populations
- Improving the quality of health services delivered
- Providing patient-focused, comprehensive, and coordinated care through the provision of a single medical home
- Emphasizing health promotion and disease prevention
- Expanding coverage to additional low-income Marylanders with resources generated through managed care efficiencies

HealthChoice is a mature managed care program that covered nearly one in four Marylanders during CY 2021. Participants choose one of the nine participating managed care organizations (MCOs), along with a primary care provider (PCP) from their MCO’s network, to oversee their medical care.

HealthChoice and fee-for-service (FFS) enrollees receive the same comprehensive benefits. This evaluation provides evidence that HealthChoice has provided oversight to the standards of achieving its stated goals of improving coverage and access to care, providing a medical home to participants, improving the quality of care, and providing comprehensive, prevention-oriented health care.

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<sup>1</sup> Maryland’s Children’s Health Insurance Program is known as MCHP.

HealthChoice has demonstrated mixed results in providing targeted preventive screenings and ensuring that participants receive care at the appropriate level during the evaluation period. Recent successes include a decrease in the rate of children aged 0 to 6 years with an elevated blood lead level and a decline in asthma-related ED visits. In CY 2021, 60.0% of children received dental services, which is greater than the national HEDIS® mean. During the evaluation period colorectal cancer screening remained stable, while both breast and cervical cancer screening rates decreased, which corresponds with the national rates (CDC, 2021e; Oakes et al., 2023). Among individuals with HIV/AIDS, ambulatory care rates remained largely stable while emergency department (ED) use dropped during the evaluation period. Viral load testing and cluster of differentiation 4 (CD4) testing rates decreased, while antiretroviral therapy (ART) increased by 1.9 percentage points. The percentage of HealthChoice participants aged 18 to 64 years with at least one inpatient hospital admission declined by 1.9 percentage points during the evaluation period.

The state has implemented programs—such as the Residential Treatment for Individuals with Substance Use Disorder program and the Evidence-Based Home Visiting Services (HVS) pilot program—which began in July 2017 and are improving access, reducing costs, and improving quality. In March 2019, MDH received approval to extend coverage for the Residential Treatment for Individuals with a primary SUD and a secondary mental health disorder (MHD) to American Society of Addiction Medicine (ASAM) level 4.0. Access to the National Diabetes Prevention Program (National DPP) lifestyle change program was expanded to all eligible HealthChoice participants as of September 1, 2019. A request for an amendment approved in April 2020 established a Collaborative Care Model (CoCM) pilot program to integrate primary care and behavioral health services to further address behavioral health needs. Coverage for CoCM services for HealthChoice participants began in July 2020.

MDH received approval for the §1115 waiver renewal in 2021 to expand critical programs and add additional programs, including expansion of substance use disorder (SUD) residential and inpatient treatment services to remove caps on lengths of stay for SUD in an institution for mental disease (IMD), expansion of IMD services for beneficiaries with Serious Mental Illness (SMI), and modification of the Assistance in Community Integration Services (ACIS) Pilot program. In addition, the Maternal Opioid Misuse (MOM) program became effective July 1, 2021.

Program improvements are necessary to ensure that the growing number of participants have access to quality care. MDH is committed to working with the Centers for Medicare & Medicaid Services (CMS) and other stakeholders to identify and address necessary changes. Some areas targeted for improvements include asthma medication ratio (AMR) and ED utilization, diabetes prevention, and prenatal and postpartum care; reducing racial and ethnic disparities; and increasing rates of follow-up care after ED visits for MHD or SUD. MDH collaborated with the Center for Medicare and Medicaid Innovation (CMMI) to establish domains of health care quality and delivery through Maryland's Statewide Integrated Health Improvement Strategy (SIHIS) (Maryland Department of Health, 2020a). The SIHIS framework focuses on stakeholder collaboration and investing in improving health, addressing disparities, and reducing health care

costs. SIHIS targets improvements in three domains: 1) hospital quality, 2) care transformation across the health care system, and 3) total population health. Priority areas for the third domain include diabetes, opioid use, and maternal and child health (Maryland Department of Health, 2020a). The SIHIS 2021 goals have been successful in reducing the mean BMI for adults, reducing avoidable admissions and readmissions, reducing the severe maternal morbidity rate, and improving overdose mortality (Maryland Department of Health, 2023). The state is focused on improving care coordination for participants with chronic conditions, which was the only 2021 milestone that was not met. MDH is developing an annual monitoring plan for the evaluation of the Maternal and Child Health (MCH) Population Health Improvement Fund, which is funded by the Maryland Health Services Cost Review Commission (HSCRC) (Maryland Department of Health, 2023).

In January 2020, the behavioral health administrative services organization (ASO) for Maryland changed from Beacon Health Options to Optum, and technical problems with the transition impacted the submission of behavioral health data during the evaluation period. Additionally, the COVID-19 pandemic, which began in March 2020, had a large impact on the HealthChoice program during CY 2020 and CY 2021. Enrollment in the Medicaid program significantly increased in CY 2020 and CY 2021 as a result of the public health emergency (PHE), which expired May 11, 2023 (CMS, 2023). Rates of service utilization and screenings decreased for many measures in CY 2020, and while many have seen subsequent increases in CY 2021, few rates have returned to pre-pandemic levels. Maryland will continue to monitor the effects of the COVID-19 pandemic on the HealthChoice program.

There was a substantial change to the quality of the race and ethnicity information beginning in 2014, with the implementation of the ACA. Due to a new approach to selecting race and ethnicity on the Medicaid eligibility application, the number of individuals reporting their race or ethnicity decreased, while the proportion represented as “Other/Unknown” continued to increase. MDH has initiated a process of enhancing the Medicaid race and ethnicity data in the MMIS2 using external data sets from the Maryland Health Benefit Exchange (MHBE) and Chesapeake Regional Information System for Our Patients (CRISP), Maryland’s health information exchange, with the goal of improving the race and ethnicity data for monitoring health equity and disparities among Medicaid participants. Preliminary results show the enhanced data are closer to the benchmark of the Medicaid participants in the American Community Survey (ACS).<sup>2</sup>

## **Coverage and Access**

A major goal of the HealthChoice program is to expand coverage to residents with low income and to improve access to health care services for the Medicaid population. HealthChoice has largely succeeded in this area. Overall, program enrollment increased 22.4% over the evaluation period: from 1,182,745 participants in CY 2017 to 1,447,098 participants in CY 2021.<sup>3</sup> Continuous

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<sup>2</sup> American Community Survey Data, available at <https://www.census.gov/programs-surveys/acs/data.html>.

<sup>3</sup> These totals reflect participants enrolled as of December 31 of each respective year, thus providing a snapshot of typical program enrollment on a given day.

enrollment increased by 11.2 percentage points from CY 2019 to CY 2021, in part due to the COVID-19 pandemic policy responses propelling enrollment in health insurance. Under the Families First Coronavirus Response Act (FFCRA), states had to meet certain Medicaid maintenance of eligibility (MOE) requirements, which included continuous coverage for participants enrolled in Medicaid as of March 2020 (Dolan et al., 2020). These MOE requirements contributed to increased Medicaid enrollment in CY 2020 and CY 2021. The continuous eligibility requirement ended on March 31, 2023.<sup>4</sup>

The addition of a new MCO in CY 2017 influenced overall program performance due to initial lower service volumes. While enrollment increased dramatically in CY 2020 and CY 2021, in part due to the PHE, all MCOs experienced a decrease in overall service utilization and screenings for CY 2020. Nonetheless, trends in service utilization through 2019 indicate increased health literacy, in alignment with the overall goals of the HealthChoice demonstration program. HealthChoice facilitates access to care by requiring each MCO to have a provider network capacity of one PCP for every 200 participants. The results of a network adequacy analysis counting the number of PCP offices included in provider networks in each jurisdiction in Maryland showed that all jurisdictions except Prince George's County achieved a 200:1 ratio of participants to PCPs in CY 2021.

### **Care for Special Populations**

HealthChoice continues to seek ways to improve access to health services for vulnerable populations and improve the quality of care they receive. These vulnerable populations include children in foster care, Rare and Expensive Case Management (REM) participants, and racial and ethnic minorities. MDH also monitors demographic characteristics and service utilization among the ACA Medicaid expansion population.

Service utilization for children in foster care decreased slightly over the evaluation period. In CY 2021, they had a 5.9 percentage point lower rate of ambulatory care service utilization and a 7.8 percentage point higher rate of ED visits compared to other children in HealthChoice. The REM program, which serves individuals with multiple and severe health care needs, experienced a decrease of 6.5 percentage points in the proportion of enrollees with dental visits during the evaluation period, with the largest decrease (15.9 percentage points) from CY 2019 to CY 2020. The percentage of REM participants who had an ambulatory care visit remained largely stable, while outpatient ED visits and inpatient admissions declined during the evaluation period.

As for racial and ethnic disparities in access to care, Black children had the lowest rate of ambulatory care visits in CY 2017, while the rate for Native American children was the lowest in CY 2021; Hispanic children had the highest rate for both years. Across all years in the evaluation period, Black participants had the highest ED utilization rates, while Asian participants had the lowest.

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<sup>4</sup> H.R. 2617, 117th Cong. (2022) (enacted).

Enrollment continued to grow among the ACA Medicaid expansion population (it increased by 13.0% over the evaluation period). As of December 2021, 395,953 HealthChoice participants were enrolled under the ACA expansion coverage group. Expansion participants had a lower rate of ambulatory care visits than any other coverage group in the Medicaid population from CY 2017 to CY 2021. The ED visit rates for ACA participants with 12 months of enrollment decreased from 35.3% in CY 2017 to 27.1% in CY 2021. Additional changes occurred in service utilization patterns during the evaluation period, including a slight decrease in the overall proportion of ACA expansion participants who received services for a behavioral health disorder.

## **Quality of Care**

Improving the quality of services delivered to HealthChoice participants is a core aim of the program. Performance measures in this report are selected because they either measure quality of health care directly or indicate utilization and performance indirectly related to providing quality health services. Additionally, HealthChoice has two programs focusing on measuring and improving quality of care: the Value-Based Purchasing (VBP) program and the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) annual review.

The VBP program adjusts a portion of MCO payments according to their scores on specific measures of clinical quality outcomes. MCOs that meet or exceed a performance threshold receive incentive payments; MCOs whose performance is at or below the disincentive threshold pay penalties. MDH's priorities and analysis of population health needs may change the VBP measures as the program strives for consistency with CMS's national performance measures for Medicaid. The MCOs demonstrated varied results across the assessed measures, with some MCOs showing consistently high or low performance while others experienced increases in the number of disincentive penalties they received. Overall, though, the VBP program supports quality improvement across the HealthChoice population by basing the incentive levels on averages of all plan performance. An evaluation of the Comprehensive Diabetes Care - HbA1c Control measure shows that the Maryland Average Reportable Rate (MARR) increased by 1.0 percentage points between CY 2017 and CY 2021. MDH requested that Hilltop develop a new methodology for the VBP program, called the Population Health Incentive Program (PHIP). This program began in CY 2022. The overall goal is to provide an incentive-only program to HealthChoice MCOs that demonstrate high-quality care based on standardized measures of performance.

The EPSDT annual review assesses MCO performance in delivering services to children under the age of 21. EPSDT services are a national requirement for Medicaid, and the EPSDT review measures whether all HealthChoice MCOs achieve minimum levels of performance in delivering EPSDT services. The most recent review shows that the MCOs meet or exceed standards for all five components.

## **Medical Home**

Another goal of the HealthChoice program is to provide patient-focused, comprehensive, and coordinated care for its participants by providing each member with a single “medical home” through a PCP. With a greater understanding of the resources available to them, HealthChoice participants should seek care for non-emergent conditions in an ambulatory care setting rather than using the ED or letting an ailment exacerbate to the extent that it could warrant an inpatient hospital admission. One method to assess this goal is to measure whether participants can identify with and effectively navigate a medical home. During the evaluation period, the rate of potentially avoidable ED visits—an indicator of performance in this area—decreased from 42.0% in CY 2017 to 37.2% in CY 2021. The percentage of HealthChoice adults with an inpatient admission designated as potentially preventable also decreased slightly, from 0.8% in CY 2017 to 0.6% in CY 2021. The state is working with CMS to monitor several hospital quality measures, including Prevention Quality Indicator (PQI) admissions across Medicaid, Medicare, and commercial payers under Maryland’s All-Payer Model Agreement—and subsequent Total Cost of Care Model. The model places global budget limits on hospitals, which reduces hospitals’ incentives to increase admissions. MDH will use these tools to continue to monitor the rate of PQI admissions and will research policies to reduce their frequency.

## **Health Promotion and Disease Prevention**

The HealthChoice program prioritizes health promotion and disease prevention by providing access to immunizations and other wellness services, such as regular prenatal care. The Healthcare Effectiveness Data and Information Set (HEDIS®)<sup>5</sup> compares HealthChoice against nationally recognized performance standards for the use of preventive care and management of chronic disease conditions (MetaStar, Inc., 2022). Over the evaluation period, measures based on service utilization varied, in part because of the influx of adults into the HealthChoice population resulting from the ACA expansion. These new participants took longer to engage in appropriate primary care treatment. The addition of a new MCO in CY 2017 also affected HealthChoice HEDIS® scores because the methodology for determining these scores calculates a simple average across the plans instead of a weighted average. Since the COVID-19 pandemic affected utilization rates in CY 2020 and CY 2021, it also affected HealthChoice HEDIS® scores.

Nevertheless, some indicators showed improvement while others remained fairly stable or declined over the evaluation period. Breast cancer screening rates decreased 5.9 percentage points over the evaluation period, with the largest decrease of 5.4 percentage points between CY 2019 and CY 2020. However, the breast cancer screening rates remained above the national Medicaid average for the entire evaluation period, contributing to better preventive care for women. Rates for childhood immunizations decreased over the evaluation period but were higher than national Medicaid averages every year except for CY 2020. Blood lead screening rates for children aged 12 to 35 months decreased over the evaluation period.

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<sup>5</sup> HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).



Although the percentage of women in HealthChoice who received a cervical cancer screening declined from 62.5% in CY 2017 to 58.1% in CY 2021, the rate was above the national HEDIS® mean for all evaluation years except CY 2020. Declines in cervical precancers are associated with widespread vaccinations for human papillomavirus (HPV) (McClung et al., 2019), and the proportion of adolescents who received two HPV vaccine doses between their 9<sup>th</sup> and 13<sup>th</sup> birthdays increased from 31.3% in CY 2017 to 32.9% in CY 2021. Colorectal screening rates remained steady during the evaluation period.

The percentage of pregnant women who received prenatal services in a timely manner increased by 0.7 percentage points from CY 2019 to CY 2021. HealthChoice outperformed the national HEDIS® mean in CY 2019 and CY 2021 but not in CY 2020.

The HealthChoice program also prioritizes management of chronic conditions such as asthma, diabetes, HIV/AIDS, and behavioral health diagnoses. The majority of participants in the Asthma Home Visiting program experienced symptom improvements for most symptom categories throughout the evaluation period. When compared to participants who remained on their asthma medication for less than half of their treatment period, those who remained on their medication for at least half of their treatment period were 35.9% less likely to have an asthma-related ED visit that year and 18.1% less likely to have an asthma-related ED visit the following year.

The rate of hemoglobin A1c (HbA1c) screenings among participants with diabetes remained stable and above the national HEDIS® mean between CY 2017 and CY 2019, dipped below the mean in CY 2020, then increased to 87.1% in CY 2021, once again above the mean. The percentage of participants with diabetes who received an eye exam decreased by 7.5 percentage points between CY 2017 and CY 2021. The decrease may be a result of the removal of this measure from the VBP incentive program in CY 2015, as well as the COVID-19 pandemic in CY 2020. During the evaluation period, inpatient and ED utilization decreased by 1.4 and 5.8 percentage points, respectively, among HealthChoice participants with diabetes, while ambulatory care utilization increased slightly. Although receipt of just the HbA1c screening was associated with an increased likelihood of experiencing a diabetes-related ED visit, receipt of either a HbA1c test or eye exam the previous year mitigated the likelihood of having a diabetes-related ED visit the following year.

Participants with HIV/AIDS' ambulatory care service utilization decreased slightly by 1.5 percentage points during the evaluation period. The utilization rate for antiretroviral therapy (ART) increased by 1.9 percentage points, while viral load testing and CD4 cell count testing rates decreased by 5.8 and 5.6 percentage points, respectively. ED utilization by this population decreased by 10.8 percentage points during the evaluation period.

The percentage of participants with a behavioral health diagnosis remained stable from CY 2017 to CY 2021. Utilization of ambulatory care services increased by 1.7 percentage points during the evaluation period among HealthChoice participants with a behavioral health diagnosis, while inpatient and ED utilization decreased by 2.9 and 9.1 percentage points, respectively. The Corrective Managed Care (CMC) Program restricts participants to one pharmacy to decrease

potential abuse of controlled substances. While the number of participants in the CMC program decreased during the evaluation period the percentage of participants in the CMC program who had an overdose increased from 25.5% in CY 2017 to 37.0% in CY 2021.

## **Demonstration Programs**

The HealthChoice program uses §1115 waiver demonstration authority to test emerging practices through innovation and pilot programs to better serve participants. As part of its waiver renewal in 2016, MDH proposed the following new innovative programs: Residential Treatment for Individuals with SUD; HVS and ACIS community health pilots; and dental services for former foster care individuals.

With CMS approval, Maryland Medicaid participants aged 21 years and older with SUDs can now receive residential treatment services—up to two (2) 30-day stays—in institutions for mental disease (IMDs) based on American Society of Addiction Medicine (ASAM) residential levels 3.7-WM, 3.7, 3.5, and 3.3. On January 1, 2019, MDH phased in coverage of ASAM level 3.1. Given the current opioid epidemic, this is particularly important as it allows the state to expand access across the care continuum. The number of unique users of IMD services increased from CY 2017 through CY 2020, then decreased in CY 2021.<sup>6</sup> Hilltop analyzed several measures of utilization among HealthChoice participants, including ED visits related to SUD (defined as a primary diagnosis of SUD); intensive outpatient (IOP) visits; and medication-assisted treatment (MAT) visits. For HealthChoice participants aged 19 and older who received IMD treatment for an SUD, the total number of SUD-related ED visits fell between pre-IMD-treatment and post-IMD-treatment during each calendar year in the evaluation period except for CY 2017. The average number of IOP visits per IMD participant among participants receiving IMD treatment for an SUD rose between pre-IMD-treatment and post-IMD-treatment for each calendar year in the evaluation period. The total and average-per-MAT-participant numbers of MAT visits among HealthChoice participants who received IMD treatment fell between pre-IMD-treatment and post-IMD-treatment during three of the years in the evaluation period. Amendments to the §1115 waiver beginning in January 2019 included coverage of more intensive IMD services at ASAM Level 4.0 for Medicaid adults who have a primary SUD and a secondary MHD for up to 15 days per month.

The HVS pilot program provides home visiting services to high-risk pregnant women and children up to age two. Preliminary results indicate that participation in the HVS program was associated with higher rates of ED visits and ED admissions for mothers during the first twelve months of postpartum, while HVS participation was associated with lower rates of ED visits, inpatient admissions, and ED admissions for infants. Qualitative findings from an interview with one of the lead entities for the HVS pilot characterized the pilot as being straightforward in its implementation, capitalizing on collaboration between county-level public entities, and retaining

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<sup>6</sup> CY 2019 was updated to include Level 3.1. CY 2020 and CY 2021 data may have been influenced by the COVID-19 pandemic.

flexibility in adapting to meet clients' individual needs while providing standardized home visit services, with successful results.

The ACIS Pilot program provides tenancy-based case management services/tenancy support services and housing case management services to individuals with complex health care needs who are at risk of institutionalization and/or homelessness. Approximately 80% of ACIS participants were homeless at the time of their enrollment in the program during the evaluation period and approximately 77% of participants obtained stable housing during their ACIS enrollment. Health service utilization was analyzed for participants in the year prior to their ACIS enrollment (pre-ACIS) and the year following their ACIS enrollment (post-ACIS). The percentage of participants with at least one ED visit decreased by 11.0 percentage points from the pre-ACIS period to the post-ACIS period, while the proportion with at least one avoidable ED visit decreased by 7.0 percentage points.

Beginning in January 2017, Maryland initiated coverage of dental services for former foster care participants through the age of 26. Of former foster youth enrolled for at least 320 days in CY 2017, 21.7% had at least one dental visit; this increased to 25.9% in CY 2019 and then decreased to 15.2% in CY 2021. MDH anticipates that these rates will increase over time. Prior to the expansion of dental coverage to former foster care participants, 3.5% of participants had at least one ED visit with a dental diagnosis in CY 2016, and this decreased to 1.1% in CY 2021. In 2019, MDH received approval for a pilot to provide dental services to adults between the ages of 21 and 64 who are eligible for both Medicare and Medicaid. In the first seven months (June 1, 2019, through December 31, 2019) of the adult dental pilot, 4,508 participants (12.2% of total) had at least one dental visit. In CY 2021, that rate of adult dental participants with at least one dental visit decreased to 10.9%. The percentage of users (enrollees who received dental services during the evaluation period) in the adult dental program who were seen in the emergency department with a dental diagnosis decreased by 1.8 percentage points from CY 2019 to CY 2021.

The National DPP lifestyle change program was authorized for HealthChoice members beginning September 1, 2019. By participating in HealthChoice DPP, HealthChoice participants who are considered at risk for developing type 2 diabetes and meet the eligibility criteria engage with certified DPP providers to learn how to reduce their risk of developing type 2 diabetes through lifestyle changes to improve their overall health. Additionally, in partnership with MDH and HealthChoice MCOs, Hilltop developed an algorithm that MCOs can use to search their electronic medical records and identify members who meet eligibility criteria for HealthChoice DPP. This algorithm was provided to the MCOs in the spring of 2021 and has been tested extensively and implemented.

Hilltop uses Medicaid claims and encounter data to provide MDH with periodic service utilization reports that track, among other things, current and cumulative DPP enrollment. From its implementation in September 2019 through December 31, 2021, there have been 418 DPP encounters. Regression analyses indicate that DPP participants are significantly less likely to develop diabetes and experience significantly fewer inpatient admissions, with no association found between DPP participation and total number of ED visits. Interviews with DPP providers

also found that the programs have been largely successful when evaluated using metrics such as retention, weight loss, A1c measurements, hypertension measurements, and self-reported diet and exercise improvements. In addition, the responses received in these interviews suggested there is heterogeneity among the ways different DPP providers approach the participant referral and intake processes, the level of collaboration they have with patients' primary care providers, the types of extra services they offer, the major contributing factors to their success, and the challenges that hinder their service provision.

MDH also renewed the Increased Community Services (ICS) program and the Family Planning program from previous waiver periods. The ICS program allows certain adults with physical disabilities to remain in the community as an alternative to institutional care. During the evaluation period, 16% of ICS-eligible long stay nursing facility (NF) residents transitioned to a community setting under the ICS program.

The HealthChoice waiver allows MDH to provide a limited benefit package of family planning services to eligible women. The program covers medical services related to family planning, including office and clinic visits, physical examinations, certain laboratory services, treatments for sexually transmitted infections, family planning supplies, permanent sterilization and reproductive health counseling, education, and referrals. Effective July 1, 2018, MDH expanded eligibility under its Family Planning program to lift the age limit and open coverage to include men. The number of women in the Family Planning program for any period of enrollment increased by 5.2%, and the number of women continuously enrolled dramatically increased by 76.9%, mostly likely due to continuous Medicaid eligibility required under MOE.

Maryland received approval for an amendment to the state's §1115 HealthChoice demonstration waiver on April 16, 2020, to establish and implement the CoCM pilot program. The CoCM program integrates primary care and behavioral health services for HealthChoice participants who have experienced a behavioral health need (either a mental health condition or SUD) but have not received effective treatment. Coverage for CoCM services provided to HealthChoice participants began in July 2020. The number of active participants grew from 65 in September 2020 to 118 in June 2022. The percentage of program participants with a clinical contact who had at least one Patient Health Questionnaire-9 (PHQ-9) screening for depression increased from 92.6% in Q2 of FY 2021 to 97.2% in Q4 of FY 2022. Furthermore, 40.9% of participants enrolled for at least 70 days with at least one PHQ-9 screening saw a 50% reduction from their first recorded screening score to their last recorded score or a drop to less than 10 on their last recorded score. For HealthChoice participants who participated in the family planning program the previous year (the year before the measurement period), the likelihood that they would use highly effective contraceptives was increased by 60.7% in CY 2017 and by 138.8% in CY 2018. There was no statistically significant relationship observed for CY 2019 through CY 2021.

In 2021, MDH received approval for the §1115 waiver renewal for the period of January 1, 2022, through December 31, 2026, to focus on maintaining high-quality, cost-effective services and pilot programs initiated in the last waiver renewal period. The Family Planning program was not

renewed, as it was incorporated into the State Plan. Key demonstration components include the following:

- Expansion of IMD services for adults with SMI
- Expansion of SUD Residential and Inpatient Treatment Services
- MOM program
- Modification to ACIS pilot program
- Collaborative Care Model Pilot Program
- Diabetes Prevention Program (DPP)
- Dental Services for Former Foster Care Individuals up to 26 years old

# Evaluation of the Maryland Medicaid HealthChoice Program: CY 2017 to CY 2021

## Section I. Introduction

In 1997, Maryland implemented HealthChoice—a statewide mandatory Medicaid and Children’s Health Insurance Program (CHIP) managed care program—as a waiver of standard federal Medicaid rules, under authority of §1115 of the Social Security Act. The Centers for Medicare & Medicaid Services (CMS) approved subsequent waiver renewals in 2002, 2005, 2007, 2010, 2013, 2016, and 2021. The Maryland Department of Health (MDH) provides oversight and continually monitors HealthChoice performance on a variety of measures across the demonstration’s goals, culminating in an annual evaluation.

This report—the 2023 summative evaluation—includes data from calendar year (CY) 2017 through CY 2021. The following sections provide a brief overview of the HealthChoice program and recent program updates before addressing these goals:

- Improve access to health care for the Medicaid population, including special populations
- Improve the quality of health services delivered
- Provide patient-focused, comprehensive, and coordinated care through the provision of a single medical home
- Emphasize health promotion and disease prevention
- Expand coverage to additional low-income Marylanders with resources generated through managed care efficiencies

This report is a collaborative effort between MDH and The Hilltop Institute at UMBC.

It is important to note that the COVID-19 pandemic in 2020 had a significant impact on the HealthChoice program, resulting in increased enrollment and decreased utilization of services. Because the Families First Coronavirus Response Act (FFCRA) required continuous Medicaid eligibility during the public health emergency (PHE), starting in March 2020, there was a pause in disenrollment that led to a large increase in Medicaid enrollment through 2021. Rates of service utilization and screenings decreased in CY 2020 during the COVID-19 pandemic, and while many have seen subsequent increases in CY 2021, few rates have returned to pre-pandemic levels. Maryland will continue to monitor the effects of the COVID-19 pandemic on the HealthChoice program.

Furthermore, the quality of the race and ethnicity information available changed dramatically beginning in 2014, with the implementation of the ACA as a new approach to selecting race and ethnicity on the Medicaid eligibility application reduced the number of individuals reporting their race or ethnicity and increased the proportion represented as “Other/Unknown.” MDH has initiated a process of enhancing the Medicaid race and ethnicity data in the MMIS2 using external data sets from the Maryland Health Benefit Exchange (MHBE) and Chesapeake Regional Information System for Our Patients (CRISP) Maryland’s health information exchange, with the

goal of improving the race and ethnicity data for monitoring health equity and disparities among Medicaid participants. Preliminary results show the enhanced data are closer to the benchmark of the Medicaid participants in the American Community Survey (ACS).<sup>7</sup>

## **Overview of the HealthChoice Program**

As of the end of CY 2021, close to 90% of the state’s Medicaid and Maryland Children’s Health Program (MCHP) populations were enrolled in HealthChoice. HealthChoice participants choose a managed care organization (MCO) and a primary care provider (PCP) from their MCO’s network to oversee their medical care. Participants who do not select an MCO or a PCP are assigned to one automatically. The groups of Medicaid-eligible individuals who enroll in HealthChoice MCOs include the following:

- Families with low income that have children
- Families that receive Temporary Assistance for Needy Families (TANF)
- Children younger than 19 years who are eligible for MCHP
- Children in foster care and, starting in CY 2014, individuals up to age 26 who were previously in foster care
- Adults under the age of 65 with income up to 138% of the federal poverty level (FPL)
- Women with income up to 264% of the FPL who are pregnant or less-than-60-days postpartum
- Individuals receiving Supplemental Security Income (SSI) who are under age 65 and ineligible for Medicare

Not all Maryland Medicaid participants are eligible for the HealthChoice managed care program. Groups that are ineligible for enrollment in the managed care program include the following:

- Medicare beneficiaries
- Individuals aged 65 years and older<sup>8</sup>
- Individuals in a “spend-down” eligibility group who are only eligible for Medicaid for a limited time
- Individuals who require more than 90 days of long-term care services and are subsequently disenrolled from HealthChoice
- Individuals who are continuously enrolled in an institution for mental disease (IMD) for more than 30 days
- Residents of an intermediate care facility for individuals with intellectual disabilities

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<sup>7</sup> American Community Survey Data, available at <https://www.census.gov/programs-surveys/acs/data.html>.

<sup>8</sup> Individuals aged 65 and older can be enrolled in a HealthChoice MCO if covered as a parent or caretaker.



- Individuals enrolled in the Model Waiver or the Employed Individuals with Disabilities (EID) program

There are additional populations covered under the HealthChoice waiver who do not enroll in HealthChoice MCOs, including individuals in the Family Planning and the Rare and Expensive Case Management (REM) programs. The Family Planning program is a limited-benefit program under the waiver. The REM program allows HealthChoice-eligible individuals with certain rare and expensive diagnoses to receive care on a fee-for-service (FFS) basis. REM is discussed in more detail in Section III of this report, and Family Planning is discussed in Section VII.

HealthChoice participants receive the same comprehensive benefits as those available to Maryland Medicaid participants through the FFS system. MCOs were responsible for coverage of most medical services during 2021 including the following:

- Inpatient and outpatient hospital care
- Physician care
- Federally qualified health center (FQHC) or other clinic services
- Laboratory and X-ray services
- Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services for children under 21
- Prescription drugs, except for behavioral health
- Durable medical equipment and disposable medical supplies
- Home health care
- Vision services, including corrective lens and hearing aids for children under 21<sup>9</sup>
- Dialysis
- The first 90 days of long-term care services

The following services are not covered by the MCOs and instead are covered by the Medicaid FFS system:

- Specialty mental health care and substance use disorder (SUD) treatment services<sup>10</sup>
- Dental care for children, pregnant women, and adults in the REM program
- Health-related services and targeted case management services provided to children when the services are specified in the child's individualized education plan or individualized family service plan

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<sup>9</sup> Although not required by regulation, some MCOs cover adults for limited vision, hearing, and dental benefits.

<sup>10</sup> SUD services were carved out of the MCO benefit package on January 1, 2015. Mental health services have never been included in the MCO benefit package.

- Therapy services (occupational, physical, and speech) for children
- Personal assistance services offered under the Community First Choice program
- Viral load testing services, genotypic, phenotypic, or other HIV/AIDS drug resistance testing for the treatment of HIV/AIDS
- Behavioral health drugs
- Services covered under 1915(c) home and community-based services (HCBS) waivers<sup>11</sup>

## Program Updates

MDH implemented the following programmatic changes to the HealthChoice program that influenced the evaluation period:

- From the inception of the HealthChoice program in 1997, mental health services were carved out of the benefit package, while services for individuals with SUDs were provided by the MCOs. MDH combined mental health and SUD services in an integrated carve-out on January 1, 2015. Under the carve-out, an administrative services organization (ASO) administers and reimburses all specialty mental health and SUD services for Medicaid participants on an FFS basis, under the oversight of the Medicaid program and the Behavioral Health Administration (BHA).
- In 2013, MDH implemented a §2703 Chronic Health Home program, serving adults diagnosed with a serious and persistent mental illness, children diagnosed with a serious emotional disturbance (SED), and individuals diagnosed with an opioid SUD who are at risk for another chronic condition based on tobacco, alcohol, or other non-opioid substance use. As of May 1, 2020, MDH had approved 104 Chronic Health Home site applications, with 10,473 (9,446 adults, 1,027 children/youth) enrolled participants. The Health Home sites include 70 psychiatric rehabilitation programs, 12 mobile treatment providers, and 22 opioid treatment programs.
- Under the ACA, Maryland expanded coverage through the Medicaid program to two new populations:
  - Individuals with income up to 138% of the FPL. Over the course of the expansion's first year (CY 2014), 283,716 adults received Medicaid coverage through this expansion. This included more than 90,000 former Primary Adult Care (PAC) program participants who automatically transferred into expansion coverage.<sup>12</sup> As of December 2021, there were 395,953 individuals enrolled in the ACA expansion.
  - Former foster care children up to the age of 26 years.

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<sup>11</sup> Services covered under the 1915(c) HCBS waivers include assisted living, medical day care, family training, case management, senior center plus, dietitian and nutritionist services, and behavioral consultation.

<sup>12</sup> The PAC program offered a limited benefit package to adults with low income, covering primary care visits, certain outpatient mental health and SUD services, ED services, and prescription drugs.

MDH included several initiatives for innovative programs that were approved for the CY 2017 to CY 2021 waiver period. See Section VII for additional information on the following initiatives:

- Residential Treatment for Individuals with SUDs aged 21 through 64 years in IMDs
- Two community health pilot programs
  - Evidence-Based Home Visiting Services (HVS)
  - Assistance in Community Integration Services (ACIS)
- Dental benefits for former foster youth between the ages of 21 and 26 years
- Adult dental pilot program to provide dental services to adults between the ages of 21 and 64 years
- National Diabetes Prevention Program (DPP)
- Increased Community Services (ICS)
- Family Planning program
- Collaborative Care Model (CoCM) pilot

MDH submitted a §1115 waiver renewal application in July 2021 and received approval in December 2021 for the period of January 1, 2022, through December 31, 2026.

The Family Planning program, HVS program and Adult Dental pilot were not renewed, because they were added to the State Plan. However, several initiatives were added, expanded, or modified, including the following:

- Addition of the MOM program
- Expansion of IMD services for adults to include primary diagnoses of SMI
- Expansion of SUD Residential and Inpatient Treatment Services to remove caps on lengths of stays for SUD treatment in an IMD and aim for a statewide average length of stay (LOS) of 30 days or less.
- Modification to the ACIS pilot program to increase the statewide capacity to 900 spaces

MDH, in collaboration with the Center for Medicare and Medicaid Innovation (CMMI), established Maryland's Statewide Integrated Health Improvement Strategy (SIHIS)<sup>13</sup> (Maryland Department of Health, 2020a). To develop the SIHIS proposal, workgroups led by MDH, the Opioid Operational Command Center (OCCC), and the Health Services Cost Review Commission (HSCRC) collaborated to gather stakeholder input to establish goals, measures, milestones, and targets for SIHIS.

SIHIS is structured to drive improvements in three domains: hospital quality, care transformation across the health care system, and total population health. Reducing avoidable admissions and readmissions is a top priority under hospital quality. Under the third domain, diabetes, opioid

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<sup>13</sup> <https://hscrc.maryland.gov/Pages/Statewide-Integrated-Health-Improvement-Strategy.aspx>

use, and maternal and child health were selected as priority areas, with the identified goals of improving care coordination for patients with chronic conditions, improving adult BMI, improving overdose mortality rates, reducing severe maternal morbidity rates, and decreasing asthma-related ED visits rates for ages 2 to 17. CMMI approved Maryland’s proposal in 2021, which includes a detailed plan to achieve “progress milestones and population health outcome targets across all three domains by the end of 2026” (Maryland Department of Health, 2020b, p. 1). The SIHIS 2021 goals and milestones were important building blocks necessary to progress toward the 2023 and 2026 targets. The SIHIS 2021 goals have been successful in reducing the mean BMI for adults, reducing avoidable admissions and readmissions, reducing the severe maternal morbidity rate, improving overdose mortality BMI for adults and avoidable admissions and readmissions; and improved overdose mortality (Maryland Department of Health, 2023). The state is focused on improving care coordination for participants with chronic conditions, which was the only 2021 milestone that was not met.

As a result of the collaboration with CMMI, MDH is developing an annual monitoring plan for the evaluation of Maryland Health Services Cost Review Commission (HSCRC)-funded Maternal and Child Health (MCH) Population Health Improvement Fund for July 1, 2021, to June 30, 2025. The plan will include impact measures that align with SIHIS and include the following programs:

- HVS pilot expansion for high-risk pregnant individuals and children under the age of three
- Reimbursement for doula services for pregnant individuals and new parents
- MOM program expansion for pregnant individuals with OUD
- CenteringPregnancy, a clinic-based group prenatal care model
- HealthySteps, a clinic-based pediatric primary care model and family case management framework

This will also support expansion of the State’s existing Asthma Home Visiting (HV) Program; community-based asthma programs; and eliminating Disparities in Maternal Health Initiative.

## Section II. Methodology

Because of the varying evaluation measures, Hilltop used different methodologies deemed appropriate to evaluate the HealthChoice outcomes being measured. For measuring trends in counts or percentages of enrollment and service utilization among demographic and clinical subgroups, Hilltop used Medicaid program data for CY 2017 to CY 2021 from the Maryland Medicaid Management Information System (MMIS2) to identify enrollees, their FFS claims and MCO encounters, the types of services used, and the diagnoses treated. These measures are either expressed as five-year trends in the frequency of persons enrolled or treated, within each of various groups of detailed interest, or as comparisons directly between the first and the last year of the evaluation period (i.e., CY 2017 and CY 2021). Additionally, some analyses distinguish between all ACA Medicaid Expansion participants and those enrolled for 12 continuous months. ACA Medicaid expansion participants with 12 continuous months of enrollment provide an MCO with more time and opportunities to intervene in their health care than participants with any period of enrollment.

Hilltop also used data from *LTSSMaryland*—the state’s integrated LTSS tracking system—to identify enrollees in the REM program for analyses of this subpopulation’s demographics and service utilization.

For standardized definitions of particular clinical, pharmaceutical, and health utilization measures, Hilltop used the Healthcare Effectiveness Data and Information Set (HEDIS®)<sup>14</sup> proprietary software from Cognizant, an NCQA-certified software vendor, to define and classify according to standard NCQA measures.

Hilltop developed programming to create person- and visit-level summaries of two HEDIS® measures: Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence (FUA) and Follow-Up After Emergency Department Visit for Mental Illness (FUM). Hilltop also developed programming to create person-level data sets utilizing diagnoses and service definitions from the HEDIS® Asthma Medication Ratio (AMR) measure, diabetes retinal and hemoglobin A1c screening from the Comprehensive Diabetes Care (CDC) measure, and the prenatal and postpartum care measure (PPC).

Hilltop conducted analysis of trends in health services utilization pre- and post-program-implementation, pre- and post-program-enrollment, and pre- and post-treatment. Hilltop also conducted analyses to compare the differences in trends in health services utilization between program participants and non-participants.

In addition to quantitative analyses, Hilltop conducted qualitative interviews with providers for the DPP and HVS programs to understand their experiences and perspectives surrounding these programs. MDH referred interviewees to Hilltop. These interviews were conducted virtually using a standard interview guide (See Appendices C and D for the lists used for the HVS and DPP

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<sup>14</sup> HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

interviews, respectively), with follow-up questions based on what was revealed during the interview.

## **Regression Analysis**

To evaluate the effects of HealthChoice service delivery on outcomes such as hospitalizations or ED visits, a trend analysis would not be sufficient. Numerous factors besides health care treatment—such as age, sex, race, geographic location, and pre-existing health conditions—affect outcomes. To separate these other factors when estimating whether adherence to HEDIS® guidelines is associated with improved outcome measures, Hilltop used a set of statistical techniques known as multivariable regression analysis. The multivariable regressions techniques used included logistic regressions, multinomial regressions, Poisson regressions, and hazard probability regression.

Logistic regressions are used to analyze relationships when the dependent (outcome) variable has only two discrete outcomes. Multinomial logistic regressions are used when the dependent variable has more than two discrete outcomes (e.g., low, normal, and high). The variables that are being measured for their associations with the outcome variable are called independent variables. Independent variables can themselves be discrete (such as race, sex, or region), ordinal (such as rankings from best to worst), interval (such as amounts of a service), or ratio-level (such as a percentage). The coefficients of independent variables produced by logistic regressions are thereafter translated into odds ratios (ORs), which represent the odds that an outcome will occur (given a particular level of one of these variables changing) compared to the odds of the outcome occurring in the absence of those variables. For example, in a group of people whose outcome variable is an ED visit, if the OR for females is 0.90, then females have 10% lower odds (or are 10% less likely) to incur an ED visit in this sample when compared to males.

Poisson models are used to analyze relationships where the outcome of interest is a rate or a count variable, such as the number of ED visits a person has during the measurement period. In Poisson regressions, the coefficients of independent variables represent the log scale<sup>15</sup> (linear predictor) change in the outcome variable based on one unit or level increase in the independent variable. To obtain the exact percentage change in the outcome variable the log scale coefficient must be transformed using the exponent to the power of the coefficient (i.e.,  $e^{\beta x}$ ). A hazard probability model (also known as a Cox proportional hazard model) is a time-to-event analysis. The coefficients produced by the hazard model are hazard ratios (HR), which reflect the probability or speed of an event occurring in the treatment group relative to the comparison group over a unit of time. Estimates which have an HR greater than 1 can be interpreted as the treatment group having a higher or faster event probability than the comparison group, whereas an HR less than 1 can be interpreted as the treatment group having

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<sup>15</sup> Log scale is used when the relationship between two variables in their original forms are not consistent (i.e., the same) at higher values.

a lower or slower event probability than the comparison group. An HR of exactly 1 means both groups have the same event probability.

While constructing these regression analyses, Hilltop created programming to identify Medicaid participants who met HEDIS® measure population definitions and their relationship with the following outcomes of interest including:

- Relationship between asthma patients with a positive AMR and ED utilization as well as inpatient admissions compared to those without a positive AMR
- Receipt of diabetes HbA1c blood or eye screenings, and inpatient admission and ED visit for diabetes
- Among prediabetic adults, relationships between participation in the DPP and diabetes incidence, inpatient admissions, and ED utilization
- Relationship between HVS participation and utilization measures for families and children

### **Methodological Limitations**

Regression analyses and other measures used in this evaluation do not establish whether the independent variables measured cause the outcome variable. Multivariable regressions measure the associations between the independent variables and the outcome variables, assuming that other conditions are met, such as avoiding selection bias<sup>16</sup> or inappropriate comparison groups. Causality between the treatment condition (i.e., the main independent variable of interest) and outcome variables cannot be inferred without random assignment of the main treatment condition. Nonetheless, the strength of the association between independent and outcome variables can be measured by the estimated confidence intervals around the parameter or estimates. A narrower confidence interval indicates that the estimated parameter is more likely to be close to the center of that confidence interval than in the case of a broader confidence interval. In January 2020, the behavioral health ASO for Maryland Medicaid changed from Beacon Health Options to Optum, and technical problems with the transition impacted the submission of behavioral health data for analysis during the evaluation period. Additionally, the effects of the COVID-19 pandemic, which began in March 2020, had a large impact on the HealthChoice program during CY 2020 and CY 2021 and posed methodological challenges for the evaluation.

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<sup>16</sup> Selection bias occurs when the study sample does not reflect the population of interest. Therefore, any risks/benefits/outcome observed in the analysis does not accurately represent how that risks/benefits/outcome would occur in the target population, affecting the generalizability of the study's results.



### **Section III. Improve Access to Care for the Medicaid Population**

The HealthChoice demonstration depends on managed care programs improving access to care for participants. This section measures Maryland’s progress toward improving access to care by examining enrollment, network adequacy, and utilization. This section also measures the HealthChoice programs that improve access to care for special populations—including children in foster care and individuals in the REM population—and addresses racial and ethnic disparities in health care and service utilization.

#### **Enrollment**

##### **HealthChoice Enrollment**

One way to measure the population served by HealthChoice is to count the number of individuals with any period of enrollment during a given calendar year, including individuals who may not have been enrolled for the entire year. Another method is to count individuals enrolled at a particular point in time (e.g., enrollment as of December 31). Program enrollment on a given day is smaller than the number of enrollees served over the course of a year as individuals move in and out of Medicaid eligibility. Unless otherwise stated, the enrollment data in this section of the report use the point-in-time methodology to reflect enrollment as of December 31 of the measurement year.<sup>17</sup> Occasionally, measures will specify that they include persons enrolled at any time during the year.

Table 1 displays demographic characteristics of the HealthChoice population for those with any period of enrollment during the evaluation period (CY 2017 through CY 2021). The total number of participants increased by 9.8% during this time. The distribution of all demographic characteristics except for race/ethnicity remained relatively consistent throughout the evaluation period. The number of participants who reported their race as “Other” increased by 49.8% from CY 2017 to CY 2021, most likely due to changes in race reporting requirements in CY 2014.

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<sup>17</sup> Enrollment data are presented for individuals aged 0 through 64 years. Age is calculated as of December 31 of the measurement year.

**Table 1. HealthChoice Population (Any Period of Enrollment) by Demographics, CY 2017 and CY 2021**

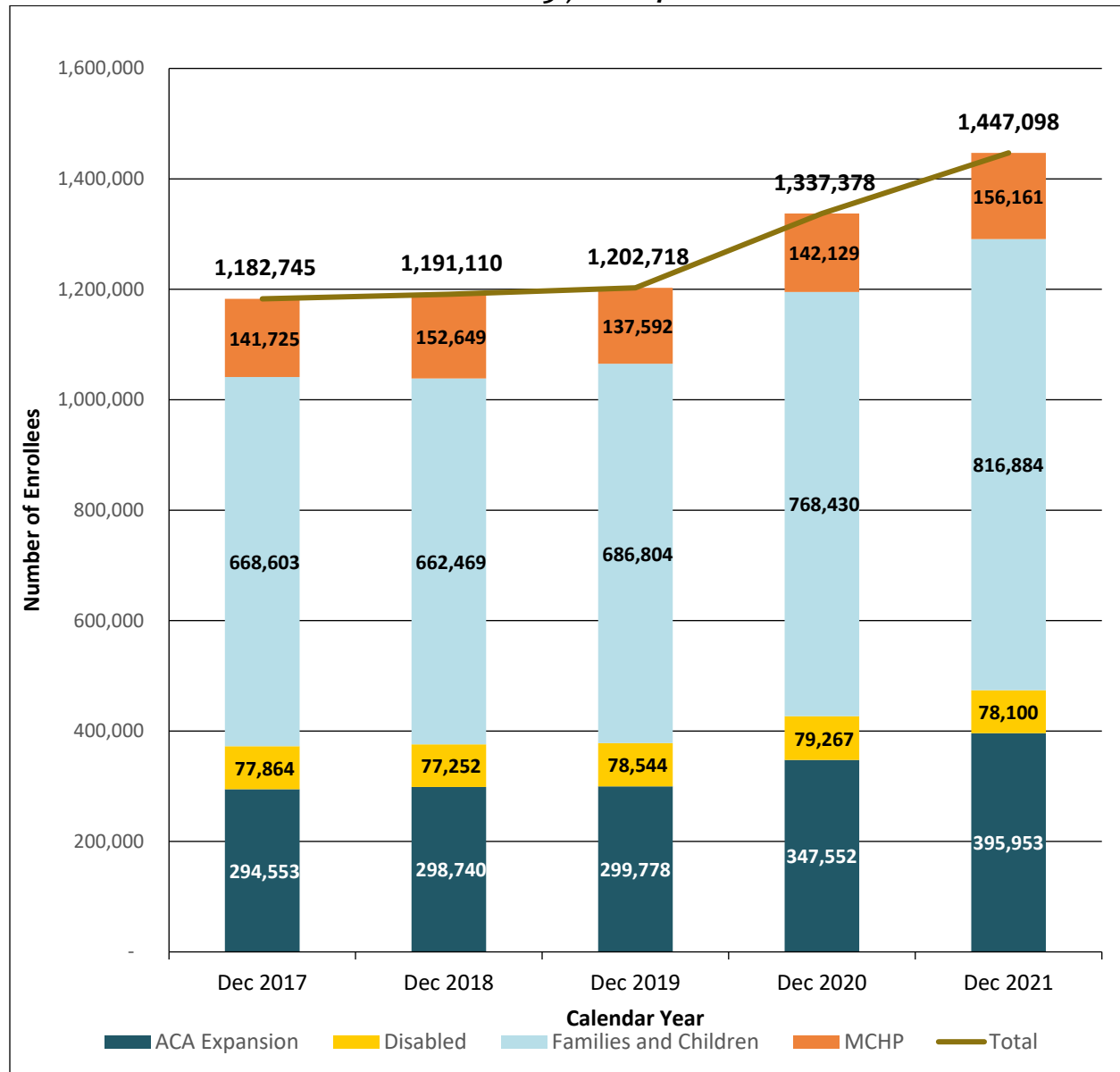
Demographic Characteristic	CY 2017		CY 2021	
	# of Participants	% of Total	# of Participants	% of Total
<b>Sex</b>				
Female	731,966	54.0%	797,187	53.6%
Male	623,127	46.0%	690,262	46.4%
<b>Total</b>	<b>1,355,093</b>	<b>100%</b>	<b>1,487,449</b>	<b>100%</b>
<b>Age Group (Years)</b>				
0-<1	36,267	2.7%	33,360	2.2%
1-2	79,718	5.9%	76,123	5.1%
3-5	111,661	8.2%	113,444	7.6%
6-9	149,042	11.0%	149,600	10.1%
10-14	167,341	12.4%	187,507	12.6%
15-18	113,757	8.4%	130,854	8.8%
19-20	49,210	3.6%	57,684	3.9%
21-39	371,513	27.4%	424,554	28.5%
40-64	276,584	20.4%	314,323	21.1%
<b>Total</b>	<b>1,355,093</b>	<b>100%</b>	<b>1,487,449</b>	<b>100%</b>
<b>Race/Ethnicity</b>				
Asian	62,713	4.6%	73,728	5.0%
Black	579,769	42.8%	601,697	40.5%
White	381,648	28.2%	378,112	25.4%
Hispanic	116,467	8.6%	113,876	7.7%
Native American	3,859	0.3%	4,448	0.3%
Other*	210,637	15.5%	315,588	21.2%
<b>Total</b>	<b>1,355,093</b>	<b>100%</b>	<b>1,487,449</b>	<b>100%</b>
<b>Region**</b>				
Baltimore City	238,459	17.6%	248,187	16.7%
Baltimore Suburban	404,004	29.8%	446,651	30.0%
Eastern Shore	126,574	9.3%	133,376	9.0%
Southern Maryland	69,524	5.1%	75,745	5.1%
Washington Suburban	401,634	29.6%	460,474	31.0%
Western Maryland	113,174	8.4%	122,150	8.2%
Out of State	1,724	0.1%	866	0.1%
<b>Total</b>	<b>1,355,093</b>	<b>100%</b>	<b>1,487,449</b>	<b>100%</b>

\*"Other" race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

\*\*Regions are defined as the following: Baltimore City (only), Baltimore Metro (Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties), Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester Counties), Southern Maryland (Calvert, Charles, and St. Mary's Counties), Washington Metro (Montgomery and Prince George's Counties), and Western Maryland (Allegany, Frederick, Garrett, and Washington Counties).

Figure 1 displays HealthChoice enrollment by coverage category from CY 2017 through CY 2021.<sup>18</sup> Since CY 2017, the overall HealthChoice population has grown by 22.4%. Enrollment grew each year, with the largest increase seen between CY 2019 and 2020.<sup>19</sup>

**Figure 1. HealthChoice Enrollment by Coverage Category as of December 31, CY 2017–CY 2021\***



\*Enrollment counts in Figure 1 include participants aged 0-64 years who are enrolled in a HealthChoice MCO.

<sup>18</sup> The F&C category is families, children, and pregnant women.

<sup>19</sup> Data for each year were updated to reflect a change in how coverage groups were categorized and to add a category for participants enrolled in ACA expansion coverage groups. See Appendix A. for an explanation of which Medicaid coverage groups are included in each category.

## Enrollment Growth

As of December 2021, national enrollment in Medicaid and CHIP was 86.5 million (Kaiser Family Foundation, n.d.a). In fiscal year (FY) 2021, overall enrollment increased sharply by 10.3% in part due to the Medicaid Maintenance of Effort (MOE) requirements and is expected to slow to 4.5% in FY 2022 (Williams, 2021). The national enrollment rate peaked in FY 2015 partly because of the tapering of the ACA enrollment. Between January 2014 and the end of 2021, Maryland experienced the tenth highest growth rate in Medicaid and CHIP enrollment out of the 48 states and the District of Columbia that reported data (Kaiser Family Foundation, n.d.a). In 2013, before the ACA expansion, 10% of Maryland residents were uninsured. The growth in Medicaid enrollment contributed to a decline in Maryland’s uninsured rate, which overall remained constant throughout the evaluation period, at 6.1% (Kaiser Family Foundation, n.d.b), Kaiser Family Foundation, n.d.c.<sup>20</sup>

Table 2 shows the percentage of Maryland’s population enrolled in HealthChoice between CY 2017 and CY 2021. The number of HealthChoice participants with any period of enrollment fluctuated throughout the evaluation period but increased overall. The percentage of Maryland’s population who were HealthChoice participants also increased by 1.7 percentage points. The number of HealthChoice enrollees and the percentage of Maryland’s population who were enrolled as of December 31 increased each year from CY 2017 to CY 2021.

**Table 2. HealthChoice Enrollment as a Percentage of the Maryland Population, CY 2017–CY 2021**

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Maryland Population*	6,052,177	6,042,718	6,045,680	6,165,129	6,174,610
<b>Individuals Enrolled in HealthChoice for Any Period of Time During the Year</b>					
HealthChoice Population	1,355,443	1,389,716	1,377,493	1,392,876	1,487,449
% of Population in HealthChoice	22.4%	23.0%	22.8%	22.6%	24.1%
<b>Individuals Enrolled in HealthChoice as of December 31</b>					
HealthChoice Population	1,182,745	1,191,110	1,202,718	1,337,378	1,447,098
% of Population in HealthChoice	19.5%	19.7%	19.9%	21.7%	23.4%

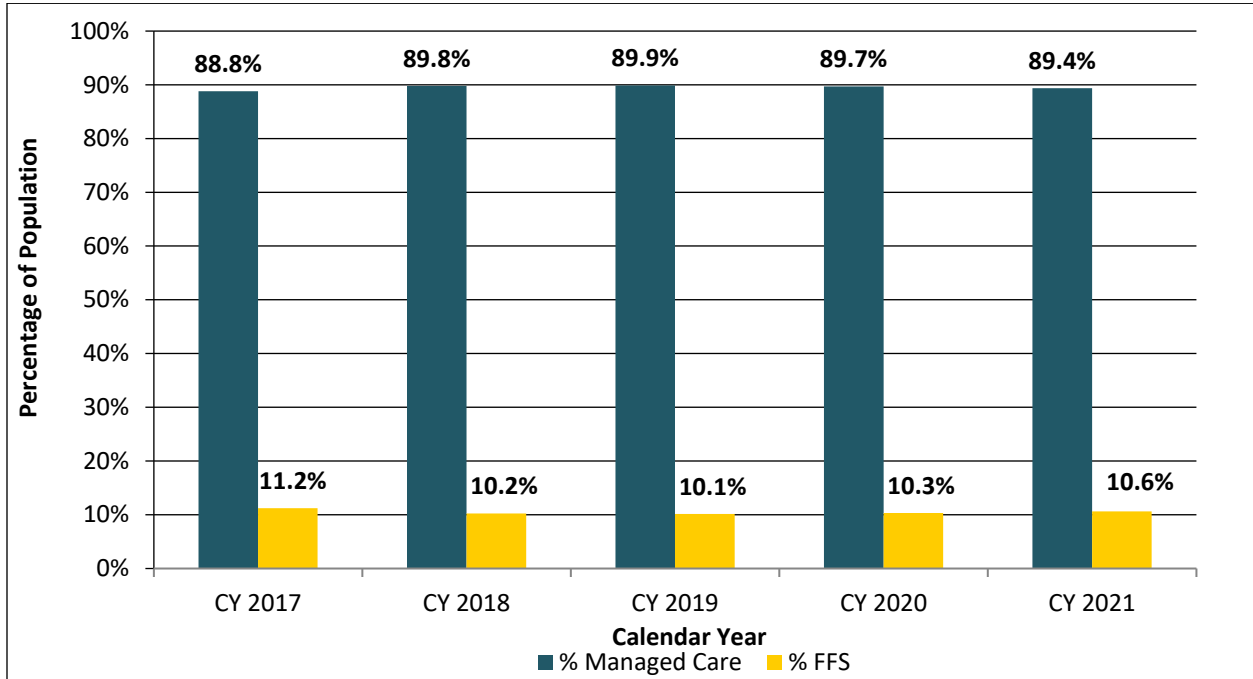
\*Data source: U.S. Census Bureau, Population Division. Annual Estimates of the Resident Population: April 1, 2010, to July 1, 2022. Retrieved from <https://www.census.gov/quickfacts/fact/table/MD,US/PST045218>

## Managed Care Enrollment

Since its inception, HealthChoice has been expected to enroll a high percentage of Medicaid participants into managed care. Figure 2 compares Medicaid managed care and FFS enrollment. Between CY 2017 and CY 2021, managed care enrollment remained consistently above 88.0%, with the highest rate of 89.9% in CY 2019, followed by 89.8% in CY 2018.

<sup>20</sup> The limited data available for CY 2020 suggest that there was a decline in the uninsured rate to 4.3%. The 2020 data are based on the Coverage of the Total Population (CPS) instead of the American Community Survey (ACS) and cannot be compared to CY 2017 to CY 2019 and CY 2021 data.

**Figure 2. Percentage of Medicaid<sup>21</sup> Participants in Managed Care Compared to FFS, CY 2017–CY 2021**



### Continuous Enrollment

MDH began monitoring HealthChoice participants to ensure that they did not have a gap or interruption in Medicaid coverage as a result of a change in the system for eligibility redetermination in CY 2015. Since FFCRA’s continuous enrollment requirement affected enrollment in CY 2020 and CY 2021, it is difficult to evaluate the extent to which the auto-enrollment policy affected continuous enrollment or reduced gaps in coverage over the evaluation period.

Table 3 shows the proportion of HealthChoice participants with twelve months of continuous Medicaid enrollment. The percentage of participants with continuous enrollment increased over the evaluation period. Prior to the PHE, participants with twelve months of continuous enrollment had remained stable, at around 77% of participants aged 1 to 64 years. Between CY 2019 and CY 2020, the percentage of participants with twelve months of continuous enrollment increased to 86.3% before further increasing to 91.4% in CY 2021. Due to the impacts of the continuous enrollment requirement during the PHE, it is difficult to assess the effect of auto-enrollment policies on this measure.

<sup>21</sup> “Medicaid” is representative of both Medicaid and MCHP.

**Table 3. Percentage of HealthChoice Participants with Continuous Medicaid Enrollment, by Age Group, CY 2017–CY 2021**

Age Group (Years)	Calendar Year				
	2017	2018	2019	2020	2021
1–2	76.3%	74.5%	75.0%	85.8%	92.8%
3–9	81.7%	80.4%	81.9%	91.0%	93.8%
10–18	82.2%	80.9%	82.3%	91.1%	94.5%
19–39	72.6%	68.9%	71.9%	82.2%	89.0%
40–64	77.0%	74.1%	77.3%	83.3%	89.5%
<b>Total</b>	<b>77.6%</b>	<b>75.1%</b>	<b>77.4%</b>	<b>86.3%</b>	<b>91.4%</b>

Table 4 shows the odds ratios of demographic characteristics on having fewer than 12 months of enrollment. A logistic regression was used to calculate the odds ratios for MCO participants aged 1 to 64 years each calendar year. Demographic groups that had higher odds of experiencing non-continuous enrollment than the reference groups throughout the evaluation period includes adults aged 19 to 39 years, ACA expansion participants, and participants who live in Montgomery and Prince George’s Counties, Western Maryland, or out of state. For example, in CY 2021, the odds that participants of the ACA expansion coverage groups had less than 12 months of continuous enrollment were 1.825 times higher than non-ACA expansion participants.

**Table 4. Associations between Demographic Characteristics and Continuous Enrollment, Odds Ratios of Fewer than 12 Months Enrollment, CY 2017–CY2021**

Effect	2017	2018	2019	2020	2021
<b>Age Group</b>					
03-09	0.836 ***	0.828 ***	0.746 ***	0.649 ***	0.889 ***
10-18	0.843 ***	0.848 ***	0.787 ***	0.704 ***	0.904 ***
19-39	1.205 ***	1.393 ***	1.083 ***	1.150 ***	1.352 ***
40-64	.884 ***	1.014 **	0.755 ***	0.973 ***	1.163 ***
<b>Race†</b>					
Black	0.784 ***	0.799 ***	0.835 ***	0.674 ***	0.649 ***
White	0.861 ***	0.872 ***	0.873 ***	0.793	0.826 ***
Hispanic	0.706 ***	0.704 ***	0.716 ***	0.556 ***	0.429 ***
Native American	0.929	1.09 ***	1.044 **	0.915 **	1.045 ***
Other	1.267 ***	1.265 ***	1.242 ***	0.982 ***	1.018 ***
<b>ACA Expansion Coverage</b>	1.479 ***	1.366 ***	1.692 ***	1.767 ***	1.825 ***
<b>Region</b>					
Eastern Shore	0.956 ***	1.018 ***	1.008 ***	0.922 ***	1.034 ***
Montgomery and Prince George's County	1.267 ***	1.280 ***	1.247 ***	1.363 ***	1.305 *
Out of State	1.398 ***	1.492 ***	1.703 ***	1.793 ***	2.16 ***
Southern Maryland	1.092	1.145	1.105 ***	1.100 ***	1.132 ***
Western Maryland	1.049 ***	1.088 ***	1.104 ***	1.053 ***	1.165 ***

\*\*\*<0.001, \*\*<0.01, \*<0.05

†, Reference Groups: Age 01-02, Asian, Not ACA, Baltimore Metro

Table 5 displays the number and percentage of HealthChoice participants with a gap in Medicaid enrollment of one or more days during the calendar year from CY 2017 through CY 2021, as well as whether the gap lasted longer than 180 days (i.e., over 6 months). Participants who reenroll within 120 days are enrolled into their previous MCO. Participants who reenroll after 121 days or more are auto-assigned to an MCO. The percentage of HealthChoice participants with at least one gap in coverage remained stable between CY 2017 and CY 2018 at around 8.3% but decreased to 5.8% in CY 2019, 1.2% in CY 2020, and 0.3% in CY 2021. Among participants with a gap in coverage in CY 2021, 77.2% had a gap of 180 days or less, and 22.8% had a gap of 181 days or more.

Compared to previous years, CY 2019 and CY 2020 had fewer gaps overall, but a greater share of those gaps extended beyond 180 days. CY 2021 had fewer gaps than in all previous years, and the percentage of those gaps that extended beyond 180 days decreased to CY 2017 and CY 2018 levels.

**Table 5. Number of HealthChoice Participants with a Gap in Medicaid Coverage, by Length of Gap, CY 2017–CY 2021**

Calendar Year	Total	At Least One Gap in Medicaid Coverage		Length of Coverage Gap			
				180 Days or Less		181 Days or More	
		#	%	#	%	#	%
2017	1,355,225	113,309	8.4%	88,965	78.5%	24,344	21.5%
2018	1,389,716	113,801	8.2%	87,976	77.3%	25,825	22.7%
2019	1,377,493	79,624	5.8%	57,746	72.5%	21,878	27.5%
2020	1,392,876	16,241	1.2%	11,391	70.1%	4,850	29.9%
2021	1,487,449	4,212	0.3%	3,253	77.2%	959	22.8%

Table 6 shows the number of participants in the ACA expansion coverage groups who had a coverage gap during the evaluation period and the lengths of participants’ respective coverage gaps. Participants in the ACA expansion coverage groups followed a similar trend to the overall population. Over the evaluation period, participants with at least one gap in Medicaid coverage declined from 6.5% in CY 2017 to 0.3% in CY 2021. Excluding the years affected by the COVID-19 PHE, the percentage of participants in the ACA expansion coverage groups with at least one gap in Medicaid coverage declined, and there were 3,464 fewer reenrollments within six months from CY 2017 to CY 2019.

**Table 6. Number of ACA Expansion HealthChoice Participants with a Gap in Medicaid Coverage, by Length of Gap, CY 2017–CY 2021**

Calendar Year	Total	At Least One Gap in Medicaid Coverage		Length of Coverage Gap			
				180 Days or Less		181 Days or More	
		#	%	#	%	#	%
2017	348,492	22,529	6.5%	15,452	68.6%	7,077	31.4%
2018	365,733	24,808	6.8%	16,844	67.9%	7,964	32.1%
2019	360,983	19,745	5.5%	11,988	60.7%	7,757	39.3%
2020	368,065	4,755	1.3%	3,108	65.4%	1,647	34.6%
2021	412,143	1,415	0.3%	1,133	80.1%	282	19.9%

In addition to encouraging continuity of coverage, MDH sought to improve connection to services for new HealthChoice participants. Table 7 shows the mean number of days until first service for new HealthChoice participants. The mean duration decreased for any service, medical services, and pharmacy services from CY 2017 to CY 2021. There was an increase in mean duration for all service categories in CY 2020, likely due to the impact of the COVID-19 pandemic on the availability of medical services.

**Table 7. Mean Duration in Days until First Service for New HealthChoice Participants**

Service	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Any	58.3	61.3	57.5	72.7	48.5
Medical	62.6	65.1	60.8	77.5	53.9
Pharmacy	103.1	107.8	101.3	113.7	98.3

## Network Adequacy

Another method of measuring enrollee access to care is to examine provider network adequacy. This section of the report examines PCP and specialty provider networks.

### PCP Network Adequacy

HealthChoice requires every participant to have a PCP, and each MCO must have an adequate network of PCPs to serve its enrolled population. Under HealthChoice regulations, MCOs must have a ratio of 1 PCP to every 200 participants within each of the up to 40 local access areas (LAAs) in the state for their network to be considered adequate.<sup>22</sup> MDH assesses network adequacy periodically throughout the year and works with the MCOs to resolve capacity issues. In the case of any issues, MDH discontinues new enrollment for that MCO in the affected region until it increases provider contracts to an adequate level.

Table 8 shows PCP network adequacy as of December 2021. The network adequacy analysis counted the number of PCP offices included in provider networks in each county in Maryland.

<sup>22</sup> COMAR 10.67.05.05(B).



In CY 2021, Prince George’s County was the only jurisdiction that was unable to achieve a 200:1 ratio of participants to PCPs.

**Table 8. PCP Capacity, by County, December 2021<sup>23</sup>**

County	Number of PCP Offices	Capacity at 200:1	Total Dec 2021 Enrollment	Excess Capacity
				Difference 200:1 Ratio
<b>Allegany</b>	154	30,800	20,385	10,415
<b>Anne Arundel</b>	904	180,800	102,241	78,559
<b>Baltimore City</b>	2047	409,400	242,324	167,076
<b>Baltimore County</b>	1669	333,800	212,062	121,738
<b>Calvert</b>	135	27,000	14,989	12,011
<b>Caroline</b>	102	20,400	11,841	8,559
<b>Carroll</b>	249	49,800	23,567	26,233
<b>Cecil</b>	156	31,200	26,854	4,346
<b>Charles</b>	220	44,000	35,673	8,327
<b>Dorchester</b>	88	17,600	12,390	5,210
<b>Frederick</b>	339	67,800	44,863	22,937
<b>Garrett</b>	84	16,800	7,999	8,801
<b>Harford</b>	364	72,800	47,529	25,271
<b>Howard</b>	486	97,200	48,587	48,613
<b>Kent</b>	28	5,600	4,605	995
<b>Montgomery</b>	1391	278,200	194,689	83,511
<b>Prince George's</b>	1144	228,800	254,624	-25,824
<b>Queen Anne's</b>	100	20,000	8,401	11,599
<b>Somerset</b>	59	11,800	8,374	3,426
<b>St. Mary's</b>	181	36,200	22,860	13,340
<b>Talbot</b>	188	37,600	8,176	29,424
<b>Washington</b>	264	52,800	44,569	8,231
<b>Wicomico</b>	221	44,200	35,508	8,692
<b>Worcester</b>	135	27,000	13,231	13,769
<b>Total (in MD)</b>	<b>10,708</b>	<b>2,141,600</b>	<b>1,446,341</b>	<b>695,259</b>
<b>Other (Out of State)</b>	474			
<b>Washington, D.C.<sup>24</sup></b>	1,099			

<sup>23</sup> Providers were identified by their license numbers. If a license number was unavailable, then the provider’s national provider identifier (NPI) was used. If a provider had more than one office location in a county, only one office was counted. If a provider had multiple office locations among different counties, one office was counted in each county. PCPs in Washington, DC were not included in the analysis. Although the regulations apply to each MCO individually, this analysis aggregated data from all nine MCOs.

<sup>24</sup> The HealthChoice PCP network extends outside of Maryland. Participants also have the option of receiving PCP services at provider offices located in Washington D.C. and in other states. However, since no Maryland Medicaid enrollees are residents of these areas, values for the three other columns could not be calculated.

## Specialty Care Provider Network Adequacy

In addition to ensuring PCP network adequacy, MDH requires MCOs to provide all medically necessary specialty care. If an MCO does not have the appropriate in-network specialist needed to meet an enrollee's medical needs, then it must arrange for care with an out-of-network specialist and compensate the provider. Regulations for specialty care access require each MCO to have an in-network contract with at least one provider statewide in 14 major medical specialties.<sup>25</sup> These medical specialties include eight core specialties—cardiology, otolaryngology, gastroenterology, neurology, ophthalmology, orthopedics, surgery, and urology—and six major specialties—allergy and immunology, dermatology, endocrinology, infectious disease, nephrology, and pulmonology. Additionally, for each of the ten specialty care regions throughout the state that an MCO serves, an MCO must include at least one in-network specialist in each of the eight core specialties.

## Utilization

With the continued increase in HealthChoice enrollment, it is important to maintain access to care. This section of the report examines service utilization related to ambulatory care, ED visits, and inpatient admissions. Unless otherwise stated, all measures in this section are calculated for HealthChoice participants with any period of enrollment in the program during the calendar year.

## Ambulatory Care Visits

MDH monitors ambulatory care utilization as a measure of access to care. When properly accessing care, HealthChoice participants should receive care in an ambulatory care setting rather than use the ED for a non-emergent condition or allow a condition to exacerbate to the extent that it requires an inpatient admission. For this analysis, an ambulatory care visit is defined as contact with a doctor, nurse practitioner, or physician assistant in a clinic, physician's office, or hospital outpatient department by an individual enrolled in HealthChoice at any time during the measurement year. The definition excludes outpatient ED visits, hospital inpatient services, home health services, X-rays, and laboratory services.

Figure 3 shows the percentage of HealthChoice participants with an ambulatory care visit during the calendar year by age group. Between CY 2017 and CY 2021, children under the age of 3 had the highest ambulatory care visit rates, while participants aged 19 to 39 years had the lowest rate. While rates decreased for all age groups in CY 2020, they increased in CY 2021 for all age groups above age 1, with gains ranging from 1.2 percentage points for children aged 1 to 2 years to 5.8 percentage points for children aged 10 to 18 years. All four age groups below aged 19 years experienced ambulatory care rate decreases overall between CY 2017 and CY 2021.

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<sup>25</sup> COMAR 10.67.05.05-1.

**Figure 3. Percentage of the HealthChoice Population Who Had an Ambulatory Care Visit, by Age Group, CY 2017–CY 2021**

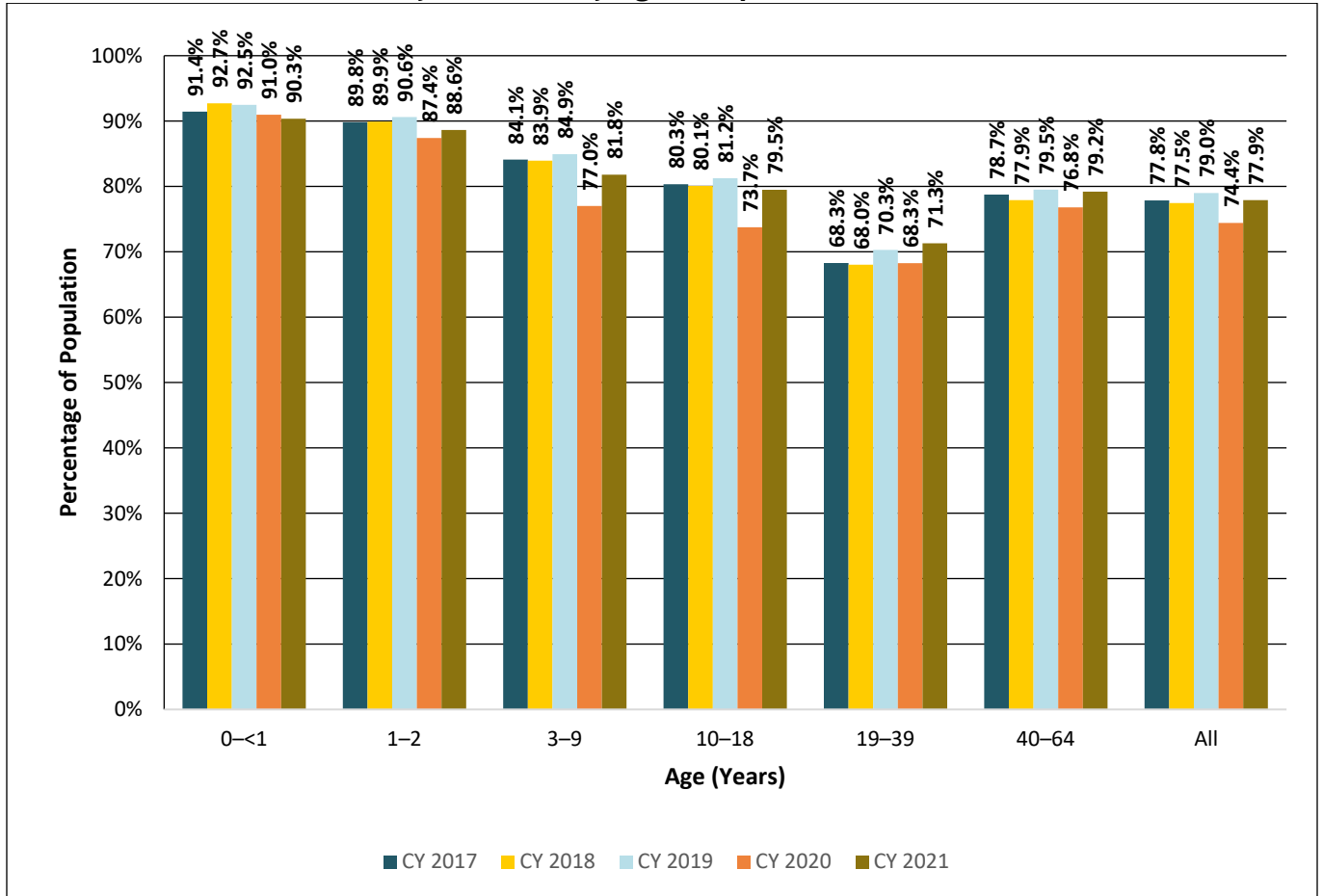


Figure 4 presents ambulatory care use by coverage category. ACA expansion participants accessed ambulatory care services at lower rates than participants in other coverage categories, but their rate of ambulatory care visits increased by 1.4 percentage points during the evaluation period. ACA expansion participants constitute more than 25% of the HealthChoice population (see Figure 1), so their low utilization of ambulatory care affects the trend for the entire population. All coverage groups experienced declines in ambulatory care visit rates between CY 2019 and CY 2020 but saw increases ranging from 2.3 to 4.1 percentage points between CY 2020 and CY 2021. Two coverage categories — MCHP and Disabled — saw slight decreases of 1.1 and 0.4 percentage points, respectively, between CY 2017 and CY 2021. All other categories experienced slight increases during the evaluation period.

**Figure 4. Percentage of the HealthChoice Population Who Had an Ambulatory Care Visit, by Coverage Category, CY 2017–CY 2021**

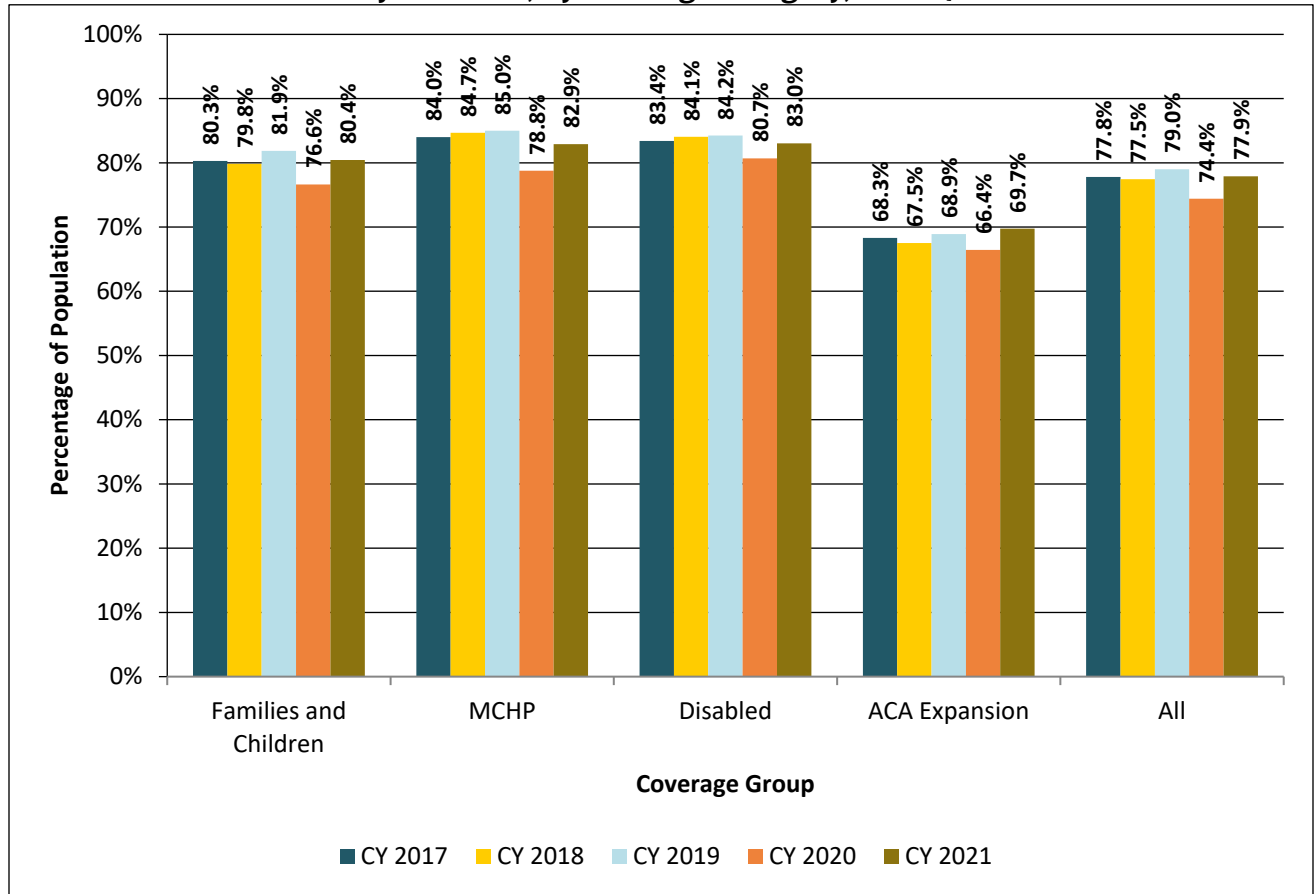
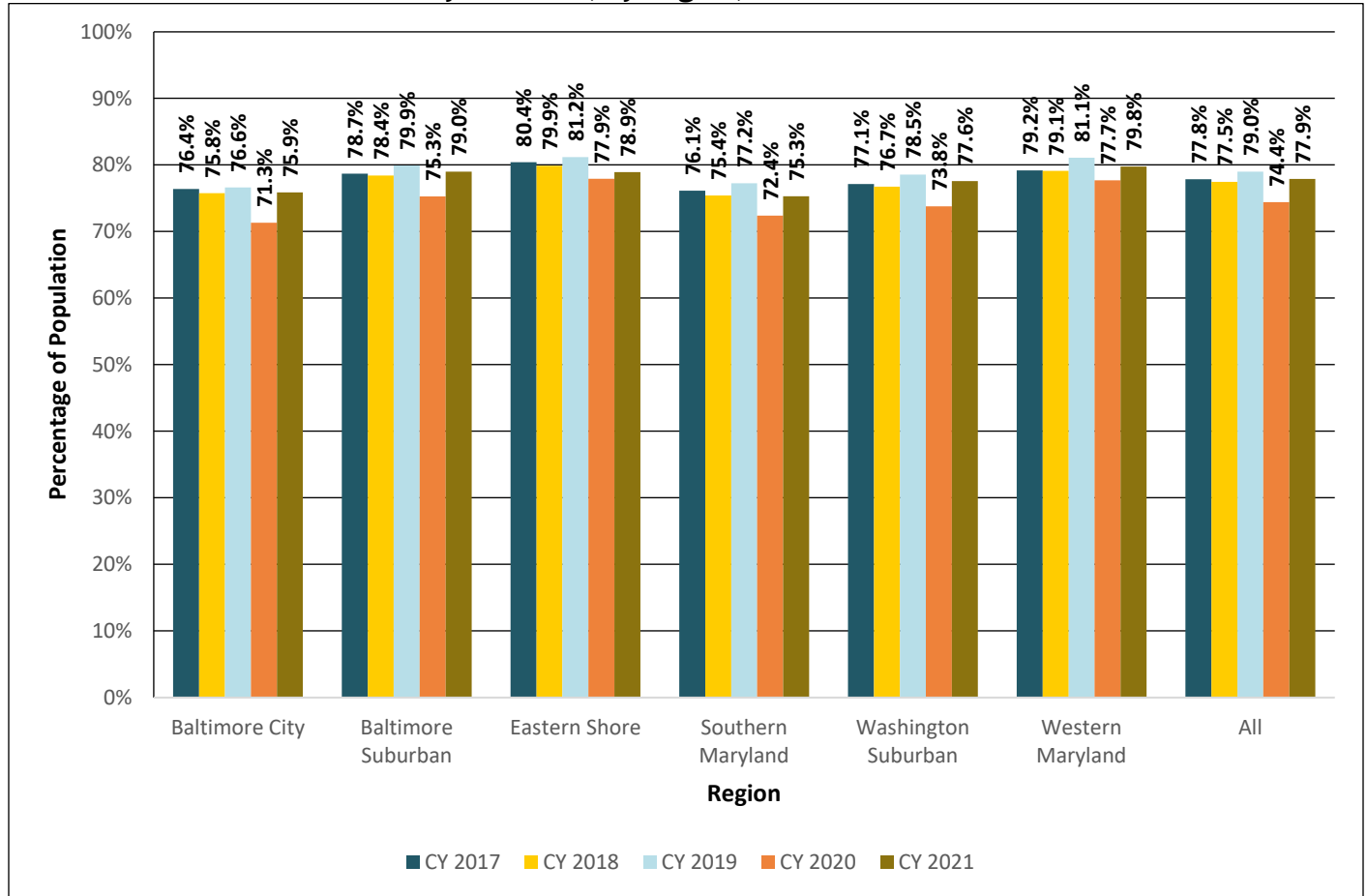


Figure 5 presents the percentage of the HealthChoice population with an ambulatory care visit by region between CY 2017 and CY 2021. Ambulatory care utilization remained stable overall across all regions from CY 2017 to CY 2021; rates dropped between 3.3 and 5.3 percentage points in CY 2020 before increasing in CY 2021 to rates consistent with the prior years. In CY 2021, residents of Western Maryland had the highest rate of ambulatory care use, followed by Baltimore Suburban.

**Figure 5. Percentage of the HealthChoice Population Who Had an Ambulatory Care Visit, by Region, CY 2017–CY 2021**



## ED Utilization

As noted earlier, one of the goals of the HealthChoice program is to treat more conditions in an ambulatory care setting rather than in the ED. Based on the premise that a managed care system promotes ambulatory and preventive care, then the need for emergency services should decline. To assess overall ED utilization, MDH measures the percentage of individuals with any period of enrollment who visited an ED at least once during the calendar year. Unless otherwise noted, ED utilization measures in this report exclude ED visits that resulted in an inpatient hospital admission.

Figure 6 presents the percentage of HealthChoice participants with an ED visit by age group. The percentage with an outpatient ED visit decreased between CY 2017 and CY 2020, then increased again in CY 2021, for a net decrease across all age groups. The largest declines were observed in the age groups of 1 to 2 years and 3 to 9 years, which experienced decreases of 8.1 and 8.0 percentage points, respectively, over the evaluation period.

**Figure 6. Percentage of the HealthChoice Population Who Had an Outpatient ED Visit, by Age Group, CY 2017–CY 2021**

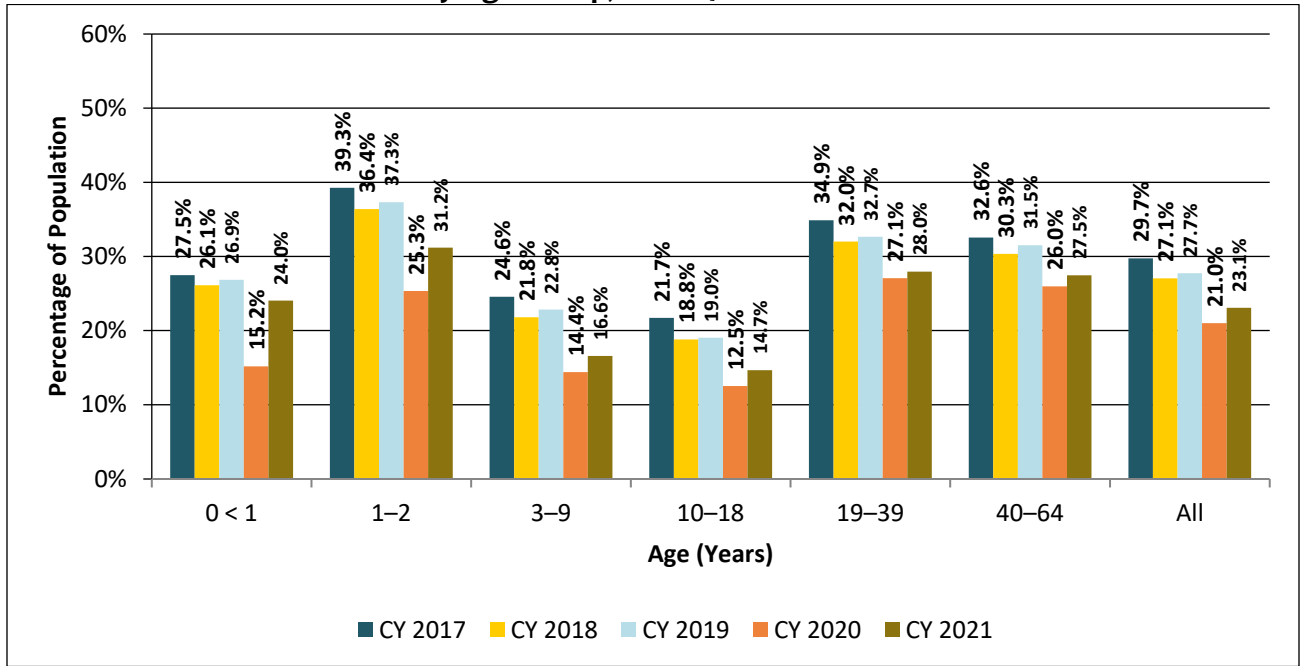


Figure 7 shows ED use by coverage category. Overall, the outpatient ED visit rate among all HealthChoice participants declined from CY 2017 to CY 2021. Among the coverage categories, disabled enrollees were the most likely to utilize ED services, although they still experienced a decrease: from 41.8% in CY 2017 to 33.9% in CY 2021.

**Figure 7. Percentage of the HealthChoice Population Who Had an Outpatient ED Visit, by Coverage Category, CY 2017–CY 2021**

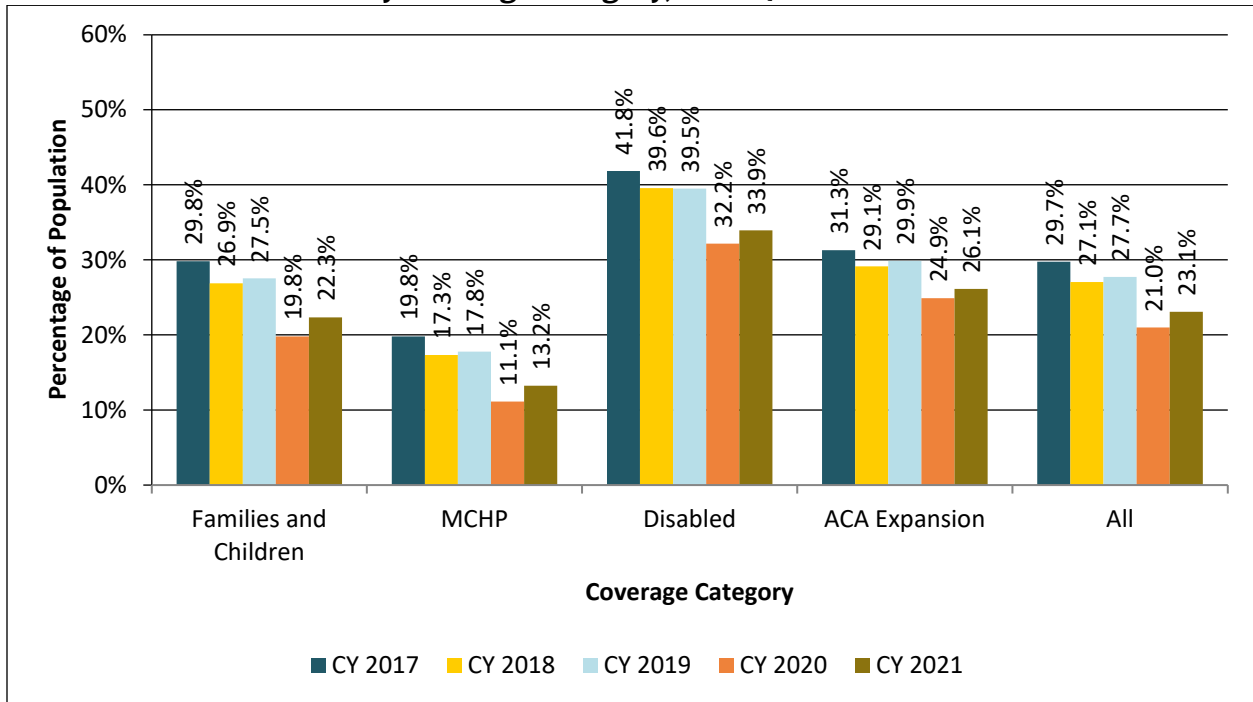


Figure 8 shows the percentage of HealthChoice participants with an ED visit by region between CY 2017 and CY 2021. Participants living in Baltimore City used ED services at the highest rates throughout the evaluation period; however, their rates fell by 8.0 percentage points from CY 2017 to CY 2021. In other regions, rates also declined, ranging from a reduction of 5.8 percentage points in the Washington Suburban area to 7.5 percentage points in Southern Maryland.

**Figure 8. Percentage of the HealthChoice Population Who Had an Outpatient ED Visit, by Region, CY 2017–CY 2021**

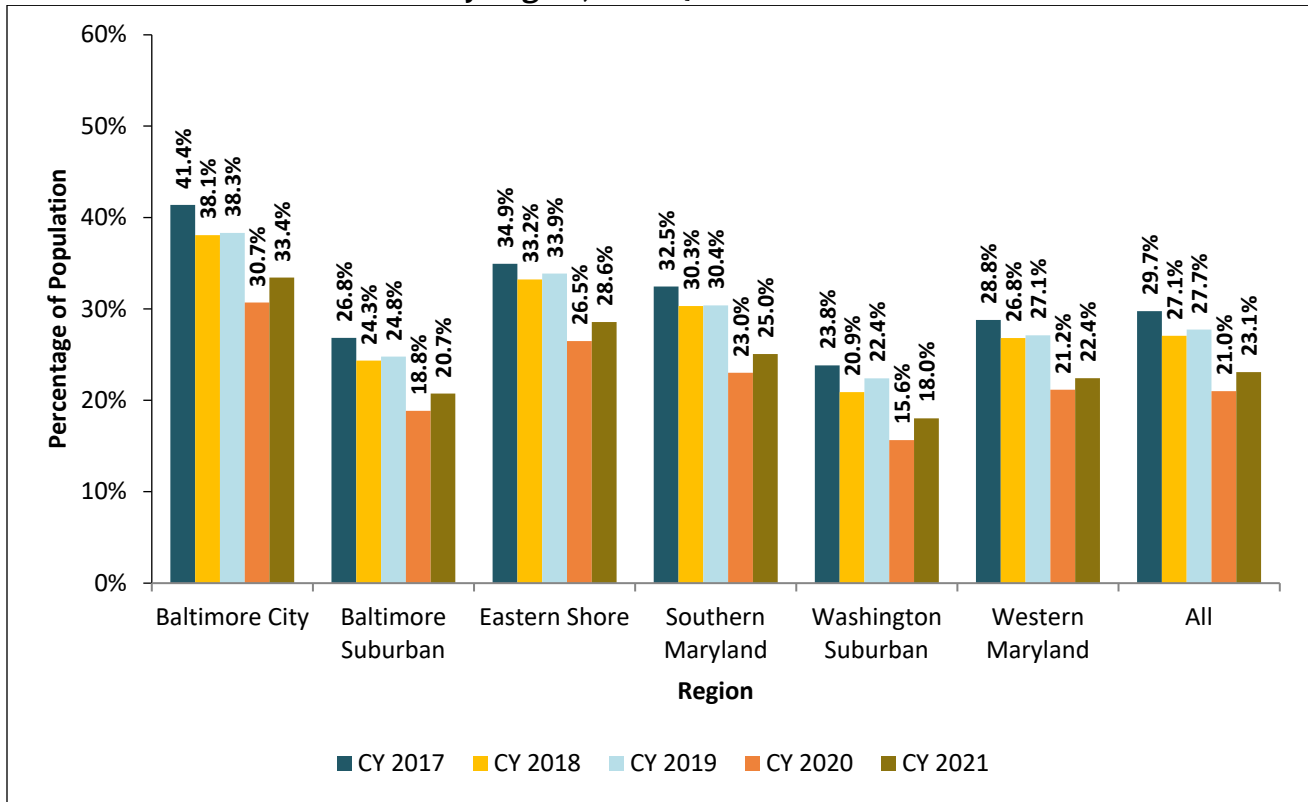


Table 9 presents the number and percentage of HealthChoice participants aged 0 to 64 years with an outpatient ED visit, by age group, during CY 2017 and CY 2021. The percentage of participants with an ED visit decreased in each age group from CY 2017 to CY 2021, with the largest decline of 8.1 percentage points in the 1-2 years age group. The average number of ED visits per user (meaning the average number of ED visits among participants that had at least one ED visit) among participants that had at least one ED visit declined by 0.2 during the evaluation period.

**Table 9. Percentage of HealthChoice Participants Who Had an Outpatient ED Visit and Average Number of Visits per User, by Age Group, CY 2017 and CY 2021**

Age (Years)	Outpatient ED Visits							
	CY 2017				CY 2021			
	# of Participants	# with Visit	% with Visit	Average # Visits by User	# of Participants	# with Visit	% with Visit	Average # Visits by User
0 < 1	36,267	9,964	27.5%	1.6	33,360	8,022	24.0%	1.6
1–2	79,718	31,294	39.3%	1.9	76,123	23,737	31.2%	1.7
3–9	260,703	64,033	24.6%	1.5	263,044	43,607	16.6%	1.4
10–18	281,098	61,030	21.7%	1.6	318,361	46,688	14.7%	1.5
19–39	420,723	146,738	34.9%	2.3	482,238	134,808	28.0%	2.1
40–64	276,584	90,035	32.6%	2.4	314,323	86,287	27.5%	2.1



<b>All</b>	<b>1,355,093</b>	<b>403,094</b>	<b>29.7%</b>	<b>2.1</b>	<b>1,487,449</b>	<b>343,149</b>	<b>23.1%</b>	<b>1.9</b>
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Note: The average number of visits by user for CY 2017 was corrected.

### ED Visits with Inpatient Admission

Table 10 shows the number and percentage of HealthChoice participants who had an ED visit that resulted in an inpatient admission, by demographic characteristics in CY 2017 and CY 2021. The overall percentage of participants with an ED visit that resulted in an inpatient admission decreased from CY 2017 to CY 2021. That decrease is reflected in the rate for each age group, region, and coverage category, as well as for all MCOs except Kaiser Permanente, which experienced an increase of 0.1 percentage points during the evaluation period.

In CY 2021, Baltimore City had the highest percentage (4.8%) of participants with an ED visit that resulted in an inpatient hospitalization. Among coverage groups, those in the Disabled coverage group had the highest percentage (10.3%) of ED visits that resulted in an inpatient admission.

**Table 10. Percentage of the HealthChoice Population Who Had an ED Visit that Resulted in an Inpatient Admission, by Demographic and Coverage Category, CY 2017 and CY 2021**

Demographic and Coverage Characteristics	CY 2017			CY 2021		
	Total Participants	# ED Visit with Inpatient Admission	% ED Visit with Inpatient Admission	Total Participants	# ED Visit with Inpatient Admission	% ED Visit with Inpatient Admission
<b>Age Group (Years)</b>						
<b>0 &lt; 1</b>	36,267	1,283	3.5%	33,360	956	2.9%
<b>1–2</b>	79,718	1,593	2.0%	76,123	1,275	1.7%
<b>3–9</b>	260,703	2,051	0.8%	263,044	1,405	0.5%
<b>10–18</b>	281,098	2,704	1.0%	318,361	2,615	0.8%
<b>19–39</b>	420,723	20,549	4.9%	482,238	19,528	4.0%
<b>40–64</b>	276,584	23,107	8.4%	314,323	21,923	7.0%
<b>Total</b>	<b>1,355,093</b>	<b>51,287</b>	<b>3.8%</b>	<b>1,487,449</b>	<b>47,702</b>	<b>3.2%</b>
<b>Region*</b>						
<b>Baltimore City</b>	238,459	14,216	6.0%	248,187	11,960	4.8%
<b>Baltimore Suburban</b>	404,004	15,104	3.7%	446,651	14,486	3.2%
<b>Eastern Shore</b>	126,574	4,294	3.4%	133,376	3,924	2.9%
<b>Southern Maryland</b>	69,524	2,834	4.1%	75,745	2,716	3.6%
<b>Washington Suburban</b>	401,634	10,481	2.6%	460,474	10,462	2.3%
<b>Western Maryland</b>	113,174	4,259	3.8%	122,150	4,117	3.4%
<b>Out of State</b>	1,724	99	5.7%	866	37	4.3%
<b>Total</b>	<b>1,355,093</b>	<b>51,287</b>	<b>3.8%</b>	<b>1,487,449</b>	<b>47,702</b>	<b>3.2%</b>
<b>Managed Care Organization**</b>						
<b>Aetna</b>	1,971	86	4.4%	55,606	1,735	3.1%

Demographic and Coverage Characteristics	CY 2017			CY 2021		
	Total Participants	# ED Visit with Inpatient Admission	% ED Visit with Inpatient Admission	Total Participants	# ED Visit with Inpatient Admission	% ED Visit with Inpatient Admission
Amerigroup***	317,006	9,991	3.2%	327,307	8,642	2.6%
CareFirst Community Health Plan	53,005	2,424	4.6%	71,565	2,827	4.0%
Jai Medical Systems	29,719	2,016	6.8%	30,925	1,701	5.5%
Kaiser	77,490	1,677	2.2%	113,913	2,600	2.3%
Maryland Physicians Care	251,653	10,742	4.3%	250,522	9,211	3.7%
MedStar	105,415	4,790	4.5%	110,134	4,328	3.9%
Priority Partners	339,332	12,932	3.8%	354,583	11,174	3.2%
UnitedHealthcare	179,502	6,629	3.7%	172,894	5,484	3.2%
<b>Total</b>	<b>1,355,093</b>	<b>51,287</b>	<b>3.8%</b>	<b>1,487,449</b>	<b>47,702</b>	<b>3.2%</b>
<b>Medicaid Coverage Category**</b>						
Families and Children	753,568	17,616	2.3%	833,729	17,168	2.1%
MCHP	164,894	1,166	0.7%	158,561	1,017	0.6%
Disabled	88,139	10,990	12.5%	83,016	8,568	10.3%
ACA Expansion	348,492	21,515	6.2%	412,143	20,949	5.1%
<b>Total</b>	<b>1,355,093</b>	<b>51,287</b>	<b>3.8%</b>	<b>1,487,449</b>	<b>47,702</b>	<b>3.2%</b>

\*Regions are defined as the following: Baltimore City (only), Baltimore Metro (Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties), Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne’s, Somerset, Talbot, Wicomico, and Worcester Counties), Southern Maryland (Calvert, Charles, and St. Mary’s Counties), Washington Metro (Montgomery and Prince George’s Counties), and Western Maryland (Allegany, Frederick, Garrett, and Washington Counties).

\*\*Participants were assigned to their last recorded MCO and Medicaid coverage category of the calendar year.

†MCO data are shown for total enrollment and not adjusted for enrollees’ risk distribution.

\*\*\*On January 1, 2023, Amerigroup Community Care in Maryland became Wellpoint.

## Inpatient Admissions

One measure for assessing inpatient utilization is to calculate the percentage of participants aged 18 to 64 years with any period of HealthChoice enrollment who had an inpatient admission during the calendar year. Another measure for assessing inpatient utilization is to calculate the average number of inpatient hospital days. Table 11 presents HealthChoice participants with at least one inpatient hospital admission, by age group, and the average number of days per participant. Participants aged 18 to 40 years had a lower rate of both inpatient admissions and average days compared to participants aged 41 to 64 years. Both age groups decreased in inpatient admissions and average days during the evaluation period.

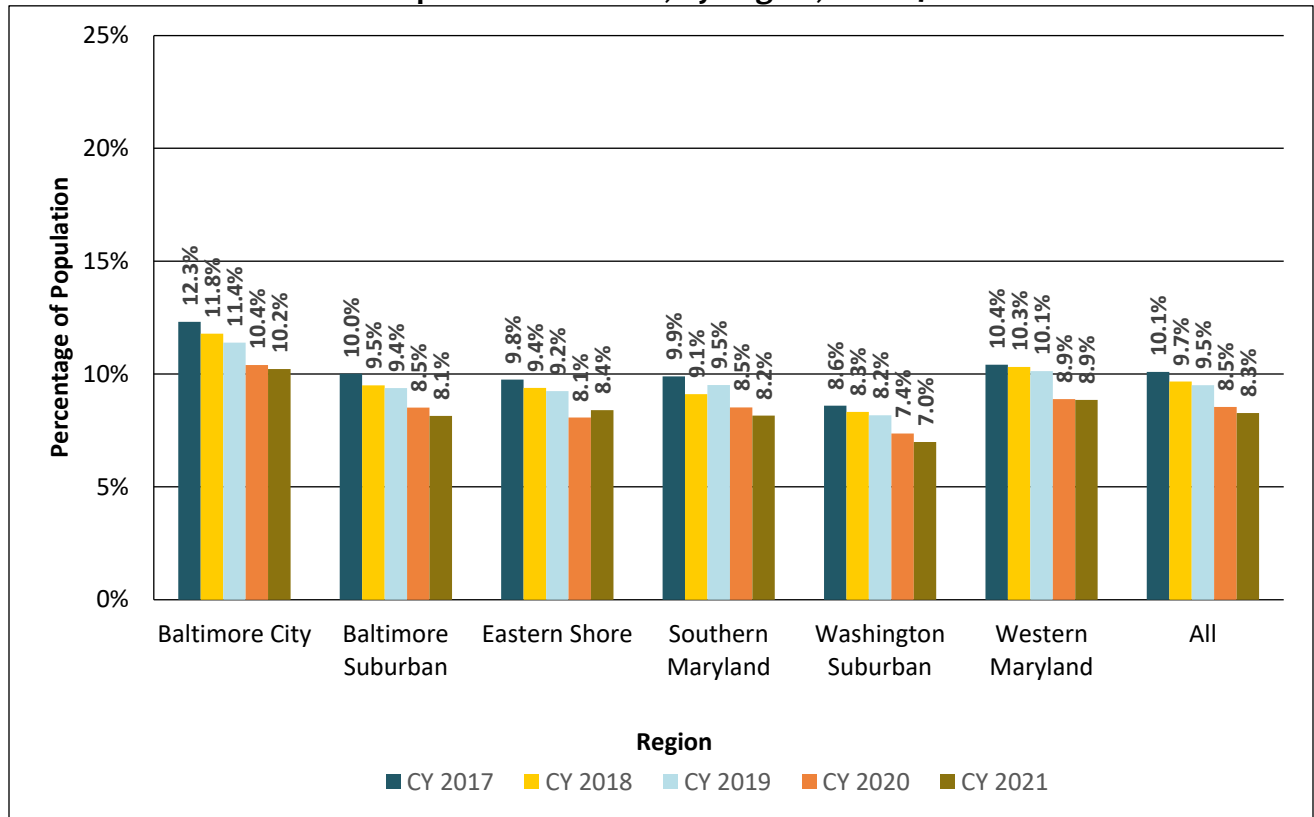
**Table 11. Percentage of HealthChoice Participants Aged 18–64 Years Who Had an Inpatient Admission and Average Inpatient Days, by Age Group, CY 2017 and CY 2021**

Age Group	All Inpatient Admissions							
	CY 2017				CY 2021			
	Total Participants	# with Inpatient Admission	% with Inpatient Admission	Average Inpatient Days per Participant	Total Participants	# with Inpatient Admission	% with Inpatient Admission	Average Inpatient Days per Participant
18–40	461,360	45,442	9.8%	0.6	529,469	42,044	7.9%	0.5
41–64	263,296	28,194	10.7%	1.2	297,546	26,417	8.9%	1.1
<b>Total</b>	<b>724,656</b>	<b>73,636</b>	<b>10.2%</b>	<b>0.8</b>	<b>827,015</b>	<b>68,461</b>	<b>8.3%</b>	<b>0.7</b>

Note: For CY 2017 the calculation for average inpatient days per participant was corrected.

Figure 9 displays the percentages of HealthChoice participants aged 18 to 64 years with an inpatient admission by region. Between CY 2017 and CY 2021, inpatient admission rates decreased across all regions. The greatest decline was observed in Baltimore City, whose rate decreased by 2.1 percentage points. The Washington Suburban region had the lowest admission rate during the evaluation period, with 7.0% in CY 2021 as compared to 8.6% in CY 2017. Baltimore City is the only region whose admission rates remained above 10.0% throughout the evaluation period.

**Figure 9. Percentage of HealthChoice Participants Aged 18–64 Years Who Had an Inpatient Admission, by Region, CY 2017–CY 2021**



## Care for Special Populations

Another goal of the HealthChoice program is to improve the quality of health services and access to care for special populations. This section of the report assesses services provided to children in foster care, the REM program, access to care stratified by race and ethnicity, and the demographics and health care utilization of the ACA expansion population. Unless otherwise stated, all measures in this section are calculated for HealthChoice participants with any period of enrollment during the calendar year.

### Children in Foster Care

This section of the report examines service utilization for children in foster care with any period of enrollment in HealthChoice during the calendar year.<sup>26</sup> It also compares service utilization for children in foster care with other HealthChoice children. Unless otherwise specified, the measures presented here are for foster care children from birth through 21 years.

Table 12 displays HealthChoice children in foster care by age group for CY 2017 and CY 2021. Across the evaluation period, children aged 10 to 21 years made up the largest proportion of HealthChoice children in foster care (63.5% in CY 2017 and 62.3% in CY 2021).

**Table 12. Percentage of HealthChoice Children in Foster Care, by Age Group, CY 2017 and CY 2021**

Age Group (Years)	CY 2017		CY 2021	
	Total Participants in Foster Care	Percentage of Total	Total Participants in Foster Care	Percentage of Total
0 to <1	256	2.9%	156	2.0%
1–2	733	8.3%	607	8.0%
3–5	953	10.8%	959	12.6%
6–9	1,260	14.3%	1,151	15.1%
10–14	1,761	20.0%	1,623	21.3%
15–18	2,212	25.2%	1,806	23.7%
19–21	1,611	18.3%	1,322	17.3%
<b>Total</b>	<b>8,786</b>	<b>100%</b>	<b>7,624</b>	<b>100%</b>

Table 13 shows the percentage of HealthChoice children in foster care, by service received and age group. Between CY 2017 and 2021, the percentage of children in foster care who did not receive any services increased by 1.2 percentage points. The rates of outpatient ED visits were highest among the age groups of 1 to 2 years and 19 to 21 years in CY 2017. In CY 2021, the rates of outpatient ED visits were highest among children under the age of 1 and aged 19 to 21 years. Inpatient admission rates declined for all age groups across the measurement period.

<sup>26</sup> Children in the subsidized adoption and guardianship programs are included in the foster children counts.

**Table 13. Percentage of HealthChoice Children in Foster Care, by Service and Age Group, CY 2017 and CY 2021**

Age Group (Years)	CY 2017			CY 2021		
	Total Participants in Foster Care	Number with Service	Percentage with Service	Total Participants in Foster Care	Number with Service	Percentage with Service
<b>No Medicaid Service</b>						
0 to <1	256	*	*	156	*	*
1–2	733	*	*	607	*	*
3–5	953	73	7.7%	959	101	10.5%
6–9	1,260	173	13.7%	1,151	159	13.8%
10–14	1,761	316	17.9%	1,623	255	15.7%
15–18	2,212	269	12.2%	1,806	275	15.2%
19–21	1,611	336	20.9%	1,322	287	21.7%
<b>Total</b>	<b>8,786</b>	<b>1,192</b>	<b>13.6%</b>	<b>7,624</b>	<b>1,128</b>	<b>14.8%</b>
<b>Ambulatory Care Visit</b>						
0 to <1	256	239	93.4%	156	142	91.0%
1–2	733	702	95.8%	607	538	88.6%
3–5	953	817	85.7%	959	794	82.8%
6–9	1,260	974	77.3%	1,151	885	76.9%
10–14	1,761	1,282	72.8%	1,623	1,181	72.8%
15–18	2,212	1,700	76.9%	1,806	1,331	73.7%
19–21	1,611	1,042	64.7%	1,322	843	63.8%
<b>Total</b>	<b>8,786</b>	<b>6,756</b>	<b>76.9%</b>	<b>7,624</b>	<b>5,714</b>	<b>74.9%</b>
<b>Outpatient ED Visit</b>						
0 to <1	256	85	33.2%	156	55	35.3%
1–2	733	332	45.3%	607	189	31.1%
3–5	953	276	29.0%	959	170	17.7%
6–9	1,260	303	24.0%	1,151	185	16.1%
10–14	1,761	429	24.4%	1,623	337	20.8%
15–18	2,212	869	39.3%	1,806	577	31.9%
19–21	1,611	668	41.5%	1,322	475	35.9%
<b>Total</b>	<b>8,786</b>	<b>2,962</b>	<b>33.7%</b>	<b>7,624</b>	<b>1,988</b>	<b>26.1%</b>
<b>Inpatient Admission</b>						
0 to <1†	256	212	82.8%	156	123	78.8%
1–2	733	63	8.6%	607	39	6.4%
3–5	953	21	2.2%	959	*	*
6–9	1,260	60	4.8%	1,151	*	*
10–14	1,761	170	9.7%	1,623	120	7.4%
15–18	2,212	330	14.9%	1,806	195	10.8%
19–21	1,611	192	11.9%	1,322	129	9.8%
<b>Total</b>	<b>8,786</b>	<b>1,048</b>	<b>11.9%</b>	<b>7,624</b>	<b>642</b>	<b>8.4%</b>

\*Cell values of 10 or less have been suppressed.

†Includes admissions tied to infant’s (0 to <1) birth.

Table 14 compares the service utilization of HealthChoice children in foster care to those not in foster care. Overall, the percentage of foster children who did not receive a service was higher than non-foster care children in CY 2017 and CY 2021. A higher percentage of children in foster care had an outpatient ED visit compared to non-foster care children, and a higher percentage had an inpatient admission.

**Table 14. Percentage of HealthChoice Foster Care Children vs. Non-Foster Care Children, by Service, CY 2017 and CY 2021**

Age Group (Years)	CY 2017			CY 2021		
	Total Participants	Number with Service	Percentage with Service	Total Participants	Number with Service	Percentage with Service
<b>No Medicaid Service</b>						
Foster	8,786	1,192	13.6%	7,624	1,128	14.8%
Non-Foster	720,267	68,209	9.5%	766,626	72,658	9.5%
<b>Ambulatory Care Visit</b>						
Foster	8,786	6,756	76.9%	7,624	5,714	74.9%
Non-Foster	720,267	591,145	82.1%	766,626	619,792	80.8%
<b>Outpatient ED Visit</b>						
Foster	8,786	2,962	33.7%	7,624	1,988	26.1%
Non-Foster	720,267	185,440	25.7%	766,626	140,338	18.3%
<b>Inpatient Admission†</b>						
Foster	8,786	1,048	11.9%	7,624	642	8.4%
Non-Foster	720,267	46,262	6.4%	766,626	40,238	5.2%

†Includes admissions tied to infant’s (0 to <1) birth.

Table 15 compares the dental utilization rate in CY 2021 for foster care children aged 4 to 20 years to the rate for non-foster care children enrolled in HealthChoice. Overall, children in foster care had a slightly higher dental visit rate (59.8%) than other HealthChoice children (58.2%). The largest differences between the two populations were observed in the younger age groups. The dental visit rate was 70.1% for children in foster care aged 4 to 5 years, 9.5 percentage points higher than for other HealthChoice children in the same age group.

**Table 15. Percentage of HealthChoice Foster Care Children Aged 4–20 Years vs. Non-Foster Care Children with a Dental Visit, by Age Group, CY 2021**

Age Group (Years)	CY 2021 HealthChoice Foster Care Status					
	Foster Care			Non-Foster Care		
	Total Participants	Number with Dental Visit	Percentage with Dental Visit	Total Participants	Number with Dental Visit	Percentage with Dental Visit
4–5	633	444	70.1%	75,343	45,624	60.6%
6–9	1,151	787	68.4%	148,449	95,794	64.5%
10–14	1,623	1,005	61.9%	185,884	114,002	61.3%
15–18	1,806	1,045	57.9%	129,048	69,633	54.0%
19–20	930	392	42.2%	56,754	21,574	38.0%
<b>Total</b>	<b>6,143</b>	<b>3,673</b>	<b>59.8%</b>	<b>595,478</b>	<b>346,627</b>	<b>58.2%</b>

Table 16 shows the rates of MHDs, SUDs, and co-occurring MHD and SUD conditions among foster care and non-foster care HealthChoice participants in CY 2017 and CY 2021. The percentages of participants diagnosed with an MHD-only, SUD-only, or co-occurring MHD and SUD diagnosis were higher among foster care participants than non-foster care HealthChoice participants and were considerably higher among foster care children for MHD-only. The percentage of participants with all types of behavioral health diagnosis decreased across the evaluation period for both foster care statuses, with SUD-only diagnoses declining slightly for both foster and non-foster care participants while MHD-only and dual diagnoses dropped more markedly for foster care participants than for other HealthChoice children.

**Table 16. Behavioral Health Diagnosis of HealthChoice Foster Care Children vs. Non-Foster Care Children Aged 0–21 Years, CY 2017 and CY 2021**

Foster Care Status	CY 2017			CY 2021		
	Total Participants	Number with Diagnosis	Percentage of Total	Total Participants	Number with Diagnosis	Percentage of Total
<b>MHD-Only</b>						
Foster	8,786	3,661	41.7%	7,624	3,085	40.5%
Non-Foster	720,267	76,488	10.6%	766,626	80,730	10.5%
<b>SUD-Only</b>						
Foster	8,786	65	0.7%	7,624	40	0.5%
Non-Foster	720,267	2,990	0.4%	766,626	1,332	0.2%
<b>Dual Diagnosis (MHD and SUD)</b>						
Foster	8,786	258	2.9%	7,624	140	1.8%
Non-Foster	720,267	1,951	0.3%	766,626	1,213	0.2%
<b>No Behavioral Health Diagnosis</b>						
Foster	8,786	4,802	54.7%	7,624	4,359	57.2%
Non-Foster	720,267	638,838	88.7%	766,626	683,351	89.1%

## Rare and Expensive Case Management (REM) Program

The REM program provides case management services to Medicaid participants who have a rare and expensive medical condition from a specified list and require sub-specialty care. The program serves people with specialized medical needs. An individual must be eligible for HealthChoice, have a qualifying diagnosis, and be within the age limit for that diagnosis. Examples of qualifying diagnoses include cystic fibrosis, quadriplegia, muscular dystrophy, chronic renal failure, and spina bifida. REM participants do not receive services through an MCO. The REM program provides the standard FFS Medicaid benefit package and some expanded benefits, such as medically necessary private duty nursing, shift home health aides, and adult dental services. This section of the report presents data on REM enrollment and service utilization.<sup>27</sup> Hilltop used data from *LTSSMaryland*—the state’s integrated LTSS tracking system—to identify REM enrollees for these analyses.

### REM Enrollment

Table 17 presents REM enrollment by age group, sex, and status for children in foster care for CY 2017 and CY 2021. In both years, most REM participants were males and aged 18 years or younger. Within the REM population, there was a lower percentage of female participants than in the general HealthChoice population. The majority of REM participants were not in foster care.

**Table 17. REM Enrollment by Age Group, Sex, and Foster Care Status, CY 2017 and CY 2021**

Demographic Characteristic	CY 2017		CY 2021	
	Number of Enrollees	Percentage of Total	Number of Enrollees	Percentage of Total
<b>Age Group (Years)</b>				
0–18	2,943	65.6%	2,905	63.4%
19 and over	1,543	34.4%	1,676	36.6%
<b>Total</b>	<b>4,486</b>	<b>100%</b>	<b>4,581</b>	<b>100%</b>
<b>Sex</b>				
Female	1,923	42.9%	1,961	42.8%
Male	2,563	57.1%	2,620	57.2%
<b>Total</b>	<b>4,486</b>	<b>100%</b>	<b>4,581</b>	<b>100%</b>
<b>Foster Care</b>				
Foster Care	350	7.8%	297	6.5%
Non-Foster Care	4,136	92.2%	4,284	93.5%
<b>Total</b>	<b>4,486</b>	<b>100%</b>	<b>4,581</b>	<b>100%</b>

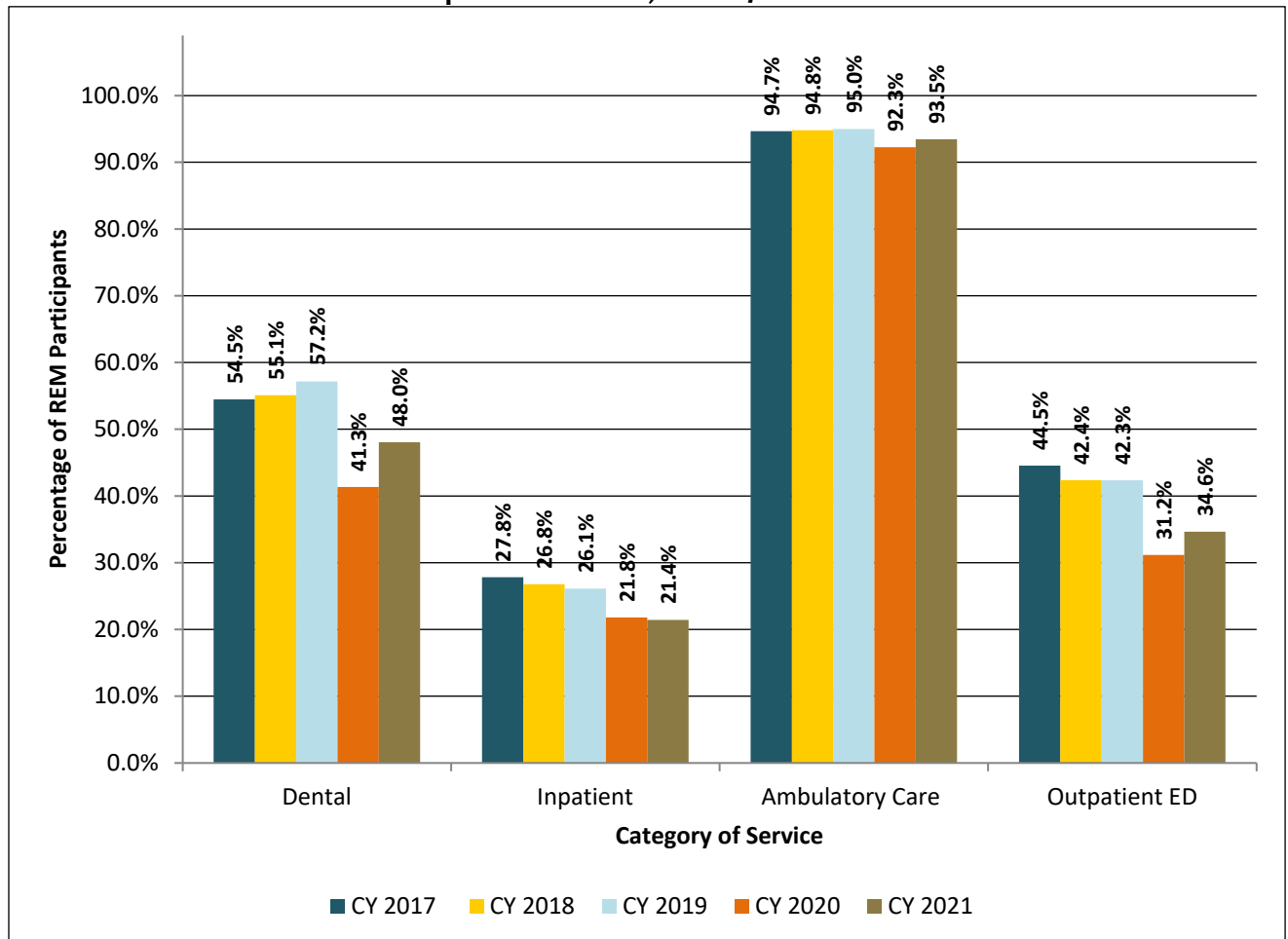
<sup>27</sup> There was a change to the methodology, therefore the data presented are new for CY 2017 to CY 2020.



### REM Service Utilization

Figure 10 shows the percentage of REM participants who received at least one dental, inpatient, ambulatory care, or outpatient ED visit between CY 2017 and CY 2021. The dental, inpatient, and ambulatory care visit measures serve as indicators of access to care. The percentage of participants with a dental visit decreased during the evaluation period, from 54.5% in CY 2017 to 48.0% in CY 2021, although it increased from CY 2020 to CY 2021 after a major drop to 41.3% in CY 2020. The percentage of REM participants who had an inpatient visit declined by 6.4 percentage points between CY 2017 and CY 2021, while ambulatory care utilization remained stable. Outpatient ED visits decreased by 9.9 percentage points over the entire evaluation period. Due to the nature of qualifying conditions for the REM program, nearly 100% of REM participants received at least one service a year during the evaluation period.<sup>28</sup>

**Figure 10. Percentage of REM Participants with a Dental, Inpatient, Ambulatory Care, or Outpatient ED Visit, CY 2017–CY 2021**



<sup>28</sup> Data not shown.

Table 18 shows the behavioral health diagnosis rates among REM participants at the beginning and end of the evaluation period. The rates for MHD-only diagnoses decreased slightly by 0.4 percentage points, while the rate of SUD-only diagnoses decreased by 2.6 percentage points. The percentage of REM participants with no behavioral health diagnosis increased by 3.4 percentage points.

**Table 18. Behavioral Health Diagnoses of REM Participants, CY 2017 and CY 2021**

CY 2017			CY 2021		
Number of Participants	Total Participants	Percentage of Total	Number of Participants	Total Participants	Percentage of Total
<b>MHD-Only</b>					
881	4,486	19.6%	879	4,581	19.2%
<b>SUD-Only</b>					
147	4,486	3.3%	34	4,581	0.7%
<b>Dual Diagnosis (MHD + SUD)</b>					
44	4,486	1.0%	25	4,581	0.5%
<b>No Behavioral Health Diagnosis</b>					
3,414	4,486	76.1%	3,643	4,581	79.5%

### Racial and Ethnic Disparities

Racial and ethnic disparities in health care are nationally recognized challenges. MDH is committed to reducing disparities among racial and ethnic groups through its Managing for Results (MFR) program. MFR is a strategic planning and performance measurement process used to improve government programs. MDH’s Office of Minority Health and Health Disparities uses MFR to target goals in reducing racial and ethnic disparities. This section of the report presents enrollment trends among racial and ethnic groups and assesses disparities within measures of service utilization.

The data presented in this section were especially impacted by the decline in the quality of race and ethnicity information available as a result of changes to the approach for selecting race and ethnicity on the Medicaid eligibility application in 2014.

### Enrollment

Table 19 displays HealthChoice enrollment by race and ethnicity. The percentage of enrolled participants identifying as Hispanic, White, and Black decreased between CY 2017 and CY 2021, the percentage of Native American participants remained the same, and the percentage of Asian and “Other” participants increased by 0.4 and 5.7 percentage points, respectively.

**Table 19. HealthChoice Enrollment by Race/Ethnicity, CY 2017 and CY 2021**

Race/Ethnicity	CY 2017		CY 2021	
	# of Participants	% of Total	# of Participants	% of Total
Asian	62,713	4.6%	73,728	5.0%
Black	579,769	42.8%	601,697	40.5%
White	381,648	28.2%	378,112	25.4%
Hispanic	116,467	8.6%	113,876	7.7%
Native American	3,859	0.3%	4,448	0.3%
Other	210,637	15.5%	315,588	21.2%
<b>Total</b>	<b>1,355,093</b>	<b>100%</b>	<b>1,487,449</b>	<b>100%</b>

Note: "Other" race/ethnicity category includes Pacific Islands/Alaskan and Unknown.

### Ambulatory Care Visits

Figure 11 shows the percentage of children aged 0 through 18 years with at least one ambulatory visit in CY 2017 and CY 2021, by race and ethnicity. The overall rate of ambulatory care visits fell from 83.7% in CY 2017 to 81.9% in CY 2021. All racial and ethnic groups experienced a decrease throughout the evaluation period. In CY 2017, the disparity between the racial/ethnic group with the highest percentage of ambulatory care visits (Hispanic) and the lowest percentage (Black) was 10.0 percentage points. In CY 2021, Native American participants were the racial/ethnic group with the lowest percentage of ambulatory care visits, at 10.4 percentage points lower than the racial/ethnic group with the highest percentage (Hispanic).

**Figure 11. Percentage of HealthChoice Participants Aged 0–18 Years with an Ambulatory Care Visit, by Race/Ethnicity, CY 2017 and CY 2021**

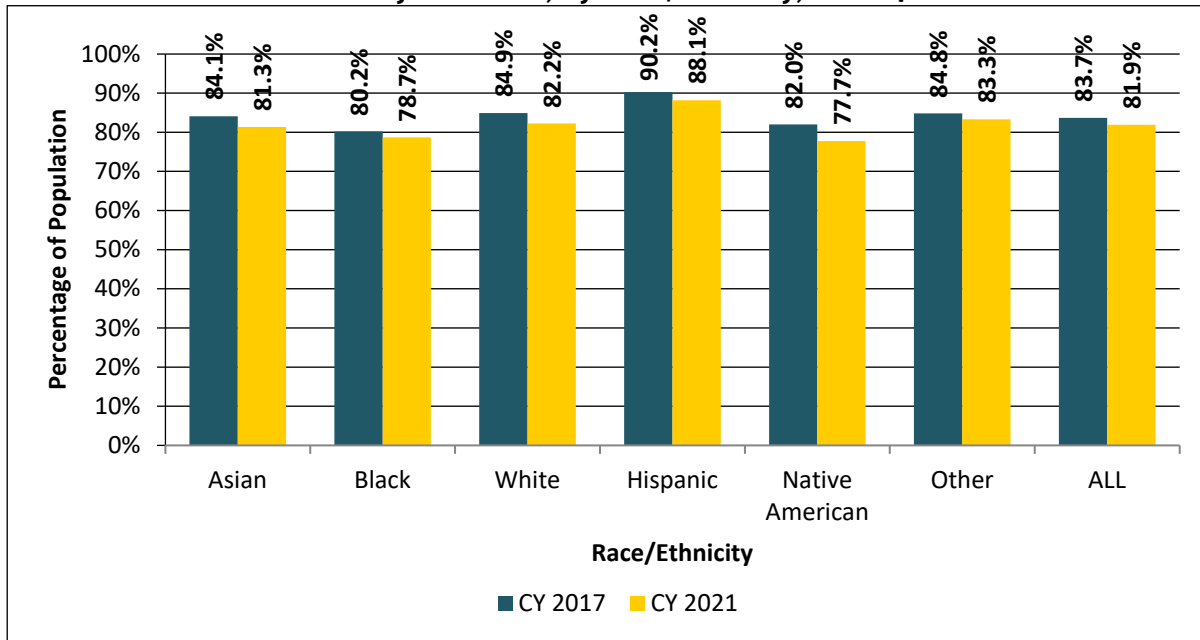
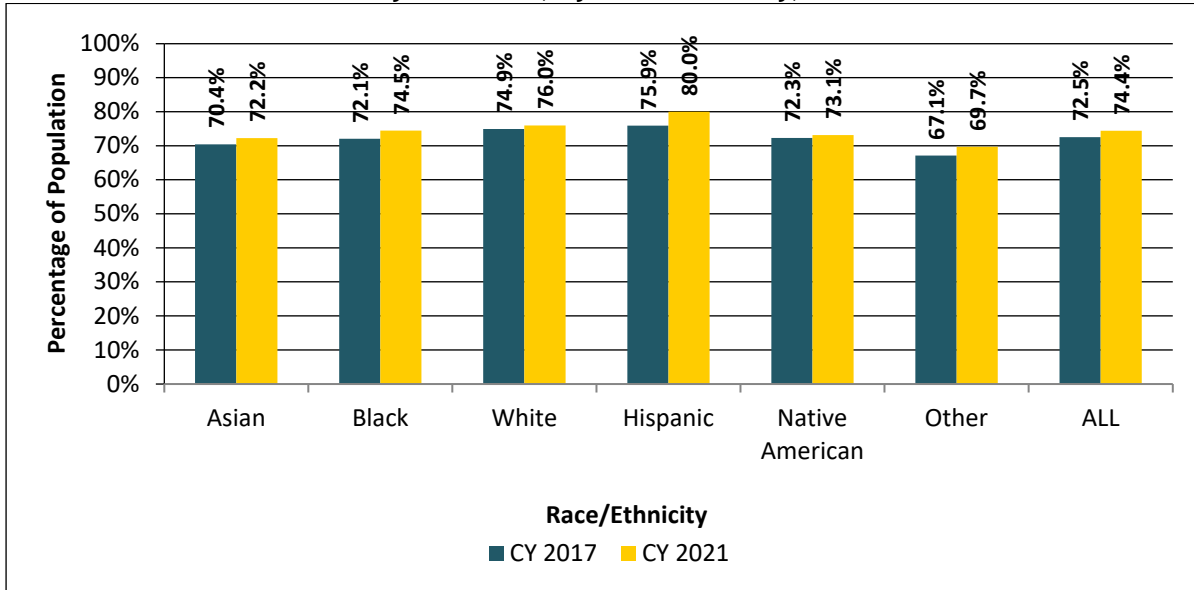


Figure 12 shows the percentage of adults aged 19 to 64 years with at least one ambulatory care visit in CY 2017 and CY 2021, by race and ethnicity. In CY 2017, 72.5% of adult HealthChoice participants received an ambulatory care visit. This rate increased to 74.4% in CY 2021. All racial/ethnic groups' rates increased over the evaluation period.

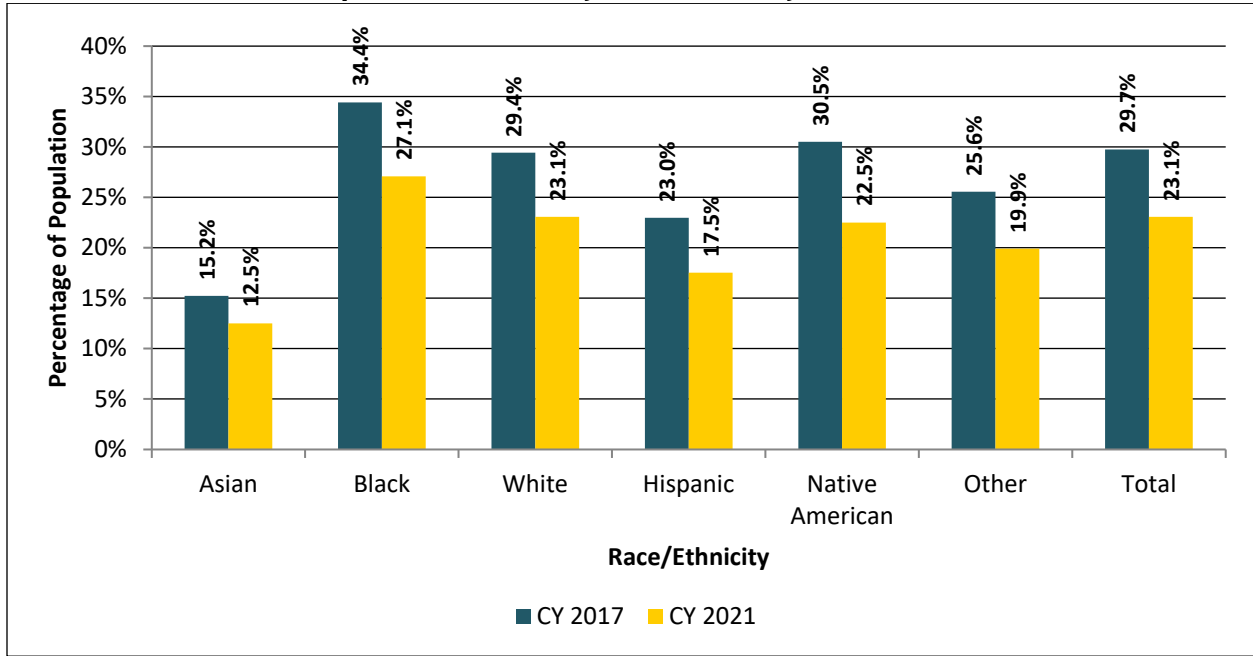
**Figure 12. Percentage of HealthChoice Participants Aged 19–64 Years with an Ambulatory Care Visit, by Race/Ethnicity, CY 2017 and CY 2021**



### Outpatient ED Visits

Figure 13 displays the percentage of HealthChoice participants aged 0 to 64 years with at least one outpatient ED visit by race and ethnicity in CY 2017 and CY 2021. During the evaluation period, each racial and ethnic group experienced a drop in ED services. Black participants continued to have the highest ED visit rate, while Asian participants continued to have the lowest.

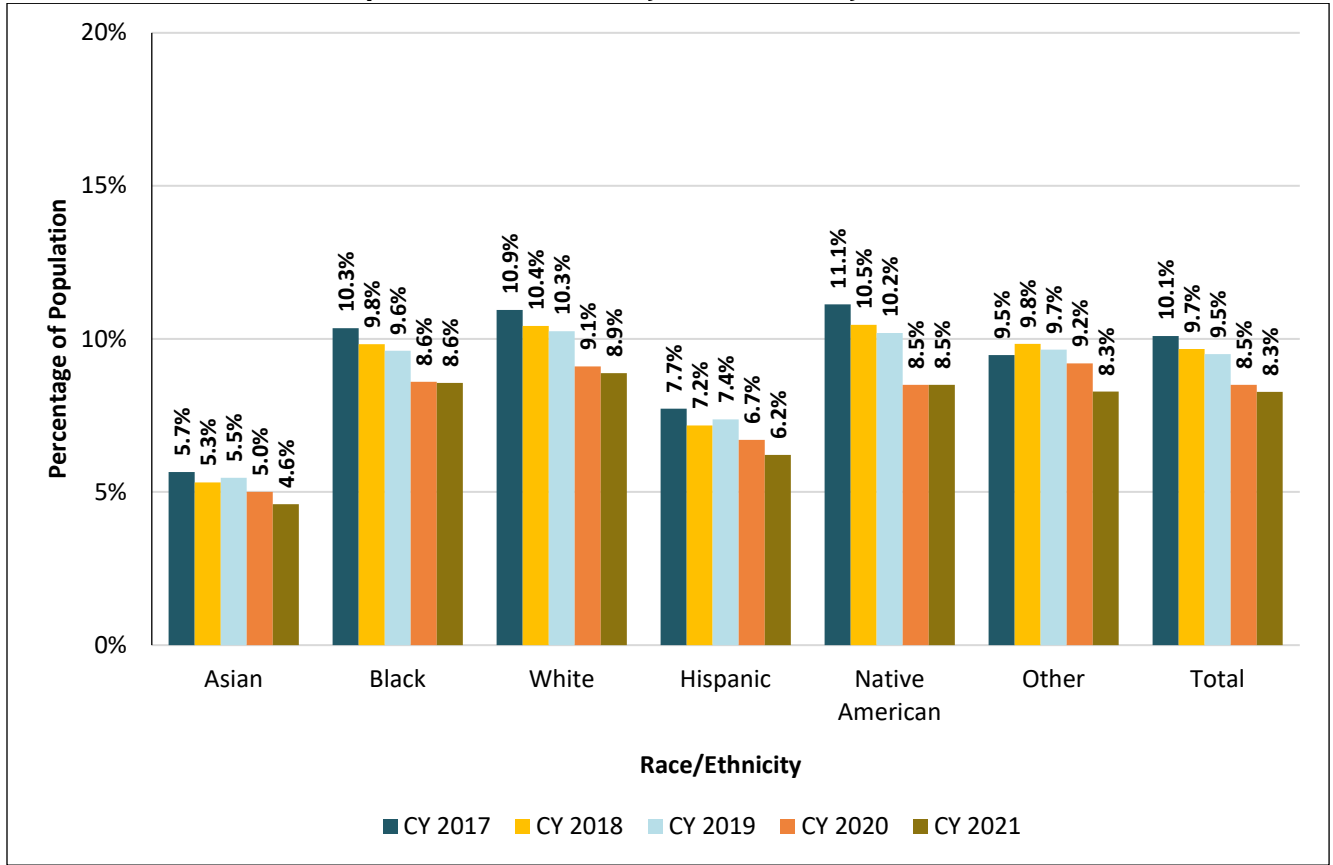
**Figure 13. Percentage of HealthChoice Participants Aged 0–64 Years with an Outpatient ED Visit, by Race/Ethnicity, CY 2017 and CY 2021**



### **Inpatient Admissions**

Figure 14 presents the percentage of HealthChoice participants aged 18 to 64 years by race and ethnicity with an inpatient admission between CY 2017 and CY 2021. Each group’s rate declined between CY 2017 and CY 2021.

**Figure 14. Percentage of HealthChoice Participants Aged 18–64 Years Who Had an Inpatient Admission, by Race/Ethnicity, CY 2017–CY 2021**



### ACA Medicaid Expansion Population

This section of the report examines the demographic characteristics and health care utilization of the ACA Medicaid expansion population between CY 2017 and CY 2021. The ACA Medicaid expansion population consists of three different coverage groups:

1. Former Primary Adult Care (PAC) participants
2. Childless adults not previously enrolled in PAC<sup>29</sup>
3. Parents and caretaker relatives

This section presents demographic and service utilization measures for participants with any period of enrollment in one of the ACA Medicaid expansion coverage groups. Many of these participants were gaining Medicaid coverage for the first time and had limited health care

<sup>29</sup> Though these individuals may have had prior enrollment in PAC, they were not enrolled in PAC as of December 2013. Only participants enrolled in PAC in December 2013 were automatically transferred into a Medicaid expansion coverage group.

utilization literacy or struggled with homelessness, resulting in reduced access to care until they became more familiar with accessing care through Medicaid.

### ACA Medicaid Expansion Population Demographics

In CY 2017, the Maryland Medicaid program enrolled 387,998 adults (with any period of enrollment) through the ACA Medicaid expansion. By CY 2021, the number of participants (members) who received coverage for at least one month in an ACA expansion coverage group increased to 438,293.

Table 20 displays demographic characteristics of the expansion population (with any period of enrollment) during the evaluation period. Participants aged 19 to 34 years composed the largest portion of the ACA expansion population.

**Table 20. ACA Medicaid Expansion Population Aged 19–64 Years, by Demographics and Any Enrollment Period, CY 2017–CY 2021**

Demographic Characteristic	CY 2017		CY 2018		CY 2019		CY 2020		CY 2021	
	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total
<b>Race/Ethnicity</b>										
Asian	20,344	5.2%	20,980	5.3%	20,222	5.2%	21,153	5.3%	24,216	5.5%
Black	165,673	42.7%	170,306	42.9%	169,903	43.4%	172,616	43.5%	192,295	43.9%
White	135,107	34.8%	134,702	33.9%	130,104	33.2%	127,984	32.2%	138,305	31.6%
Hispanic	13,335	3.4%	14,028	3.5%	13,764	3.5%	14,106	3.6%	16,679	3.8%
Other	53,539	13.8%	57,387	14.4%	57,791	14.8%	61,017	15.4%	66,798	15.2%
<b>Total</b>	<b>387,998</b>	<b>100%</b>	<b>397,403</b>	<b>100%</b>	<b>391,784</b>	<b>100%</b>	<b>396,876</b>	<b>100%</b>	<b>438,293</b>	<b>100%</b>
<b>Sex</b>										
Female	182,629	47.1%	185,902	46.8%	182,264	46.5%	182,675	46.0%	200,433	45.7%
Male	205,369	52.9%	211,501	53.2%	209,520	53.5%	214,201	54.0%	237,860	54.3%
<b>Total</b>	<b>387,998</b>	<b>100%</b>	<b>397,403</b>	<b>100%</b>	<b>391,784</b>	<b>100%</b>	<b>396,876</b>	<b>100%</b>	<b>438,293</b>	<b>100%</b>
<b>Region</b>										
Baltimore City	78,355	20.2%	79,582	20.0%	78,669	20.1%	78,145	19.7%	83,920	19.1%
Baltimore Suburban	113,780	29.3%	116,984	29.4%	116,089	29.6%	118,006	29.7%	130,900	29.9%
Eastern Shore	37,115	9.6%	37,799	9.5%	36,896	9.4%	35,956	9.1%	38,971	8.9%
Southern Maryland	20,609	5.3%	21,173	5.3%	20,860	5.3%	21,042	5.3%	23,074	5.3%
Washington Suburban	106,174	27.4%	108,865	27.4%	106,443	27.2%	111,364	28.1%	125,724	28.7%
Western Maryland	31,090	8.0%	32,179	8.1%	32,144	8.2%	31,753	8.0%	35,050	8.0%
Out of State	875	0.2%	821	0.2%	683	0.2%	610	0.2%	654	0.1%
<b>Total</b>	<b>387,998</b>	<b>100%</b>	<b>397,403</b>	<b>100%</b>	<b>391,784</b>	<b>100%</b>	<b>396,876</b>	<b>100%</b>	<b>438,293</b>	<b>100%</b>
<b>Age Group (Years)</b>										
19–34	177,340	45.7%	184,973	46.6%	184,408	47.1%	183,703	46.3%	203,313	46.4%
35–49	93,685	24.2%	96,276	24.2%	93,936	24.0%	96,852	24.4%	107,921	24.6%
50–64	116,973	30.2%	116,154	29.2%	113,440	29.0%	116,321	29.3%	127,059	29.0%
<b>Total</b>	<b>387,998</b>	<b>100%</b>	<b>397,403</b>	<b>100%</b>	<b>391,784</b>	<b>100%</b>	<b>396,876</b>	<b>100%</b>	<b>438,293</b>	<b>100%</b>

Demographic Characteristic	CY 2017		CY 2018		CY 2019		CY 2020		CY 2021	
	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total
<b>Member Months</b>										
<b>1</b>	13,928	3.6%	12,270	3.1%	11,433	2.9%	14,907	3.8%	6,433	1.5%
<b>2</b>	12,460	3.2%	10,760	2.7%	11,095	2.8%	11,788	3.0%	5,685	1.3%
<b>3</b>	9,920	2.6%	10,761	2.7%	10,219	2.6%	7,001	1.8%	5,184	1.2%
<b>4</b>	9,103	2.4%	11,035	2.8%	9,689	2.5%	6,498	1.6%	5,032	1.1%
<b>5</b>	10,162	2.6%	13,062	3.3%	10,272	2.6%	6,734	1.7%	6,061	1.4%
<b>6</b>	9,603	2.5%	12,181	3.1%	9,696	2.5%	6,832	1.7%	5,268	1.2%
<b>7</b>	10,039	2.6%	10,645	2.7%	10,490	2.7%	6,794	1.7%	5,476	1.2%
<b>8</b>	10,603	2.7%	11,849	3.0%	11,631	3.0%	6,437	1.6%	5,620	1.3%
<b>9</b>	11,018	2.8%	11,632	2.9%	11,684	3.0%	8,531	2.1%	6,009	1.4%
<b>10</b>	12,474	3.2%	12,464	3.1%	12,966	3.3%	8,374	2.1%	6,781	1.5%
<b>11</b>	15,093	3.9%	16,228	4.1%	15,022	3.8%	6,773	1.7%	5,876	1.3%
<b>12</b>	263,595	67.9%	264,516	66.6%	267,587	68.3%	306,207	77.2%	374,868	85.5%
<b>Total</b>	<b>387,998</b>	<b>100%</b>	<b>397,403</b>	<b>100%</b>	<b>391,784</b>	<b>100%</b>	<b>396,876</b>	<b>100%</b>	<b>438,293</b>	<b>100%</b>

Table 21 displays demographic characteristics of the expansion population with a full 12 months of enrollment during the evaluation period. The racial and regional distribution of this population is similar to the distribution of the expansion population with any period of enrollment (Table 16). Participants aged 19 to 34 years composed the largest portion of the ACA expansion population with 12 months of enrollment.



**Table 21. ACA Medicaid Expansion Population Demographics for Participants Aged 19–64 Years, 12 Months of Enrollment, CY 2017–CY 2021**

Demographic Characteristic	CY 2017		CY 2018		CY 2019		CY 2020		CY 2021	
	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total	# of Participants	% of Total
<b>Race/Ethnicity</b>										
Asian	13,689	5.2%	13,757	5.2%	13,674	5.1%	15,384	5.0%	20,010	5.3%
Black	116,103	44.0%	116,955	44.2%	119,136	44.5%	136,757	44.7%	167,965	44.8%
White	93,301	35.4%	91,318	34.5%	90,680	33.9%	100,358	32.8%	118,227	31.5%
Hispanic	9,081	3.4%	9,222	3.5%	9,320	3.5%	11,018	3.6%	14,874	4.0%
Other	31,421	11.9%	33,264	12.6%	34,777	13.0%	42,690	13.9%	53,792	14.3%
<b>Total</b>	<b>263,595</b>	<b>100%</b>	<b>264,516</b>	<b>100%</b>	<b>267,587</b>	<b>100%</b>	<b>306,207</b>	<b>100%</b>	<b>374,868</b>	<b>100%</b>
<b>Sex</b>										
Female	125,907	47.8%	124,280	47.0%	124,508	46.5%	140,411	45.9%	171,627	45.8%
Male	137,688	52.2%	140,236	53.0%	143,079	53.5%	165,796	54.1%	203,241	54.2%
<b>Total</b>	<b>263,595</b>	<b>100%</b>	<b>264,516</b>	<b>100%</b>	<b>267,587</b>	<b>100%</b>	<b>306,207</b>	<b>100%</b>	<b>374,868</b>	<b>100%</b>
<b>Region</b>										
Baltimore City	56,187	21.3%	56,391	21.3%	56,616	21.2%	63,465	20.7%	74,023	19.7%
Baltimore Suburban	76,786	29.1%	77,767	29.4%	79,363	29.7%	91,025	29.7%	111,655	29.8%
Eastern Shore	25,896	9.8%	25,735	9.7%	25,501	9.5%	28,830	9.4%	33,818	9.0%
Southern Maryland	14,203	5.4%	14,117	5.3%	14,565	5.4%	16,515	5.4%	19,921	5.3%
Washington Suburban	68,901	26.1%	68,947	26.1%	69,766	26.1%	81,197	26.5%	105,156	28.1%
Western Maryland	21,093	8.0%	21,105	8.0%	21,357	8.0%	24,712	8.1%	29,758	7.9%
Out of State	529	0.2%	454	0.2%	419	0.2%	463	0.2%	537	0.1%
<b>Total</b>	<b>263,595</b>	<b>100%</b>	<b>264,516</b>	<b>100%</b>	<b>267,587</b>	<b>100%</b>	<b>306,207</b>	<b>100%</b>	<b>374,868</b>	<b>100%</b>
<b>Age Group (Years)</b>										
19–34	116,572	44.2%	118,398	44.8%	120,885	45.2%	139,786	45.7%	172,995	46.1%
35–49	65,267	24.8%	65,144	24.6%	65,438	24.5%	75,773	24.7%	92,892	24.8%
50–64	81,756	31.0%	80,974	30.6%	81,264	30.4%	90,648	29.6%	108,981	29.1%
<b>Total</b>	<b>263,595</b>	<b>100%</b>	<b>264,516</b>	<b>100%</b>	<b>267,587</b>	<b>100%</b>	<b>306,207</b>	<b>100%</b>	<b>374,868</b>	<b>100%</b>

### **ACA Medicaid Expansion Population Service Utilization**

This section discusses the health care utilization of participants who received Medicaid coverage through the ACA Medicaid expansion. Table 22 displays the number and percentage of participants with an ambulatory visit, outpatient ED visit, or inpatient admission in CY 2017 through CY 2021 with any period of enrollment as well as 12 months of enrollment. ACA Medicaid expansion participants with 12 continuous months of enrollment provide an MCO with more time and opportunities to intervene in their health care than participants with any period of enrollment. Key findings from Table 22 include the following:

- In CY 2017, 66.3% of ACA Medicaid expansion participants with any period of enrollment had an ambulatory care visit; this rate increased to 68.6% in CY 2021 after recovering from a decline of 3.0 percentage points in CY 2020. Conversely, visit rates decreased from 75.1% to 71.5% over the evaluation period for expansion participants enrolled for the entire year.
- In CY 2017, 31% of ACA Medicaid expansion participants with any period of enrollment had an outpatient ED visit. This rate experienced a sharp decline in CY 2020, before increasing slightly in CY 2021 for an overall decline of 4.9 percentage points during the evaluation period. The rates for participants with 12 months of enrollment decreased from 35.3% in CY 2017 to 27.1% in CY 2021.
- Overall, 8.8% of ACA Medicaid expansion participants with any period of enrollment had an inpatient admission in CY 2017, decreasing to 7.3% in CY 2021. Participants who were enrolled for the entire year experienced a higher rate of inpatient admissions from CY 2017 through CY 2019, and the rates were equal in CY 2020. The inpatient admission rate for those with 12 months of enrollment was lower in CY 2021, at 7.0% compared to 7.3% of participants with any enrollment.

**Table 22. Service Utilization of ACA Medicaid Expansion Population Aged 19–64 Years, by Enrollment Period, CY 2017–CY 2021**

Enrollment Period	CY 2017			CY 2018			CY 2019			CY 2020			CY 2021		
	# of Users*	# of Participants	% of Total	# of Users	# of Participants	% of Total	# of Users	# of Participants	% of Total	# of Users	# of Participants	% of Total	# of Users	# of Participants	% of Total
<b>Ambulatory Care Visits</b>															
<b>Any</b>	257,280	387,998	66.3%	264,710**	397,403	66.6%	267,294	391,784	68.2%	258,789	396,876	65.2%	300,615	438,293	68.6%
<b>12 Months</b>	197,885	263,595	75.1%	200,499	264,516	75.8%	202,589	267,587	75.7%	215,701	306,207	70.4%	268,048	374,868	71.5%
<b>Outpatient ED Visits</b>															
<b>Any</b>	120,342	387,998	31.0%	116,393**	397,403	29.3%	117,383	391,784	30.0%	98,697	396,876	24.9%	114,587	438,293	26.1%
<b>12 Months</b>	93,130	263,595	35.3%	88,507	264,516	33.5%	89,555	267,587	33.5%	82,473	306,207	26.9%	101,526	374,868	27.1%
<b>Inpatient Admissions</b>															
<b>Any</b>	34,303	387,998	8.8%	33,421	397,403	8.4%	31,941	391,784	8.2%	28,419	396,876	7.2%	32,050	438,293	7.3%
<b>12 Months</b>	25,203	263,595	9.6%	24,248	264,516	9.2%	22,876	267,587	8.5%	21,931	306,207	7.2%	26,144	374,868	7.0%

\*The number of users is the number of participants that had at least one visit.

\*\*The number of users reported for any enrollment period for ambulatory care and outpatient ED visits in CY 2018 was revised to correct a transcription error reported in the 2020 HealthChoice Evaluation; the percentage of participants who had these services did not change.

### **ACA Medicaid Expansion Population with Mental Health and Substance Use Disorders**

This section of the evaluation presents the rates of behavioral health diagnoses among ACA expansion participants. Table 23 shows the rates of MHDs, SUDs, and co-occurring MHD and SUD conditions among ACA Medicaid expansion participants aged 19 to 64 years. Rates are shown for those with any period of enrollment and 12 months of enrollment in CY 2017 through CY 2021.

The percentages of participants diagnosed with an MHD, SUD, or co-occurring MHD and SUD were higher among participants who were enrolled for a 12-month period compared to participants with any period of enrollment. However, the difference narrowed across the evaluation period for all participant groups. The percentage of participants with any period of enrollment and an MHD increased by 0.9 percentage points across the evaluation period. The percentage of participants with any period of enrollment and an SUD decreased from 6.8% in CY 2017 to 5.8% in CY 2021. The percentage of participants with any period of enrollment and a dual diagnosis of MHD and SUD remained stable at roughly 5.0%.

**Table 23. Behavioral Health Diagnosis of ACA Medicaid Expansion Population Aged 19–64 Years, by Enrollment Period, CY 2017–CY 2021**

Enrollment Period	CY 2017			CY 2018			CY 2019			CY 2020			CY 2021		
	# of Participants	Total Participants	% of Total	# of Participants	Total Participants	% of Total	# of Participants	Total Participants	% of Total	# of Participants	Total Participants	% of Total	# of Participants	Total Participants	% of Total
<b>MHD-Only</b>															
<b>Any Period</b>	40,635	387,998	10.5%	42,558	397,403	10.7%	44,184	391,784	11.3%	43,128	396,876	10.9%	50,114	438,293	11.4%
<b>12 Months</b>	31,291	263,595	11.9%	32,129	264,516	12.2%	33,509	267,587	12.5%	36,246	306,207	11.8%	44,478	374,868	11.9%
<b>SUD-Only</b>															
<b>Any Period</b>	26,450	387,998	6.8%	27,258	397,403	6.9%	26,745	391,784	6.8%	25,024	396,876	6.3%	25,445	438,293	5.8%
<b>12 Months</b>	20,400	263,595	7.7%	20,818	264,516	7.9%	20,496	267,587	7.7%	21,367	306,207	7.0%	22,735	374,868	6.1%
<b>Dual Diagnosis (MHD and SUD)</b>															
<b>Any Period</b>	19,815	387,998	5.1%	20,719	397,403	5.2%	22,213	391,784	5.7%	20,408	396,876	5.1%	21,380	438,293	4.9%
<b>12 Months</b>	16,545	263,595	6.3%	17,159	264,516	6.5%	18,185	267,587	6.8%	18,112	306,207	5.9%	19,495	374,868	5.2%
<b>No Behavioral Health Diagnosis</b>															
<b>Any Period</b>	301,098	387,998	77.6%	90,535	397,403	77.2%	298,642	391,784	76.2%	308,316	396,876	77.7%	341,354	438,293	77.9%
<b>12 Months</b>	195,359	263,595	74.1%	194,410	264,516	73.5%	195,397	267,587	73.0%	230,482	306,207	75.3%	288,160	374,868	76.9%

### **Section III Conclusion**

During CY 2021, HealthChoice maintained access to primary care for its members, with all but one Maryland county having sufficient PCPs to outperform the benchmark ratio of 200 patients per provider practice. Managed care enrollment remained consistently above 89.0% from CY 2018 to CY 2021 and increased significantly (along with continuous enrollment) in CY 2020 and CY 2021 as a result of the PHE and the continuous enrollment provision of the Families First Coronavirus Act (FFCRA). Across a wide variety of measures, HealthChoice utilization trends were largely consistent with program goals from CY 2017 through CY 2019. However, the COVID-19 pandemic in CY 2020 negatively impacted utilization trends. The percentage of HealthChoice participants who received ambulatory care decreased from CY 2017 to CY 2020, with the largest decrease of 4.6 percentage points between CY 2019 and CY 2020, which then increased by 3.5 percentage points in CY 2021. Outpatient ED visits and inpatient admissions generally declined over the evaluation period.

HealthChoice prioritizes the delivery of and access to quality health services to special populations, such as children in foster care and REM program participants, as well as reducing racial and ethnic disparities. Utilization of services among these special populations were largely consistent with utilization trends of the overall HealthChoice population. Over the evaluation period, the percentage of children in foster care who received an ambulatory service decreased slightly, and utilization of the ED and inpatient admissions for this population also decreased. However, outpatient ED visits and inpatient admissions were higher for children in foster care than for children not in foster care in CY 2021. The percentage of REM participants with a dental visit, ED visit, or inpatient admission decreased during the evaluation period however ED and dental visits increased from CY 2020 to CY 2021.

## Section IV. Quality of Care

### Value-Based Purchasing Program

The Center for Health Care Strategies helped MDH develop a Value-Based Purchasing (VBP) initiative for HealthChoice beginning in 1999. VBP pays incentives to MCOs that demonstrate high-quality care, increased access, and administrative efficiency by using standardized measures of performance on population health goals.

VBP measures may change according to MDH’s priorities and analysis of changing population health needs. The measures selected are intended to improve outcomes for HealthChoice participants—including children, children with special needs, pregnant women, adults with disabilities, and adults with chronic conditions—while being measurable with available data and comparable to national performance measures for benchmarking. VBP strives for consistency with CMS’s national performance measures for Medicaid and should reflect areas in which it is possible for MCOs to effect change. Measures included in the CY 2021 VBP program (see Table 24) were chosen from NCQA’s HEDIS®.<sup>30</sup> These measures were chosen using encounter data and data supplied by the HealthChoice MCOs and subsequently validated by MDH’s external quality review organization (EQRO) and HEDIS® auditor. Changes in the components of the VBP program may result in changes in plan performance with respect to that measure. Therefore, decisions to make changes to the list of VBP measures are taken with due consideration by MDH. Moreover, the measures are applied to MCOs without adjustments for differing risks in the populations each serves. This has the effect of assuming that each MCO’s VBP performance is not affected by differences among an MCO’s enrollees.

**Table 24. Value-Based Purchasing Measures and Averages across All MCOs, CY 2021**

Value-Based Purchasing Measures	Average Percentage Goal Achieved
<b>Ambulatory Care Visits for SSI Adults</b>	78.3%
<b>Ambulatory Care Visits for SSI Children</b>	75.6%
<b>Asthma Medication Ratio</b>	69.2%
<b>Breast Cancer Screening</b>	63.8%
<b>Comprehensive Diabetes Care - HbA1c Control (&lt;8.0%)</b>	56.3%
<b>Lead Screenings for Children - Ages 12–23 months</b>	60.7%
<b>Prenatal and Postpartum Care – Postpartum Care</b>	83.9%

Per regulations,<sup>31</sup> MDH sets aside 1% of MCO revenue to generate financial incentives and disincentives to promote performance improvement. Using data on the listed measures collected from the MCOs, MDH identified three levels of performance: incentive, neutral, and disincentive. Each measure is accorded equal weight. Total incentive payments may not exceed

<sup>30</sup> Some of the HEDIS measures have changed and are different than what was reported in the 2022 HealthChoice Evaluation.

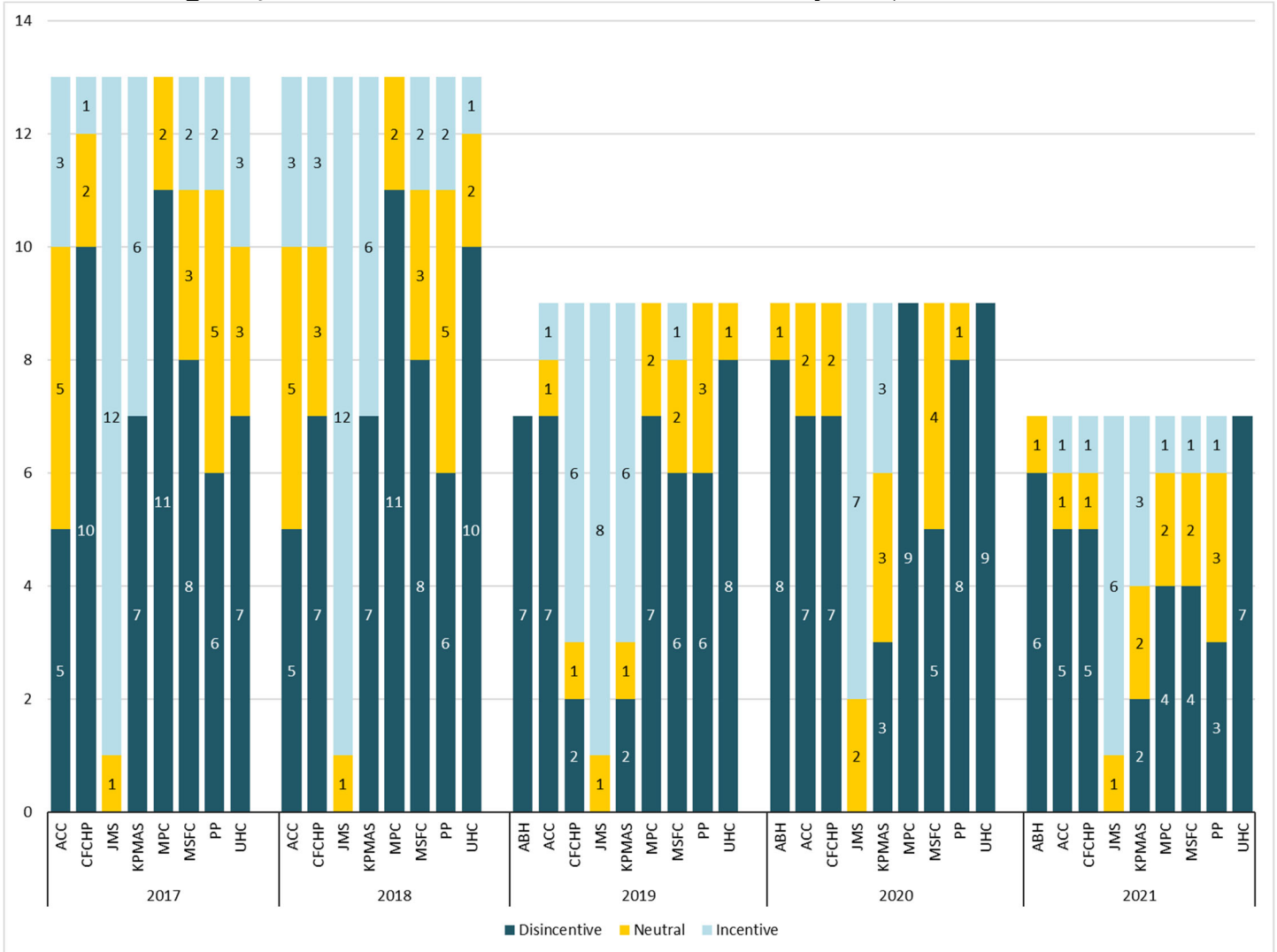
<sup>31</sup> COMAR 10.67.04.03.

the total amount of disincentives collected in the same year, plus any additional funds allocated by MDH for a quality initiative.

Figure 15 indicates how many measures met the incentives and disincentives for each MCO, as well as those with neutral performances on the VBP measures from CY 2017 to CY 2021. In CY 2017 and CY 2018, MCOs were scored on 13 measures, which were consolidated to 9 in CY 2019 and CY 2020, and 7 in CY 2021. The individual MCOs' measures show mixed results; some MCOs tend to have consistently high or low performance, while some experienced increases in the number of their disincentive penalties (indicated in dark teal on the chart). Because the incentive and disincentive levels are based on the average of all plans' performance, when plans improve their measures across the board, they increase the standard for earning incentive payments and losing disincentives. Therefore, a decrease in the number of plans earning incentives may reflect the rising standards for care in HealthChoice as a whole. Since HealthChoice typically exceeds the National HEDIS® mean on most measures, VBP targets are usually higher than the national means.



Figure 15. Count of VBP Incentives and Disincentives by MCO,\* CY 2017–CY 2021



\* ABH: Aetna Better Health; ACC: AMERIGROUP Community Care; CFCHP: CareFirst Community Health Plan; JMS: Jai Medical Systems; KPMAS: Kaiser Permanente of the Mid-Atlantic States; MPC: Maryland Physicians Care; MSFC: MedStar Family Choice; PP: Priority Partners; UHC: UnitedHealthcare. Complete data were not available for ABH in 2019.

In early 2021, MDH requested that Hilltop develop a new methodology for the VBP program. This model, called the Population Health Incentive Program (PHIP), moves the program to an incentive-only model for CY 2022. The overall goal remained the same: allocate financial incentives annually to HealthChoice MCOs that demonstrate high-quality care based on standardized measures of performance.

Hilltop developed and proposed an incentive payment structure based on current performance and historical improvement on both standardized performance measures (i.e., HEDIS®) and locally developed (i.e., homegrown) quality measures. Measure selection was informed to align with Maryland’s new SIHIS. Hilltop then proposed to allocate available funds through two rounds of incentive payments:

- In Round 1, payments to plans are made from the allocated incentive funding based on performance during the measurement year and improvement from the previous year.
- In Round 2, unallocated funds from Round 1 are redistributed among high-performing MCOs as additional incentives, up to a limit of 1% of the MCO’s measurement year capitation as total payment from Round 1 and Round 2.

This methodology was refined in conjunction with MDH and MCOs, and the new payment structure went into effect during the CY 2022 performance year.

### Value-Based Purchasing Measures

Three performance measures were selected to further evaluate the VBP program during the evaluation period: 1) Comprehensive Diabetes Care - HbA1c Control (<8.0%), 2) Ambulatory Care Visits for Supplemental Security Income (SSI) Adults, and 3) Ambulatory Care Visits for SSI Children.

Due to the COVID-19 pandemic, there are challenges in evaluating the effects of the VBP program on the chosen measures. The Comprehensive Diabetes Care - HbA1c Control measure was added to VBP in CY 2019. The percentage of participants with Comprehensive Diabetes Care HbA1c Control (<8.0%) declined overall from CY 2017 to CY 2019, although some MCOs (CareFirst, Jai, and Kaiser) did improve in the pre-pandemic period (see Table 25). Overall performance declined in CY 2020 but increased in CY 2021, marking a 1 percentage point increase from CY 2017 to CY 2021 for the Maryland Average Reportable Rate (MARR). MCOs varied in their performance, ranging from a decrease of 3.5 percentage points (Jai) to an increase of 5.3 percentage points (CareFirst) over the evaluation period.

**Table 25. Percentage of HealthChoice Participants with Comprehensive Diabetes Care (CDC) HbA1c Control (<8.0%), by MCO, CY 2017–CY 2021**

MCO	2017	2018	2019	2020	2021
<b>Aetna</b>	-	-	52.6%	47.0%	52.8%
<b>Amerigroup</b>	52.0%	59.4%	51.8%	55.0%	55.7%
<b>CareFirst Community Health Plan</b>	48.7%	42.6%	59.4%	51.8%	54.0%

MCO	2017	2018	2019	2020	2021
Jai Medical Systems	63.0%	61.1%	63.8%	56.6%	59.5%
Kaiser	60.0%	60.9%	61.1%	56.8%	62.0%
Maryland Physicians Care	56.5%	46.0%	42.6%	48.2%	57.4%
MedStar	58.1%	56.7%	54.3%	53.9%	56.6%
Priority Partners	53.5%	49.6%	47.7%	41.9%	55.2%
UnitedHealthcare	51.1%	54.5%	49.1%	47.9%	53.0%
<b>MARR</b>	<b>55.3%</b>	<b>53.9%</b>	<b>54.0%</b>	<b>51.0%</b>	<b>56.3%</b>

MCOs differed in their performance on the measures of ambulatory care for SSI adults and children, shown in Tables 26 and 27, respectively. Over the evaluation period, MCOs ranged from a decrease of 8.5 percentage points (CareFirst) to an increase of 6.6 percentage points (Kaiser) in the percentage of SSI adults with an ambulatory visit. The percentage of SSI children with an ambulatory visit ranged from a decrease of 22 percentage points (CareFirst) to an increase of 6.1 percentage points (Kaiser) over the evaluation period. Jai was the highest performing MCO on both measures and remained consistent over the evaluation period. Prior to the COVID-19 PHE, most MCOs remained consistent or improved on the measures. Overall performance decreased slightly on both measures from CY 2017 to CY 2021.

**Table 26. Percentage of Ambulatory Care Visits for SSI Adults, by MCO, CY 2017–CY 2021**

MCO	2017	2018	2019	2020	2021
Aetna	-	57.1%	58.2%	57.0%	59.8%
Amerigroup	82.7%	81.7%	82.2%	77.2%	80.1%
CareFirst Community Health Plan	84.6%	87.6%	87.7%	76.4%	76.1%
Jai Medical Systems	90.1%	90.7%	90.6%	89.7%	90.1%
Kaiser	65.3%	69.2%	75.5%	69.0%	71.9%
Maryland Physicians Care	84.4%	83.6%	84.7%	83.1%	83.6%
MedStar	81.6%	82.2%	83.5%	80.0%	80.2%
Priority Partners	86.4%	86.4%	86.1%	82.3%	83.6%
UnitedHealthcare	80.4%	80.4%	79.4%	76.8%	78.6%
<b>All</b>	<b>83.9%</b>	<b>83.7%</b>	<b>83.9%</b>	<b>80.3%</b>	<b>81.5%</b>

**Table 27. Percentage of Ambulatory Care Visits for SSI Children, by MCO, CY 2017–CY 2021**

MCO	2017	2018	2019	2020	2021
Aetna***	-	38.7%	40.7%	37.8%	45.8%
Amerigroup	83.8%	84.8%	84.2%	74.8%	82.3%
CareFirst Community Health Plan	86.3%	86.3%	88.5%	66.3%	64.3%
Jai Medical Systems	90.6%	89.8%	90.9%	89.8%	89.1%
Kaiser	69.9%	76.3%	79.5%	66.4%	76.0%
Maryland Physicians Care	81.6%	81.8%	84.4%	78.6%	82.7%
MedStar	78.1%	79.1%	78.9%	74.0%	76.4%
Priority Partners	85.8%	85.3%	85.5%	77.1%	84.7%
UnitedHealthcare	78.1%	79.5%	80.2%	70.0%	78.5%
<b>All</b>	<b>82.8%</b>	<b>83.2%</b>	<b>83.7%</b>	<b>75.0%</b>	<b>81.2%</b>

## EPSDT (Healthy Kids) Review

Federal regulations<sup>32</sup> require EPSDT services for all Medicaid participants under the age of 21 years. The purpose of EPSDT is to ensure that children receive age-appropriate physical examinations, developmental assessments, and mental health screenings periodically to identify any deviations from expected growth and development.

Maryland’s EPSDT program aims to support access to and increase the availability of quality health care. MDH has a Healthy Kids Program, with nurse consultants who certify HealthChoice providers in receiving EPSDT training, support the MCOs, and educate them on new EPSDT requirements. The Healthy Kids Program also collaborates with MCOs to share age-appropriate encounter forms, risk assessment forms, and questionnaires with their provider networks to assist with documenting preventive services according to the Maryland Schedule of Preventive Health Care.

The annual EPSDT (Healthy Kids) medical record review (MRR) assesses whether EPSDT services are provided to HealthChoice participants in a timely manner. The review is conducted on HealthChoice provider compliance with five EPSDT components: 1) health and developmental history, 2) comprehensive physical exam, 3) laboratory tests/at-risk screenings, 4) immunizations, and 5) health education/anticipatory guidance.

Between CY 2017 and CY 2021, provider compliance remained stable or increased for three components and decreased for two of the EPSDT components (Table 28). The HealthChoice aggregate total score increased from CY 2017 to CY 2018 but decreased in CY 2019. The increase from CY 2019 to CY 2021 resulted in the aggregate total score returning to its original value from CY 2017 (Qlarant, 2022). MDH achieved the minimum compliance score of 80% for all components for CY 2017 and maintained it through CY 2019, with the exception of two components that were baseline results because of the change in the MRR process stemming from the COVID-19 PHE. Only one component in CY 2020—Laboratory Tests/At-Risk Screenings—remained below the minimum compliance score. In CY 2021, all components achieved the minimum compliance score. MCOs use the Healthy Kids review results to develop education efforts to inform participants and providers about EPSDT services.

**Table 28. HealthChoice MCO Aggregate Composite Scores for Components of the EPSDT/Healthy Kids Review, CY 2017–CY 2021**

EPSDT Component	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Health and Developmental History	92%	94%	88%	94%	94%
Comprehensive Physical Exam	96%	97%	93%	96%	96%
Laboratory Tests/At-Risk Screenings	82%	87%	<u>66%*</u>	<u>77%</u>	81%
Immunizations	90%	93%	<u>71%*</u>	86%	88%
Health Education/Anticipatory Guidance	94%	94%	92%	94%	94%
<b>HealthChoice Aggregate Total</b>	<b>92%</b>	<b>94%</b>	<b>83%</b>	<b>91%</b>	<b>92%</b>

\* CY 2019 results for these components are baseline as a result of the change in the MRR process due to the COVID-19 PHE. Underlined scores are below the 80% minimum compliance requirement.

<sup>32</sup> 42 CFR § 440.345.

## **Section IV Conclusion**

Although many of the HealthChoice performance measures in this report demonstrate quality of health care already delivered, two HealthChoice programs focus more directly on improving specific quality of care measures.

First, the VBP program incentivizes MCOs to maintain and improve performance by adjusting a portion of their payments according to their scores on measures of clinical outcomes and care delivery defined in advance. Performance by all of the MCOs sets standards by which each MCO is evaluated, and those MCOs that exceed a performance threshold receive incentive payments. MCOs with less-than-standard performance receive disincentive penalties. An evaluation of the Comprehensive Diabetes Care - HbA1c Control measure shows that the MARR increased by 1.0 percentage points between CY 2017 and CY 2021. Although MCOs may vary with respect to which measures earn incentive payments and which create disincentive penalties, the VBP program—and upcoming PHIP—supports overall quality improvement across HealthChoice.

Second, the EPSDT annual review assesses plan performance on services to children under the age of 21. Because EPSDT services are a national requirement for Medicaid, the EPSDT review measures whether all HealthChoice plans achieve minimum levels of performance in delivering EPSDT. Results from the most recent review show the plans meeting or exceeding standards across the board in CY 2017, CY 2018, and CY 2021, recovering from CY 2019 and CY 2020, wherein the MCOs failed to attain the minimum compliance requirement for at least one measure each year. In CY 2019, compliance requirements were not met for two measures: Laboratory Tests/At-Risk Screenings and Immunizations. In CY 2020, one measure—Laboratory Tests/At-Risk Screenings—remained below the minimum compliance requirement. However, these results should be interpreted with caution as changes to measures were implemented due to the COVID-19 PHE. In CY 2021, the MCOs achieved the minimum compliance score for all components.

## **Section V. Provide Patient-Focused Comprehensive and Coordinated Care through Provision of a Medical Home**

The HealthChoice demonstration's medical home provision offers patient-focused, comprehensive, coordinated care for its participants by matching each member to a single "medical home" through a PCP. A medical home encourages HealthChoice participants to use appropriate care settings and decrease potentially inappropriate or avoidable utilization of health services. To this end, HealthChoice participants are asked to select an MCO and PCP to oversee their medical care. HealthChoice participants who do not select an MCO or PCP are assigned to one.

This section of the report assesses how adequately HealthChoice provides participants with a medical home and educates them as to their use. The measures analyze appropriate service utilization and participants' ability to connect with their medical homes. Participants should be able to understand the resources available to them and seek care in an ambulatory care setting before resorting to seeking care in the ED or allowing a condition to progress to the extent that it warrants an inpatient admission.

### **Medical Home Utilization**

In December 2015, MDH began collecting information from MCOs on HealthChoice participants' PCP assignments, as well as information on the PCPs within a group practice. This information helps MDH track whether participants visited their assigned PCPs or whether they used other providers to oversee their medical care and provide a medical home.

Table 29 presents the number of participants who had at least one visit with their assigned PCP, their assigned PCP's group practice or partner PCP, or any PCP in the MCO's network from CY 2017 to CY 2021. This section presents these measures by MCO for HealthChoice participants with 12 months of enrollment in an MCO. Participants enrolled for 12 continuous months provide an MCO with enough time to intervene in their health care.

During the evaluation period, all MCOs except Kaiser experienced declines in a) the proportion of their HealthChoice participants with at least one visit to their assigned PCP and b) the proportion with at least one visit to any PCP within the MCO network from CY 2017 to CY 2021.

**Table 29. Percentage of HealthChoice Participants (12 Months of Enrollment) with a PCP Visit, by MCO,\* CY 2017–CY 2021**

MCO	# of Participants (12 Months of Enrollment)	% of Participants with a Visit with their Assigned PCP	% of Participants with a Visit with Assigned PCP, Group Practice, or Partner PCPs	% of Participants with a Visit with any PCP in MCO's Network
<b>CY 2017**</b>				
Amerigroup	212,543	46.9%	70.6%	88.9%
CareFirst Community Health Plan	26,699	30.3%	47.4%	79.3%
Jai Medical Systems	19,496	31.7%	64.1%	85.7%
Kaiser	38,887	57.6%	63.0%	80.7%
Maryland Physicians Care	163,778	36.1%	59.0%	86.2%
MedStar	60,885	32.6%	49.2%	84.2%
Priority Partners	220,207	51.9%	54.4%	89.4%
UnitedHealthcare	120,447	44.7%	60.4%	86.7%
<b>Total***</b>	<b>862,942</b>	<b>44.4%</b>	<b>60.1%</b>	<b>87.1%</b>
<b>CY 2018**</b>				
Aetna***	1,504	0.7%	1.5%	5.6%
Amerigroup	214,342	46.7%	70.4%	89.5%
CareFirst Community Health Plan	30,252	31.2%	47.3%	80.4%
Jai Medical Systems****	20,146	1.3%	64.3%	85.2%
Kaiser	44,638	62.3%	67.5%	83.2%
Maryland Physicians Care	164,736	36.3%	57.4%	86.4%
MedStar	65,476	35.5%	54.7%	84.8%
Priority Partners	227,383	52.8%	55.6%	89.6%
UnitedHealthcare	114,003	41.8%	55.4%	85.3%
<b>Total***</b>	<b>882,480</b>	<b>44.0%</b>	<b>59.9%</b>	<b>87.2%</b>
<b>CY 2019**</b>				
Aetna	10,390	0.8%	1.3%	3.7%
Amerigroup	217,490	48.7%	73.4%	89.1%
CareFirst Community Health Plan	32,525	28.8%	48.3%	80.0%
Jai Medical Systems****	21,526	4.2%	67.0%	83.5%
Kaiser	46,398	66.4%	73.1%	83.9%
Maryland Physicians Care	167,215	38.5%	60.6%	86.1%
MedStar	68,438	33.3%	62.3%	84.4%
Priority Partners	234,752	57.9%	60.8%	89.3%
UnitedHealthcare	112,874	43.2%	57.4%	86.2%
<b>Total</b>	<b>911,608</b>	<b>45.9%</b>	<b>63.1%</b>	<b>86.2%</b>
<b>CY 2020**</b>				
Aetna	24,965	0.4%	0.6%	1.8%
Amerigroup	255,847	46.2%	65.2%	78.1%

MCO	# of Participants (12 Months of Enrollment)	% of Participants with a Visit with their Assigned PCP	% of Participants with a Visit with Assigned PCP, Group Practice, or Partner PCPs	% of Participants with a Visit with any PCP in MCO's Network
CareFirst Community Health Plan	40,015	29.2%	43.7%	69.0%
Jai Medical Systems	23,967	29.5%	59.6%	77.0%
Kaiser	63,507	56.1%	76.2%	78.3%
Maryland Physicians Care	194,487	35.0%	53.8%	75.2%
MedStar	81,112	29.9%	49.2%	75.5%
Priority Partners	276,317	35.2%	38.1%	74.8%
UnitedHealthcare	130,721	33.1%	47.7%	68.7%
<b>Total</b>	<b>1,090,938</b>	<b>37.2%</b>	<b>51.3%</b>	<b>73.3%</b>
<b>CY 2021</b>				
Aetna	40,702	24.5%	35.4%	64.1%
Amerigroup	293,591	46.0%	65.5%	81.7%
CareFirst Community Health Plan	50,357	28.4%	42.6%	71.0%
Jai Medical Systems	27,073	29.7%	59.1%	78.2%
Kaiser	90,820	59.1%	79.1%	82.5%
Maryland Physicians Care	220,022	33.8%	53.6%	79.1%
MedStar	95,106	28.9%	48.7%	78.8%
Priority Partners	314,309	40.4%	43.2%	80.8%
UnitedHealthcare	151,311	27.6%	41.9%	72.5%
<b>Total</b>	<b>1,283,291</b>	<b>38.3%</b>	<b>52.9%</b>	<b>78.7%</b>

\*The number of participants in a HealthChoice MCO only includes participants who were listed in the data files provided by the MCO and in the MCO enrollment files according to MMIS2 data.

\*\*The methodology was updated in 2021 to account for changes in the rendering vs. billing provider fields in MMIS2, so the CY 2017 to CY 2020 numbers have changed significantly in some cases.

\*\*\*Aetna had no participants who were enrolled in CY 2017 for 12 months. Aetna started reporting Maryland Medicaid data in CY 2018.

\*\*\*\*The percentage of participants with a visit to their assigned PCP is not reported for Jai because the use of the billing NPI limits ability to capture a participant's assigned PCP.

Table 30 shows the proportion of participants who received at least one ambulatory care visit by MCO in CY 2017 and CY 2021. The total number of participants enrolled in HealthChoice grew by 9.7% between CY 2017 and CY 2021, while the proportion receiving an ambulatory care visit remained stable at roughly 77.8%. There was considerable variation in this measure among MCOs. In CY 2017, 75% of participants in four out of nine MCOs had an ambulatory care visit; in CY 2021, this increased to five out of nine MCOs.



**Table 30. Number and Percentage of HealthChoice Participants Aged 0–64 Years Who Had an Ambulatory Care Visit, by MCO, CY 2017 and CY 2021**

MCO*	CY 2017			CY 2021		
	Total Participants	# with Ambulatory Care Visit	% with Ambulatory Care Visit	Total Participants	# with Ambulatory Care Visit	% with Ambulatory Care Visit
Aetna	1,977	667	33.7%	55,606	34,566	62.2%
Amerigroup	317,115	257,264	81.1%	327,307	265,970	81.3%
CFCHP	53,045	34,703	65.4%	71,565	48,168	67.3%
JAI	29,738	21,877	73.6%	30,925	22,867	73.9%
Kaiser	77,497	53,690	69.3%	113,913	85,056	74.7%
MPC	251,696	193,864	77.0%	250,522	196,678	78.5%
MedStar	105,439	77,159	73.2%	110,134	83,323	75.7%
Priority Partners	339,385	276,564	81.5%	354,583	286,174	80.7%
United	179,551	139,415	77.6%	172,894	135,739	78.5%
<b>ALL MCOs</b>	<b>1,355,443</b>	<b>1,055,203</b>	<b>77.8%</b>	<b>1,487,449</b>	<b>1,158,541</b>	<b>77.9%</b>

\*It is important to note that the data contained here have not been risk-adjusted, so they do not account for variances in risk profiles across MCOs.

Table 31 displays the Outpatient ED utilization of HealthChoice participants aged 0 to 64 years by MCO during CY 2017 and CY 2021. Between CY 2017 and CY 2021, all MCOs except Aetna experienced a decrease in the percentage of their participants with an ED visit; Amerigroup and Jai experienced the largest decreases in ED use: by 7.5 and 6.9 percentage points, respectively. Aetna experienced an increase of 4.0 percentage points during the evaluation period. In CY 2017, at least 30% of participants in three of the nine MCOs used ED services. By CY 2021, only one MCO had an ED utilization rate above 30%.

**Table 31. Percentage of HealthChoice Participants Aged 0–64 Years Who Had an Outpatient ED Visit, by MCO, CY 2017 and CY 2021**

MCO*	CY 2017			CY 2021		
	Total Participants	# with ED Visit	% with ED Visit	Total Participants	# with ED Visit	% with ED Visit
Aetna	1,977	344	17.4%	55,606	11,899	21.4%
Amerigroup	317,115	93,821	29.6%	327,307	72,307	22.1%
CFCHP	53,045	14,915	28.1%	71,565	16,262	22.7%
JAI	29,738	11,107	37.3%	30925	9,408	30.4%
Kaiser	77,497	11,970	15.4%	113,913	14,406	12.6%
MPC	251,696	82,352	32.7%	250,522	64,929	25.9%
MedStar	105,439	31,273	29.7%	110,134	26,674	24.2%
Priority Partners	339,385	106,187	31.3%	354,583	88,382	24.9%
United	179,551	51,261	28.5%	172894	38,882	22.5%
<b>Total</b>	<b>1,355,443</b>	<b>403,230</b>	<b>29.7%</b>	<b>1,487,449</b>	<b>343,149</b>	<b>23.1%</b>

\*It is important to note that the data contained here have not been risk-adjusted, so they do not account for variances in risk profiles across MCOs.

## Appropriateness of ED Care

A fundamental goal of managed care programs like HealthChoice is the delivery of the appropriate care at the appropriate time in the appropriate setting. One widely used methodology to evaluate progress toward appropriate ED utilization is based on classifications developed by researchers at the New York University (NYU) Center for Health and Public Service Research (Billings et al., 2000). The original algorithm was created with ICD-9 codes as of 2001 and was not revised to incorporate new ICD-9 and ICD-10 codes that were added each year. Because this resulted in an increase in the percentage of unclassified ED visits over time, researchers revised the algorithm to account for updated ICD-9 and ICD-10 codes released in 2001 through 2014 (Johnston et al., 2017). Hilltop has not yet applied this update for classifying ED visits because the update for ICD-10 was still in the beta version.<sup>33</sup> According to Billings et al. (2000), the ED profiling algorithm categorizes emergency visits as follows:

1. *Non-emergent*: Immediate care was not required within 12 hours based on the patient's presenting symptoms, medical history, and vital signs.
2. *Emergent but primary care treatable*: Treatment was required within 12 hours but it could have been provided effectively in a primary care setting (e.g., CAT scan or certain lab tests).
3. *Emergent but preventable/avoidable*: Emergency care was required, but the condition was potentially preventable/avoidable if timely and effective ambulatory care had been accessible and received during the episode of illness (e.g., asthma flare-up).
4. *Emergent, ED care needed, not preventable/avoidable*: Ambulatory care could not have prevented the condition (e.g., trauma or appendicitis).
5. *Injury*: Injury was the principal diagnosis.
6. *Alcohol-related*: The principal diagnosis was related to alcohol.
7. *Drug-related*: The principal diagnosis was related to drugs.
8. *Mental health-related*: The principal diagnosis was related to mental health.
9. *Unclassified*: The condition was not classified in one of the above categories by the expert panel.

ED visits that fall into the first three categories above may indicate problems with access to primary care, including access during non-traditional work hours. Figure 16 presents the distribution of all CY 2021 ED visits by NYU classification for individuals with any period of HealthChoice enrollment. In CY 2021, 37.2% of all ED visits were for potentially avoidable (preventable) conditions, meaning that the ED visit may have been avoided if the condition had been addressed with high-quality and timely primary care. ED visits in categories 4 (emergent, ED care needed, not preventable/avoidable) and 5 (injury) are the least likely to be prevented

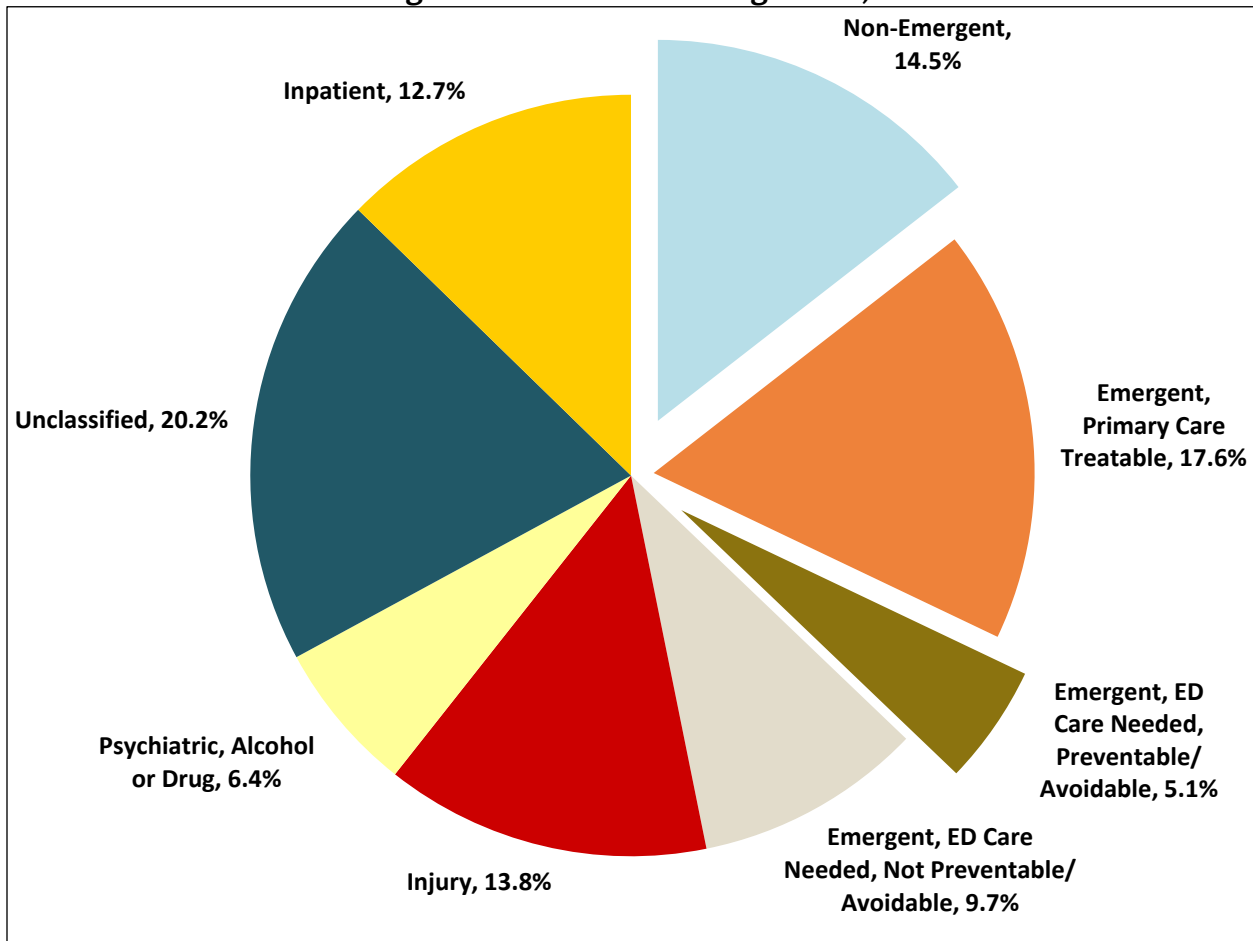
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<sup>33</sup> Hilltop plans to complete an analysis comparing ED visit classifications after applying the patch with the original NYU methods for the next HealthChoice Evaluation.

with access to primary care. These two categories combined accounted for 23.5% of all ED visits in CY 2021.

Adults aged 40 through 64 years had more ED visits related to category 4 (emergent, ED care needed, not preventable/avoidable) than any other age group; children aged 3 through 18 years had more category 5 (injury) ED visits than other age groups.<sup>34</sup> The inpatient category in Figure 16, which is not a part of the NYU classification, represents ED visits that resulted in a hospital admission. Participants with disabilities had a much higher rate of ED visits that led to an inpatient admission than participants in the F&C (families, children, and pregnant women) and MCHP coverage groups.<sup>35</sup>

**Figure 16. ED Visits by HealthChoice Participants Classified According to NYU Avoidable ED Algorithm, CY 2021**



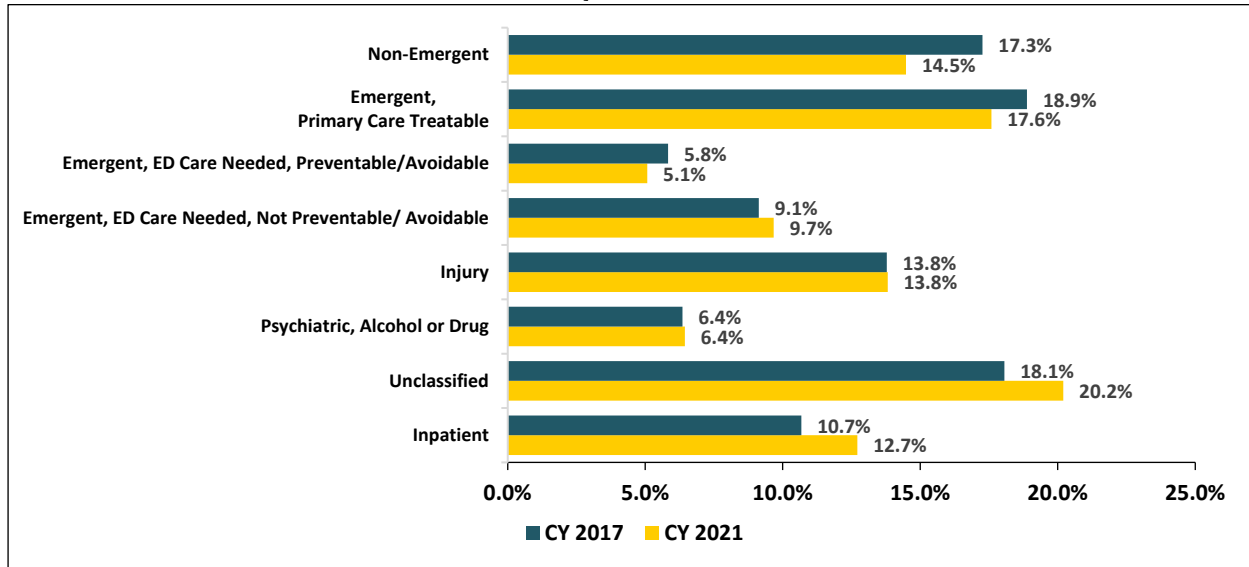
Note: ED visits that result in inpatient stays are not a part of the NYU algorithm and have been added here in their own category. The three categories with ED visits for potentially avoidable/preventable conditions are pulled out in the figure.

<sup>34</sup> Data not shown.

<sup>35</sup> Data not shown.

Figure 17 compares the ED visit classifications for CY 2017 with the classifications for CY 2021. Potentially avoidable ED visits decreased during the evaluation period: from 42.0% of all ED visits in CY 2017 to 37.2% in CY 2021. However, to some degree, this decline is balanced by an increase in the unclassified category. MDH continues to monitor ED use with the goal of reducing potentially avoidable ED visits. ED visits for psychiatric-, alcohol-, or drug-related reasons remained stable at 6.4% in CY 2017 and CY 2021.

**Figure 17. Classification of ED Visits, by HealthChoice Participants, CY 2017 and CY 2021**



### Preventable or Avoidable Admissions

Ambulatory care sensitive hospitalizations —also referred to as preventable or avoidable hospitalizations—are inpatient admissions that may have been prevented if proper ambulatory care had been provided in a timely and effective manner. According to an Agency for Healthcare Research and Quality (AHRQ) report, one in ten hospital admissions nationwide were avoidable (McDermott & Jiang, 2020). High numbers of avoidable admissions may indicate problems with access to primary and urgent care services or deficiencies in outpatient management, follow-up, and readmission status. MDH monitors potentially avoidable admissions using AHRQ’s Prevention Quality Indicators (PQIs) methodology. PQIs are a set of measures obtained from hospital discharge records for specific primary diagnoses to identify quality of care for ambulatory conditions based on the conditions listed in each measure. PQIs are for conditions for which ambulatory care can potentially prevent the need for hospitalization. The measures presented are as follows:<sup>36</sup>

PQI #1: Diabetes Short-Term Complications

<sup>36</sup> The measure estimation logic has been updated using AHRQ PQI Version 2021. A full description of the methodological revisions is available here:

[https://qualityindicators.ahrq.gov/Modules/Log\\_Coding\\_Updates\\_PQI\\_v2021.aspx](https://qualityindicators.ahrq.gov/Modules/Log_Coding_Updates_PQI_v2021.aspx).

PQI #3: Diabetes Long-Term Complications

PQI #5: Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults

PQI #7: Hypertension

PQI #8: Congestive Heart Failure

PQI #11: Bacterial Pneumonia

PQI #12: Urinary Tract Infection

PQI #14: Uncontrolled Diabetes

PQI #15: Asthma in Younger Adults

PQI #16: Lower-Extremity Amputation in Patients with Diabetes

PQI #90:<sup>37</sup> Prevention Quality Overall Composite

PQI #91:<sup>38</sup> Prevention Quality Acute Composite

PQI #92:<sup>39</sup> Prevention Quality Chronic Composite

PQI #93:<sup>40</sup> Prevention Quality Diabetes Composite

The measure denominators include the number of HealthChoice participants who meet the following enrollment criteria:

- Aged 18 to 64 years as of December 31 of the calendar year
  - For PQI #5: Aged 40 to 64 years as of December 31 of the calendar year
  - For PQI #15: Aged 18 to 39 years as of December 31 of the calendar year
- Enrolled in the same HealthChoice MCO as of December 31 of the calendar year as the MCO that paid for the inpatient admission qualifying the participant for a PQI designation

Table 32 presents the number of potentially avoidable inpatient admissions per 100,000 HealthChoice participants aged 18 to 64 years during the evaluation period. COPD or asthma in older adults (PQI #5) was responsible for the highest number of potentially avoidable admissions for CY 2017 through CY 2019. For CY 2020 and CY 2021, congestive heart failure (PQI #8) had the highest number of potentially avoidable admissions. The number of potentially avoidable admissions for lower-extremity amputation in patients with diabetes (PQI #16) was the smallest for CY 2017 through CY 2019. From CY 2020 to CY 2021, asthma in younger adults admissions (PQI #15) was the smallest.

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<sup>37</sup> PQI #90 includes PQI #s 1, 3, 5, 7, 8, 10, 11, 12, 14, 15, and 16.

<sup>38</sup> PQI #91 includes PQI #s 11 and 12.

<sup>39</sup> PQI #92 includes PQI #s 1, 3, 5, 7, 8, 14, 15, and 16.

<sup>40</sup> PQI #93 includes PQI #s 1, 3, 14, and 16.

**Table 32. Number of Potentially Avoidable Admissions per 100,000 HealthChoice Participants Aged 18–64 Years (Any Period of Enrollment), CY 2017–CY 2021<sup>41</sup>**

Any PQI #	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
1: Diabetes Short-Term Complications Admissions	147	202	208	198	174
3: Diabetes Long-Term Complications Admissions	139	135	150	123	117
5: COPD or Asthma in Older Adults Admissions (Ages 40-64)	307	277	244	152	130
7: Hypertension Admissions	86	83	76	62	56
8: Congestive Heart Failure Admissions	221	239	243	196	181
11: Bacterial Pneumonia Admissions	126	129	122	92	60
12: Urinary Tract Infection Admissions	87	70	73	45	42
14: Uncontrolled Diabetes Admissions	47	37	41	36	30
15: Asthma in Younger Adults Admissions (Ages 18-39)	53	46	51	31	26
16: Lower-Extremity Amputation In Patients With Diabetes	23	30	34	34	33
<b>90: Prevention Quality Overall Composite</b>	<b>1,224</b>	<b>1,233</b>	<b>1,223</b>	<b>949</b>	<b>832</b>
<b>91: Prevention Quality Acute Composite</b>	<b>213</b>	<b>199</b>	<b>195</b>	<b>137</b>	<b>103</b>
<b>92: Prevention Quality Chronic Composite</b>	<b>1,011</b>	<b>1,034</b>	<b>1,028</b>	<b>812</b>	<b>730</b>
<b>93: Prevention Quality Diabetes Composite</b>	<b>345</b>	<b>390</b>	<b>414</b>	<b>372</b>	<b>337</b>

Table 33 presents the number and percentage of adults who had at least one inpatient admission and the proportion of PQI admissions during the evaluation period. Overall, the percentage of adults enrolled in HealthChoice with at least one inpatient admission with a PQI designation decreased slightly from 0.8% in CY 2017 to 0.6% in CY 2021.

During the same period, the percentage of participants with at least one inpatient admission decreased from 8.2% in CY 2017 to 7.1% in CY 2021. Among HealthChoice adults with an inpatient admission, the percentage of participants with a PQI-designated admission decreased from 10.1% in CY 2017 to 8.3% in CY 2021.

<sup>41</sup> This measure presents the number of potentially avoidable admissions per 100,000 participants. The methodology for calculating inpatient admission rates only counts inpatient stays paid for by an MCO.

**Table 33. Potentially Avoidable Admission Rates, Participants Aged 18–64 Years (Any Period of Enrollment), with ≥1 Inpatient Admission, CY 2017–CY 2021\***

Calendar Year	# of Participants in HealthChoice	# of Participants with ≥1 MCO Admissions	% of Participants with ≥1 MCO Admission	# of Participants with Any PQI	% of Participants with Any PQI	% of Participants With ≥1 MCO Admission that had a PQI
2017	724,656	59,316	8.2%	6,019	0.8%	10.1%
2018	748,132	58,421	7.8%	6,092	0.8%	10.4%
2019	734,949	57,728	7.9%	5,858	0.8%	10.1%
2020	755,881	55,149	7.3%	4,869	0.6%	8.8%
2021	827,015	58,481	7.1%	4,828	0.6%	8.3%

\*This measure includes only MCO inpatient admissions.

### Section V Conclusion

Over the course of the evaluation period, the percentage of HealthChoice participants who saw their assigned PCPs only increased for Kaiser.<sup>42</sup> The overall percentage of participants who saw any PCP in their MCO’s network decreased from CY 2017 to CY 2020 with a sharp decrease in CY 2020 (likely due to widespread decreased utilization resulting from the COVID-19 pandemic) before increasing in CY 2021. When the medical home was defined to include all PCPs within the MCO network, all the MCOs except for Aetna saw that over 70% of their participants had a visit every year from CY 2018 to CY 2021 except for CY 2020 to any PCP within their provider network. Avoidable ED use declined between CY 2017 and CY 2021, and the proportion of inpatient admissions with a PQI also decreased slightly over the evaluation period. MDH will continue to provide oversight and monitor this trend to ensure that PQI results are consistent with the continuing use of medical homes to provide preventive care.

<sup>42</sup> Aetna started reporting Maryland Medicaid data in CY 2018. Jai did not report CY 2018 and CY 2019 data.

## Section VI. Emphasize Health Promotion and Disease Prevention

Another goal of the HealthChoice program is to improve the quality of health services delivered through the provision of preventive services and chronic care management. This section assesses the demonstration’s performance across quality measures—many nationally recognized, such as HEDIS®—in the areas of preventive health and the management of chronic disease, including behavioral health (MHD and SUD). Preventative care and chronic care management services are also assessed based on their relationship with adverse outcomes. For example, preventive and chronic disease care measures—prenatal and postpartum care, asthma-related and depression-related ED visits, use of Screening, Brief Intervention, and Referral to Treatment (SBIRT) services, diabetes screenings and care—align with Maryland’s SIHIS.

Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, in the tables below, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean, while a “-” sign indicates that Maryland’s rate is below the national mean.

### Preventive Care

#### HEDIS® Childhood Measures

MDH uses HEDIS® measures to report childhood immunization status and well-child visit rates. Table 34 presents the immunization and well-child measures for the HealthChoice population (MetaStar, Inc., 2022). HealthChoice performed above the national HEDIS® mean for childhood immunizations, well-child visits (first 15 months of life), and well-care visits for children and adolescents (aged 3 to 21 years) in CY 2021. Childhood Immunization Combination 3 and well-care visits for adolescents are part of the VBP program.

**Table 34. HEDIS® Immunizations and Well-Child Visits: Percentage of HealthChoice Children Compared with the National HEDIS® Mean, CY 2017–CY 2021**

HEDIS® Measure	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Childhood Immunization Status: Combination 3</b>					
HealthChoice	76.0%*	77.4%	75.4%	70.2%	68.4%
National HEDIS® Mean**	+	+	+	-	+
<b>Well-Child Visits: 15 Months of Life***</b>					
HealthChoice				61.1%	54.8%
National HEDIS® Mean**					+
<b>Child and Adolescent Well-Care Visits (WCV), 3-11 years***</b>					
HealthChoice				57.4%	64.3%
National HEDIS® Mean**					+
<b>Child and Adolescent Well-Care Visits (WCV), 12-17 years***</b>					
HealthChoice				53.7%	57.4%
National HEDIS® Mean**					+
<b>Child and Adolescent Well-Care Visits (WCV), 18-21 years***</b>					
HealthChoice				38.0%	38.5%
National HEDIS® Mean**					+



HEDIS® Measure	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Child and Adolescent Well-Care Visits (WCV), Total 3-21 years***</b>					
HealthChoice				53.1%	57.7%
National HEDIS® Mean*					+

\*2017 data has been corrected.

\*\*Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean and a “-” sign indicates that Maryland’s rate is below the national mean.

\*\*\* National HEDIS® means were unavailable in measurement year (MY) 2020. Due to significant changes made to the well-child visits measure in MY 2020, NCQA determined a trending break, so the data for CY 2017 to CY 2019 are not available.

## Childhood Lead Testing

MDH is a member of Maryland’s Lead Poisoning Prevention Commission, which advises Maryland executive agencies, the General Assembly, and the Governor on lead poisoning prevention in the state. Maryland’s plan to reduce childhood lead poisoning includes ensuring that young children receive appropriate lead risk screening and blood lead testing. MDH’s 2017 Joint Chairmen’s Report describes its efforts through several initiatives (Maryland Department of Health, 2017).

As part of the EPSDT benefit, Medicaid requires that all children receive a blood lead test at 12 and 24 months of age. MDH measures the blood lead testing rates for children aged 12 to 23 months and 24 to 35 months who are enrolled continuously in the same MCO for at least 90 days. A child’s lead test must have occurred during the calendar year or the year prior.

To ensure that the children with elevated blood lead levels receive appropriate follow-up, including case management services and home environmental lead testing, MDH provides each MCO with monthly reports on children who received blood lead tests and those found to have elevated blood lead levels. In 2012, the Centers for Disease Control and Prevention (CDC) issued the recommendation to 1) remove the “level of concern” language from 10 micrograms per deciliter and replace it with the “reference level” of five micrograms per deciliter, and 2) require statewide testing of all children. Maryland adopted these recommendations for all children born on or after January 1, 2015, and the reference level of five micrograms per deciliter is currently used. However, the CDC updated the reference level to 3.5 micrograms per deciliter following a unanimous vote in May 2021 by the Lead Exposure and Prevention Advisory Committee (LEPAC) in favor of recommending the new threshold. In addition to complying with the EPSDT mandate for blood lead testing, MDH also includes blood lead testing measures in several of its quality assurance activities, including the VBP and MFR programs (Maryland Department of Health, n.d.a).<sup>43</sup>

From CY 2017 through CY 2019, over 50,000 children in HealthChoice aged 0 to 6 years received a lead test as reported to the Maryland Department of the Environment (MDE) Childhood Lead Registry (CLR). Over 38,000 children received lead tests in CY 2021, still below pre-2020 levels,

<sup>43</sup> The lead testing measures count lead tests reported through Medicaid administrative data and the Childhood Lead Registry, which is maintained by the Maryland Department of the Environment.

likely due in part to the pandemic’s effect on the use of in-person services. Table 35 presents the number of children with lead tests in CY 2017 and CY 2021, as well as the number and percentage of those children who had an elevated blood lead level, defined as greater than or equal to five micrograms per deciliter. The percentage of children aged 0 to 6 years with an elevated blood lead level decreased from 2.7% in CY 2017 to 2.1% in CY 2021.

**Table 35. HealthChoice Children Aged 0–6 Years with an Elevated Blood Lead Level, CY 2017 and CY 2021**

Calendar Year	Number of Children with a Lead Test	Children with an Elevated Blood Lead Level ( $\geq 5\mu\text{g}/\text{dL}$ )	
		#	%
2017	54,837	1,467	2.7%
2021	38,027	803	2.1%

Table 36 presents the percentage of children aged 12 to 23 months and 24 to 35 months who received at least one lead test during the calendar year or the prior year. The rate of lead testing for the 12 to 23 months age group fluctuated throughout the evaluation period but decreased by 3.6 percentage points overall, while the rate for children aged 24 to 35 increased from CY 2017 through CY 2019 and decreased in CY 2020 and CY 2021 for an overall decrease of 4.0 percentage points.

**Table 36. Percentage of HealthChoice Children Aged 12–23 and 24–35 Months Who Received a Lead Test During the Calendar Year or the Prior Year, CY 2017–CY 2021**

Age Group (Months)	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
12–23	62.7%	62.2%	62.4%	58.6%	59.1%
24–35	80.4%	80.8%	81.5%	80.3%	76.4%

There are currently two CHIP Health Service Initiative (HSI) State Plan Amendments (SPAs) implemented in Maryland to complement lead testing efforts (MACPAC, 2019). Maryland uses HSI funding to 1) support the state’s poison control centers, and 2) operate programs that identify and remove lead hazards in the homes of low-income children and that provide HVS for children with moderate to severe asthma or elevated blood lead levels.

### HPV Vaccine for Adolescents

MDH has increased efforts to vaccinate adolescents against human papillomavirus (HPV). According to the CDC (2022a), there were about 43 million HPV infections in 2018, underscoring the significant public health risk the virus poses. The CDC (2021c) now recommends that 11- to 12-year-olds receive two doses of the HPV vaccine—rather than the previously recommended three doses—to protect against cancers caused by HPV. HPV is a common virus that spreads by sexual contact and can cause cervical cancer in women and penile cancer in men. HPV can also cause anal cancer, throat cancer, and genital warts in both men and women (CDC, 2022a).

Administering widespread vaccinations for HPV will potentially reduce the number of cervical cancer cases drastically: between 2008 and 2014, the greatest reduction in cervical precancers was seen among those vaccinated for HPV (McClung et al., 2019). In 2014, for the first time, the HEDIS® HPV vaccination measure assessed the percentage of 13-year-old females who received three doses of the vaccine by their 13<sup>th</sup> birthday.<sup>44</sup> Beginning in CY 2016, HPV was added as a component of the measure of immunization for adolescents—rather than as a standalone measure—and included both females and males. In alignment with the recommendations from the CDC, the measure was updated in CY 2017 to reduce the requirement from three doses of the HPV vaccine to two doses.

In CY 2017, 31.3% of adolescents (females and males<sup>45</sup>) in the Medicaid program received two HPV vaccine doses between their 9<sup>th</sup> and 13<sup>th</sup> birthdays (Table 37). That rate increased to 32.9% in CY 2021, an increase of 1.6 percentage points. The federal Advisory Committee on Immunization Practices (ACIP) recommends vaccination for adolescents, but it is not a requirement. All ACIP-recommended vaccines are provided at no cost to the state by the federal government.

**Table 37. HPV Vaccination Rates, 13-Year-Old HealthChoice Participants, CY 2017–CY 2021**

Calendar Year	HealthChoice Participants who Turned 13 Years Old	Two HPV Vaccine Doses between Their 9th and 13th Birthdays	
		Number	Percentage
2017	29,683	9,288	31.3%
2018	31,194	10,504	33.7%
2019	34,030	11,850	34.8%
2020	35,197	12,173	34.6%
2021	37,441	12,300	32.9%

### Breast Cancer Screening

Breast cancer is the most prevalent type of cancer among women by rates of new cancer cases (U.S. Cancer Statistics Working Group, 2021). In Maryland, the breast cancer incidence rate was 129.5 cases per 100,000 women, compared to the 126.8 cases per 100,000 women nationally (U.S. Cancer Statistics Working Group, 2021). When detected early, breast cancer is easier to treat, and women have a greater chance of survival (CDC, 2022d). Mammograms are the most effective technique for early detection of breast cancer.

<sup>44</sup> The HPV vaccine is recommended for both males and females, although the HEDIS measure focused exclusively on females until CY 2016. Other state initiatives, including Healthy People 2030, track vaccination rates for both males and females at an older age: from 13 to 15 years of age.

<sup>45</sup> The HEDIS measure used as a basis for this measure was updated in CY 2016 to include both female and male participants and was updated in CY 2017 to allow for two rather than three vaccinations. The measure was revised, and changes were applied to all years in the measurement period. The minimum amount of time between the two doses of the vaccine has been corrected to at least 146 days apart.

Table 38 demonstrates a 5.9 percentage point decrease in the percentage of female HealthChoice participants who received a mammogram for breast cancer screening from CY 2017 to CY 2021 (MetaStar, Inc., 2022). Maryland performed above the national HEDIS® mean throughout the evaluation period.

**Table 38. Percentage of Women in HealthChoice Aged 50–64 Years Who Had a Mammogram for Breast Cancer Screening, Compared with the National HEDIS® Mean, CY 2017–CY 2021\***

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Maryland Percentage	69.7%	69.3%	70.6%	65.2%	63.8%
National HEDIS® Mean**	+	+	+	+	+

Note: Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean, while a “-” sign indicates that Maryland’s rate is below the national mean.

\*The HealthChoice averages in CY 2017 were influenced by the inclusion of HEDIS® rates from newer MCOs.

\*\*The national HEDIS® mean is based on an assessment of women aged 50 to 74 years.

### Cervical Cancer Screening

Cervical cancer is preventable and treatable. The CDC (n.d.b) recommends cervical cancer screenings for women starting at age 21. According to the National Cancer Institute (NCI) (n.d.), women aged 21 to 29 years should be screened with a Papanicolaou (Pap) test every three years. Women aged 30 to 65 years can then be screened every five years with Pap and HPV co-testing, or every three years with a Pap test alone. Women with certain risk factors may need to have more frequent screening or continue screening beyond age 65 years.

Table 39 presents the percentage of women aged 21 to 64 years in HealthChoice who received a cervical cancer screening in CY 2017 through CY 2021. There was a decrease of 4.6 percentage points from CY 2017 to CY 2020 and then a slight increase in CY 2021. HealthChoice performed above the national HEDIS® mean in all evaluation years except CY 2020.

**Table 39. Percentage of Women in HealthChoice Aged 21–64 Years Who Had a Cervical Cancer Screening, Compared with the National HEDIS® Mean, CY 2017–CY 2021\***

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Maryland Percentage	62.5%	62.2%	63.8%	57.9%	58.1%
National HEDIS® Mean**	+	+	+	-	+

\*HealthChoice averages in CY 2017 were influenced by the inclusion of HEDIS® rates from newer MCOs.

\*\*Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean, while a “-” sign indicates that Maryland’s rate is below the national mean.

### Colorectal Cancer Screening

According to the U.S. Cancer Statistics Working Group (2021), colorectal cancer is one of the most common cancers in both men and women. In the U.S. and in Maryland, colorectal cancer is the fourth most diagnosed cancer, as well as the fourth-leading cause of cancer mortality as of 2019. Maryland’s rank in overall cancer mortality has been steadily improving compared to other

states and the District of Columbia (Maryland Department of Health, n.d.b). In 2019, colorectal cancer was the second leading cause of cancer mortality in Maryland (U.S. Cancer Statistics Working Group, 2021). Screening tests find precancerous polyps that can be removed before they become cancerous (CDC, 2018a). The expansion of Medicaid coverage to childless adults and additional parents and caretakers under the ACA removed a major access barrier for age-eligible adults with low income to be screened for colorectal cancer.

Table 40 shows the percentage of HealthChoice participants who received at least one of three appropriate colorectal cancer screenings—fecal occult blood test (FOBT), flexible sigmoidoscopy, or colonoscopy—during the study period.<sup>46</sup> The colorectal cancer screening rate increased by 0.1 percentage points between CY 2017 and CY 2021.

**Table 40. Percentage of HealthChoice Participants Aged 50–64 Years Who Had a Colorectal Cancer Screening, CY 2017–CY 2021**

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Percentage of HealthChoice Participants	39.0%	40.7%	41.4%	39.3%	39.1%

### Dental Services

The Maryland Medicaid program covers dental benefits through the Maryland Healthy Smiles Dental program. Dental services are covered under EPSDT for children aged 20 and younger, pregnant women, adults in the REM program, and former foster care youth (see Section VII) until they turn 26. Non-pregnant adults may receive dental benefits provided as an additional benefit of their MCO. As of August 2020, all MCOs voluntarily covered limited adult dental services for their members as a part of their benefit package using their own revenues. In addition, on June 1, 2019, MDH implemented an adult dental pilot for adults aged 21 through 64 years who are enrolled in both Medicare and Medicaid (see Section VII). This is a limited benefit when compared to the full benefits of the Healthy Smiles program. As of January 1, 2023, Healthy Smiles is available to adults who receive full Medicaid benefits, including members of the adult dental pilot.<sup>47</sup>

Maryland continues to improve its dental program by confronting barriers to providing comprehensive oral health services to Medicaid participants. MDH prepared data for its 2022

<sup>46</sup> HEDIS defines an appropriate screening as follows: an FOBT during the measurement year, a flexible sigmoidoscopy during the measurement year or the prior four years, a colonoscopy during the measurement year or the prior nine years, a CT colonography during the measurement year or the prior four years, and a FIT-DNA test during the measurement year or the prior two years. Only participants who met the HEDIS eligibility requirements were included in the population for this measure. These participants were enrolled continuously in Medicaid during the calendar year and the preceding calendar year. Participants must have been enrolled as of the last day of the measurement year and could not have more than one gap of enrollment exceeding 45 days during each year of continuous enrollment. The group of newly enrolled ACA participants did not have the full length of time to complete screenings compared to participants who had been eligible for HealthChoice for a longer period. Additionally, the measure was modified in CY 2017 to include additional procedures that were not included in previous years.

<sup>47</sup> 2022 MD Laws Ch. 303.

Annual Oral Health Legislative Report, which includes Medicaid dental care and access measures from CY 2017 through CY 2021 (Maryland Department of Health, 2022b). The Medicaid program delivered oral health services to 485,806 children and adults (aged 0 to 64) during CY 2021—up from 418,753 in CY 2020. In CY 2021, 60.0% of children received dental services, which is greater than the national HEDIS® mean. In CY 2021, 20.8% of pregnant women aged 14 years and older with any period of enrollment had at least one dental service; this is a decrease from CY 2020, when 21.5% of pregnant women received dental services.

### Maternal Health and Reproductive Health

MDH and the HealthChoice MCOs engage pregnant women in care through individualized outreach, community events, and prenatal case management, which aligns with the population health goals under Maryland’s SIHIS. HealthChoice participants identified as pregnant are qualified as a Special Needs Population under Code of Maryland Regulations (COMAR) 10.67.04.08. This requires that they receive timely access to care as well as informational materials, dental benefits, and other resources. MDH also operates a dedicated help line for pregnant women. Women who contact the help line are referred to Medicaid-funded administrative care coordination units (ACCU) at local health departments. The ACCUs connect HealthChoice participants to both their MCOs and other services, such as dental services and local home-visiting programs.

### Timeliness of Prenatal Care

Early prenatal care is linked to better overall health outcomes for both the mother and child. Table 41 shows the percentage of deliveries for which the mother received a prenatal care visit in the first trimester or within 42 days of HealthChoice enrollment for CY 2019 through CY 2021 (MetaStar, Inc., 2022). HEDIS® made significant changes to the timeliness of prenatal care measure in 2019 and NCQA determined a trending break; therefore, results cannot be compared to the 2017 and 2018 benchmarks. HealthChoice outperformed the national HEDIS® mean in CY 2019 and CY 2021.

**Table 41. HEDIS® Timeliness of Prenatal Care, HealthChoice Compared with the National HEDIS® Mean, CY 2019–CY 2021\***

	CY 2019	CY 2020	CY 2021
Percentage of deliveries in which the mother received a prenatal care visit in the 1 <sup>st</sup> trimester or within 42 days of HealthChoice enrollment	88.2%	87.0%	88.9 %
National HEDIS® Mean**	+	-	+

\*HEDIS® made significant changes to the timeliness of prenatal care measure in MY 2019. NCQA determined a trending break for HEDIS MY 2019, therefore results cannot be compared to the prior year benchmarks.

\*\*Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean, while a “-” sign indicates that Maryland’s rate is below the national mean.

## Contraceptive Care

Contraception is a highly effective clinical preventive service that can help women fulfill their personal health goals, including preventing teen and unintended pregnancies, as well as achieving healthy spacing of births. The U.S. Department of Health and Human Services Office of Population Affairs (OPA) has developed contraceptive care measures that assess the provision of contraception to women aged 15 to 44 years (OPA, n.d.a).

Table 42 presents the percentage of women at risk of unintended pregnancy that are provided the following methods of contraception (OPA, n.d.b):

1. Most effective contraception: female sterilization, hormonal implants, or intrauterine devices or systems (IUD/IUS)
2. Moderately effective contraception: oral pills, injectables, patch, or ring

The table includes women enrolled in HealthChoice aged 15 to 44 as of the end of the calendar year, who had no more than one gap in Medicaid enrollment of up to 45 days during the year. The percentage of women enrolled in HealthChoice with at least one type of contraception classified as most effective decreased from 5.0% in CY 2017 to 3.5% in CY 2021. The percentage of women enrolled in HealthChoice with at least one moderately effective type of contraception increased slightly – from 21.9% in CY 2017 to 22.2% in CY 2019 – then decreased to 19.0% in CY 2021.

**Table 42. Contraceptive Care Rates, Women Enrolled in HealthChoice Aged 15–44 Years, CY 2017–CY 2021\***

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Percentage receiving most effective contraception</b>	5.0%	4.5%	4.7%	3.8%	3.5%
<b>Percentage receiving moderately effective contraception</b>	21.9%	22.5%	22.2%	20.7%	19.0%
<b>Number of HealthChoice women at risk of unintended pregnancy</b>	269,722	264,804	271,329	309,786	359,165

\*The codes defining the most or moderately effective contraceptive care have been updated by the HHS Office of Population Affairs, changing the data for CY 2017 to CY 2020 from the 2022 HealthChoice Evaluation. Please note that as of FY 2022 the diaphragm is no longer considered a moderately effective contraception.

## Care for Chronic Diseases

The HealthChoice program focuses on improving the quality of health services delivered through chronic care management. This section of the evaluation assesses the demonstration’s performance across quality measures—many nationally recognized, such as HEDIS®—in the areas of medication management for people with asthma, diabetes screenings, HIV/AIDS, and behavioral health (MHD and SUD).



## Service Utilization and Medication Management for People with Asthma

Asthma is a common chronic disease that affected over 25 million Americans in 2020, including 4.2 million children under the age of 18 and over 10.2 million aged 35 to 64 years (CDC, 2021d).<sup>48</sup> In 2020, 420,686 adults aged 18 years and older (8.9%) in Maryland had asthma (CDC, 2021d).

MDH monitors service utilization for HealthChoice participants with asthma and uses HEDIS® to report their medication management. The diagnosis of asthma was defined based on MY 2020 and MY 2021 HEDIS® clinical criteria for AMR. If asthma medications are used correctly, asthma-related hospitalizations, ED visits, and missed school and workdays decrease (CDC, n.d.a).

Asthma is one of the largest racial and ethnic health disparities in terms of ED visit rates and is responsible for more ED visits than other major chronic diseases, such as hypertension and diabetes (Maryland Department of Health, 2023). As part of Maryland’s initiatives, including SIHIS and the CHIP HSI SPA, MDH has made reducing the number of childhood asthma-related ED visits a priority. Through these initiatives, MDH provides asthma prevention and environmental HVS for HealthChoice participants to identify environmental triggers and provide interventions to reduce asthma severity (Maryland Department of Health, 2023).

Although asthma is often thought of as predominantly a condition that affects children, the proportion of individuals with asthma who are older increased as a result of the ACA expansion; specifically, persons aged 40 to 64 years now represent the largest share of HealthChoice participants with asthma. See Table 43 for the percentage of HealthChoice participants with an asthma diagnosis<sup>49</sup> and their distribution by race/ethnicity, sex, region, and age group.

**Table 43. Demographic Characteristics of HealthChoice Participants with an Asthma Diagnosis, CY 2017–CY 2021**

Demographic Characteristic	Calendar Year				
	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Race/Ethnicity</b>					
<b>Asian</b>	2.2%	2.4%	2.5%	2.6%	2.5%
<b>Black</b>	50.0%	49.6%	49.1%	49.0%	50.0%
<b>White</b>	32.7%	31.9%	31.4%	31.1%	30.9%
<b>Hispanic</b>	6.7%	6.9%	6.7%	6.5%	5.7%
<b>Native American</b>	0.3%	0.3%	0.3%	0.3%	0.3%
<b>Other</b>	8.1%	8.9%	10.0%	10.6%	10.6%
<b>Sex</b>					
<b>Female</b>	57.8%	58.2%	58.1%	60.4%	60.5%
<b>Male</b>	42.2%	41.8%	41.9%	39.6%	39.5%

<sup>48</sup> The asthma prevalence data comes from the national and state surveillance systems administered by the Centers for Disease Control and Prevention (CDC).

<sup>49</sup> The methodology for identifying participants with asthma was revised due to the HEDIS® measure Medication Management for People with Asthma (MMA) being retired and instead using AMR. Diagnosis codes and medication lists were revised.



Demographic Characteristic	Calendar Year				
	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Region</b>					
<b>Baltimore City</b>	26.5%	25.9%	25.3%	25.2%	26.1%
<b>Baltimore Suburban</b>	28.8%	28.9%	28.8%	28.9%	29.3%
<b>Eastern Shore</b>	10.8%	10.4%	10.3%	9.8%	10.1%
<b>Southern Maryland</b>	4.7%	4.6%	4.7%	4.6%	4.6%
<b>Washington Suburban</b>	20.7%	21.6%	22.1%	22.6%	20.9%
<b>Western Maryland</b>	8.4%	8.5%	8.6%	8.8%	9.0%
<b>Out of State</b>	0.2%	0.1%	0.1%	0.1%	0.1%
<b>Age Group (Years)</b>					
<b>5–9</b>	17.7%	16.6%	16.1%	12.4%	10.9%
<b>10–14</b>	15.4%	15.8%	15.8%	13.7%	12.6%
<b>15–18</b>	6.9%	6.9%	7.1%	7.2%	7.4%
<b>19–20</b>	1.9%	2.2%	2.2%	2.4%	2.3%
<b>21–39</b>	18.4%	18.9%	18.9%	21.3%	22.4%
<b>40–64</b>	39.7%	39.7%	39.9%	43.1%	44.5%
<b>Total Number of Participants</b>	<b>53,037</b>	<b>54,344</b>	<b>55,106</b>	<b>51,902</b>	<b>47,755</b>

Table 44 presents the number and percentage of HealthChoice participants with an asthma diagnosis who had an ambulatory care visit. The total number of participants with an asthma diagnosis increased from CY 2017 to CY 2019, then decreased in CY 2020 and CY 2021. This decrease was most likely a result of the COVID-19 pandemic. The percentage decreased by 1.2 percentage points between CY 2017 and CY 2020 before increasing in CY 2021 for an overall decrease of 0.4 percentage points.

**Table 44. Number and Percentage of HealthChoice Participants with an Asthma Diagnosis Who Had an Ambulatory Care Visit, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit	
		Number	Percentage of Total
<b>2017</b>	53,037	51,761	97.6%
<b>2018</b>	54,344	53,082	97.7%
<b>2019</b>	55,106	53,892	97.8%
<b>2020</b>	51,902	50,027	96.4%
<b>2021</b>	47,755	46,416	97.2%

Table 45 presents the percentage of HealthChoice participants with asthma who had at least one outpatient ED visit for any diagnosis and at least one ED visit with asthma as the primary diagnosis. Overall, the ED visit rate for participants with asthma decreased from 50.1% to 41.1% during the evaluation period. Asthma-related ED visit rates also declined for this population: from 12.3% in CY 2017 to 7.7% in CY 2021.

**Table 45. HealthChoice Participants Who Had an Outpatient ED Visit, by Asthma-Related Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One ED Visit		At Least One ED Visit with Asthma Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total
2017	53,037	26,598	50.1%	6,522	12.3%
2018	54,344	25,042	46.1%	5,526	10.2%
2019	55,106	25,726	46.7%	5,736	10.4%
2020	51,902	19,633	37.8%	3,627	7.0%
2021	47,755	19,627	41.1%	3,682	7.7%

Table 46 shows the number and percentage of HealthChoice participants with asthma who had at least one inpatient admission, as well as participants with asthma who had at least one inpatient admission with asthma as the primary diagnosis. The percentage of participants with asthma who had an inpatient admission decreased from 14.3% to 12.0% during the evaluation period. The percentage of participants with asthma who had an inpatient admission with asthma as the primary diagnosis decreased from 2.0% to 1.1%.

**Table 46. HealthChoice Participants Who Had an Inpatient Admission, by Asthma-Related Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Inpatient Admission		At Least One Inpatient Admission with Asthma Primary Diagnosis	
		Number	Percentage of Total	Number of Participants	Percentage of Total
2017	53,037	7,559	14.3%	1,036	2.0%
2018	54,344	7,410	13.6%	964	1.8%
2019	55,106	7,167	13.0%	876	1.6%
2020	51,902	5,704	11.0%	469	0.9%
2021	47,755	5,742	12.0%	546	1.1%

**Asthma Home Visiting Program**

Through a CHIP HSI SPA, Maryland offers the Asthma Home Visiting Program, which works to reduce the burden of asthma on children in the state. The program involves trained staff who visit the homes of children aged 18 and under to provide education on lead and/or asthma triggers and their removal, review asthma action plans and medications prescribed for children, and offer cleaning supplies to help remove triggers, as well as referrals to community resources.

Table 47 shows the percentage of children enrolled in the program for asthma with at least three home visits who reported a change in any of several symptoms from their baseline. The

percentage of children seeing an improvement in their symptoms fluctuated throughout the evaluation period, with rates for each category of symptom improvement generally at their highest in the first two quarters of each fiscal year before decreasing in the third and fourth quarters (although the rates for asthma action plans in FY 2019 are a notable exception). The respective percentages of qualifying children who reported improvements in nights awakened due to asthma symptoms, days with shortness of breath or wheezing, and days where they needed to use their rescue inhaler remained above 50% throughout the evaluation period and were at their highest in the first quarter of FY 2019. The percentage of children who reported having an up-to-date asthma action plan was low at the beginning of FY 2019, reached its maximum in the first quarter of FY 2020, and had a minimum of 37%. The total number of enrollees in the program who had at least three home visits fluctuated but increased more than double over the evaluation period.

**Table 47. Percentage of Children Enrolled in an Asthma Protocol with at Least Three Home Visits Reporting a Change in Symptoms from Baseline, by Quarter, FY 2019–FY 2021**

Measure	FY 2019				FY 2020				FY 2021*			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Proportion who reported fewer nights a week of awakening due to asthma symptoms	94%	64%	55%	55%	88%	78%	74%	78%	68%	78%	52%	58%
Proportion who reported fewer days with shortness of breath / wheezing	96%	65%	66%	57%	87%	73%	71%	71%	80%	75%	71%	70%
Proportion who reported fewer days of having to use their rescue inhaler	90%	65%	55%	54%	84%	83%	78%	68%	76%	80%	62%	62%
Proportion who reported having an up-to-date asthma action plan that has been shared with their care provider and school or daycare facility as appropriate	38%	53%	59%	63%	70%	69%	61%	45%	51%	53%	37%	37%
<b>Total</b>	<b>87</b>	<b>98</b>	<b>118</b>	<b>168</b>	<b>144</b>	<b>183</b>	<b>189</b>	<b>200</b>	<b>193</b>			

\*The total number of children with at least 3 home visits per quarter was not reported for each individual quarter in FY 2021. Only a cumulative total for the entire fiscal year was included.

\*The quarterly data from FY 2021 was extracted from the FY 2021 narrative to CMS and not the Microsoft Excel reports.

Children enrolled in the Asthma-Only or Asthma-Lead programs have their symptoms assessed at baseline, and then at the 3rd home visit and each subsequent home visit if the child has more than three home visits. Symptoms are based on self-report.

\*In early December 2021, MDH experienced a network security incident, impacting the coordination between agencies involved with the CHIP HSI SPA. Due to the incident and its investigation, both the State and local health departments were unable to access sensitive data. This incident delayed data collection for the FY 2021 report.

### **Asthma Medication Ratio (AMR) for People with Asthma**

Table 48 presents the results for AMR: specifically, a logistic regression using HEDIS® standard measures<sup>50</sup> that examines the relationship between HealthChoice asthma patients, between the ages of 5 and 64 years with a positive AMR and ED utilization compared to those without during CY 2018 to CY 2021.<sup>51</sup> A positive AMR is defined as a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.

Overall, HealthChoice participants aged 5 to 64 years who had an AMR of a least 0.50 during the calendar year were less likely to experience an ED visit with a primary diagnosis of asthma that same calendar year compared to participants who had an AMR below 0.50. Similarly, participants who had an AMR of a least 0.50 the prior year (i.e., AMR lagged) were less likely to experience an ED visit with a primary diagnosis of asthma the following calendar year compared to participants who had an AMR below 0.50 the prior year. The regression controlled for demographic characteristics (race/ethnicity, age, and gender), comorbidity levels, participant region, and the number of inpatient admissions the previous year. The population only includes participants with persistent asthma, defined as those who had asthma encounters in the measurement year or the year prior. It is important to note that AMR is a measure of medication load of the entire year, while an asthma-related ED visit can occur at any point during the measurement year.

Participants who had a positive AMR had 35.9% lower odds of having an ED visit with a primary diagnosis of asthma than those who did not (OR 0.641,  $p < 0.001$ ). Similarly, participants who had a positive AMR the previous year had 18.1% lower odds of experiencing an ED visit with a primary diagnosis of asthma during the current measurement year (OR 0.819,  $p < 0.001$ ). Increased inpatient admissions the previous year, regardless of associated diagnosis, increased the odds of having an asthma-related ED visit. Each additional inpatient stay increased a participant's odds of an asthma-related ED visit by 22% (OR 1.220,  $p < 0.001$ ). Young participants had higher odds of ED use; with each additional year of age, participants were 2.9% less likely to have an ED visit (OR 0.971  $p < 0.001$ ). Only the Families & Children coverage category had increased odds of an asthma-related ED visit compared to the Disabled coverage category (OR 1.434,  $p < 0.001$ ).

Residents in all regions, except for out of state, were less likely to have an ED visit than Baltimore City residents, with the Washington Suburban area having the lowest odds (OR 0.506  $p < 0.001$ ). Hispanic, Black, and Other/Unknown participants were more likely to have an ED visit compared to White participants; further, Black participants were more than two times as likely (OR 2.559,

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<sup>50</sup> This measure was calculated using the HEDIS® proprietary software from Cognizant.

<sup>51</sup> CY 2017 data is included but as a look back period.

p<0.001). All comorbidity groups<sup>52</sup> were between two and three times more likely to have an ED visit with a primary diagnosis of asthma than participants with low comorbidity (p<0.001).

Model 2 includes an interaction term that estimates the impact of having a current AMR greater than 0.50 and an AMR greater than 0.50 in the previous calendar year (i.e., AMR X AMR lagged) on the probability of experiencing an ED visit in the current measurement year. According to the logistic regression, having a positive AMR in both the current and previous calendar year reduced the probability of experiencing an ED visit by an additional 36% (OR 0.640, p< 0.001).

To establish direction of the relationship and that the main independent variable is effectuating the dependent variable, the independent variable must occur prior to the dependent variable (i.e., have temporal precedence). Without temporal precedence, there is a risk that the relationship is reversed in that the dependent variable is driving or causing the relationship. Therefore, it is arguable there are ambiguous temporal precedence issues surrounding an enrollee’s current AMR status and their ED utilization because AMR is assessed over the entire year whereas an asthma-related ED visit is a point-in-time measurement. However, the direction and strength of the odds ratio of the AMR and lagged AMR variables supports a conclusion that, for most participants, achieving a positive AMR is not caused by experiencing an asthma-related ED visit.

**Table 48. Associations between Asthma Medication Ratio and ED Visits with a Primary Asthma Diagnosis, HealthChoice Participants Aged 5–64 Years, CY 2017–CY 2021**

Variables	ED Visit with Asthma as a Primary Diagnosis					
	Model 1			Model 2		
	Odds Ratio	95 % CI		Odds Ratio	95 % CI	
<b>Asthma Med Ratio (AMR)</b>	0.641 ***	0.60	0.68	0.812 ***	0.75	0.88
<b>AMR Lagged</b>	0.819 ***	0.77	0.87			
<b>AMR X AMR_lagged</b>				0.640 ***	0.59	0.70
<b>Age</b>	0.971 ***	0.97	0.97	0.971 ***	0.97	0.97
<b>Female</b>	1.050	0.98	1.13	1.050	0.98	1.12
<b>Coverage Category</b>						
<i>Families &amp; Children</i>	1.434 ***	1.29	1.59	1.427 ***	1.29	1.58
<i>MCHP</i>	0.925	0.80	1.06	0.925	0.80	1.06
<i>Other</i>	1.126	0.86	1.47	1.123	0.86	1.47
<b>Region†</b>						
<i>Baltimore Suburban</i>	0.621 ***	0.57	0.68	0.624 ***	0.57	0.68
<i>Eastern Shore</i>	0.640 ***	0.56	0.73	0.646 ***	0.57	0.73
<i>Southern Maryland</i>	0.716 ***	0.60	0.85	0.724 ***	0.61	0.86
<i>Washington Suburban</i>	0.506 ***	0.46	0.56	0.507 ***	0.46	0.56

<sup>52</sup> A person’s comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of four comorbidity categories (Low, Moderate, High, Very High) based on their claims records in the measurement years (2017 to 2021).

Variables	ED Visit with Asthma as a Primary Diagnosis					
	Model 1			Model 2		
	Odds Ratio	95 % CI		Odds Ratio	95 % CI	
<i>Western Maryland</i>	0.656 ***	0.56	0.77	0.660 ***	0.57	0.77
<i>Out of State</i>	2.587	0.86	7.81	2.597	0.86	7.83
<b>Race†</b>						
<i>Asian</i>	1.052	0.81	1.36	1.047	0.81	1.36
<i>Black</i>	2.529 ***	2.30	2.78	2.512 ***	2.28	2.77
<i>Hispanic</i>	1.517 ***	1.29	1.79	1.500 ***	1.27	1.77
<i>Other</i>	1.653 ***	1.43	1.91	1.644 ***	1.43	1.89
<b>Comorbidity Score†</b>						
<i>Moderate Comorbidity</i>	2.562 ***	2.30	2.86	2.559 ***	2.29	2.86
<i>High Comorbidity</i>	3.512 ***	3.11	3.96	3.511 ***	3.11	3.96
<i>Very-High Comorbidity</i>	2.932 ***	2.50	3.43	2.944 ***	2.51	3.45
<b>Inpatient Stays Count_lag</b>	1.220 ***	1.15	1.29	1.220 ***	1.15	1.29
<b>Year†</b>						
<i>2019</i>	1.083 *	1.02	1.15	1.084 *	1.02	1.15
<i>2020</i>	0.754 ***	0.70	0.81	0.742 ***	0.69	0.80
<i>2021</i>	0.839 ***	0.78	0.90	0.840 ***	0.78	0.90
<b>Constant</b>	0.077	0.06	0.09	0.073	0.06	0.09

\*\*\* p<.001, \*\*p<.01, \*01, \*p<.05

†, Reference Groups: Disabled, Baltimore City, White, Low, 2018

Table 49 examines the relationship between HealthChoice participants, aged between 5 and 64 years, with a positive medication ratio and asthma related inpatient stays compared to those without a positive AMR.

Unlike ED visits, a positive AMR was associated with higher odds of experiencing asthma related inpatient admission compared to those with an AMR below 0.50; however, the result was not statistically significant. Participants with a positive AMR the previous year were 32.3% less likely to have an asthma-related inpatient stay in the current measurement year (OR 0.677 p<0.001). Each additional ED visit the prior year was associated with a 5.4% increase in the likelihood of incurring an asthma-related inpatient stay (p<0.01). Participants in all regions were less likely to have an inpatient admission compared to participants in Baltimore City, with participants in Western Maryland having the lowest odds (OR 0.297, p<0.001). Black and Hispanic participants were more likely to incur an inpatient admission compared to White participants (OR 1.875, p<0.001; OR 1.560, p<0.05). Higher comorbidities were associated with higher odds of inpatient admission; participants with a very high comorbidity score had 10 times higher odds of incurring an inpatient admission (OR 10.705, p<0.001).

Model 2 added an interaction term that estimates the impact of having an AMR greater than 0.50 in the previous and current calendar year on the probability of incurring an inpatient stay in the present. Unlike in the first regression without the interaction term, a positive AMR was associated with a 59% increase in the probability of having an inpatient stay the same year (OR

1.591,  $p < 0.001$ ). However, having a positive AMR the previous year and in the current year reduced the probability of having an inpatient stay by an additional 48.5% (OR 0.515,  $p < 0.001$ ). Taken together, holding other factors constant, the probability increase would only be 10.6% if an individual had a positive AMR the previous year and in the current year.

Similar to the ED visit logistic regression, there are ambiguous temporal precedence issues. However, the diverging odds ratios of the positive AMR versus the lagged AMR supports a conclusion that an inpatient stay could initiate the need to increase the amount of asthma controller medications prescribed. However, having a good AMR the previous year lowers the odds of an inpatient stay the following year, indicating that high asthma controller medication load has lasting positive effects.

**Table 49. Associations between Asthma Medication Ratio and Inpatient Admissions with a Primary Asthma Diagnosis, HealthChoice Participants Aged 5–64 Years, CY 2017–CY 2021**

Variables	Inpatient Stay with Asthma as a Primary Diagnosis					
	Model 1			Model 2		
	Odds Ratio	95 % CI		Odds Ratio	95 % CI	
<b>Asthma Med Ratio (AMR)</b>	1.200	0.97	1.49	1.591 ***	1.27	1.99
<b>AMR Lagged</b>	0.677 ***	0.55	0.83			
<b>AMR X AMR_lagged</b>				0.515 ***	0.41	0.64
<b>Age</b>	0.950 ***	0.94	0.96	0.951 ***	0.94	0.96
<b>Female</b>	1.062	0.89	1.27	1.060	0.88	1.27
<b>Coverage Category</b>						
<i>Families &amp; Children</i>	1.278	0.99	1.64	1.265	0.98	1.62
<i>MCHP</i>	0.713	0.49	1.03	0.711	0.49	1.02
<i>Other</i>	0.692	0.27	1.77	0.688	0.27	1.77
<b>Region†</b>						
<i>Baltimore Suburban</i>	0.653 ***	0.52	0.81	0.656 ***	0.53	0.82
<i>Eastern Shore</i>	0.421 ***	0.29	0.61	0.426 ***	0.29	0.62
<i>Southern Maryland</i>	0.582 *	0.35	0.98	0.591 *	0.35	0.99
<i>Washington Suburban</i>	0.519 ***	0.39	0.68	0.520 ***	0.39	0.69
<i>Western Maryland</i>	0.297 ***	0.17	0.51	0.299 ***	0.18	0.51
<i>Out of State</i>						
<b>Race†</b>						
<i>Asian</i>	1.064	0.51	2.22	1.063	0.51	2.22
<i>Black</i>	1.875 ***	1.44	2.45	1.856 ***	1.42	2.42
<i>Hispanic</i>	1.560 *	1.02	2.39	1.537 *	1.00	2.36
<i>Other</i>	1.391	0.94	2.06	1.377	0.93	2.04
<b>Comorbidity Score†</b>						
<i>Moderate Comorbidity</i>	3.700 ***	2.39	5.73	3.692 ***	2.38	5.72
<i>High Comorbidity</i>	9.361 ***	5.98	14.66	9.365 ***	5.98	14.67
<i>Very-High Comorbidity</i>	14.442 ***	8.77	23.78	14.557 ***	8.84	23.97
<b>ED Visits_lagged</b>	1.054 **	1.02	1.09	1.054 **	1.02	1.09



Variables	Inpatient Stay with Asthma as a Primary Diagnosis					
	Model 1			Model 2		
	Odds Ratio	95 % CI		Odds Ratio	95 % CI	
<b>Year†</b>						
2019	0.844	0.69	1.03	0.844	0.69	1.03
2020	0.483 ***	0.38	0.62	0.472 ***	0.37	0.60
2021	0.638 ***	0.51	0.80	0.637 ***	0.51	0.80
_cons	0.006			0.006		

\*\*\* p<.001, \*\*p<.01, \*p<.05

†, Reference Groups: Disabled, Baltimore City, White, Low, 2018

### Comprehensive Diabetes Care

MDH combines health care utilization and quality measures to evaluate HealthChoice’s performance in diabetes management. This section of the report analyzes demographic characteristics of HealthChoice participants with diabetes, as well as measures of their outpatient ED visits, inpatient admissions, and ambulatory care service utilization. HEDIS® clinical criteria for the Comprehensive Diabetes Care measure identified participants with diabetes. In addition, this section investigates whether the completion of recommended diabetes screenings affects ED service use.

Table 50 shows HealthChoice participants with a diabetes diagnosis according to the numbers and percentages within categories of race/ethnicity, sex, region, and age group. Black participants with diabetes exceeded the proportion of White participants with diabetes by a ratio of nearly two to one. Both groups experienced a decrease in their share of the HealthChoice population with diabetes during the five-year evaluation period, while the proportion among the “Other” race category increased from 11.7% in CY 2017 to 13.9% in CY 2021. The proportion of male HealthChoice participants with diabetes increased from 42.7% in CY 2017 to 44.0% in CY 2021. The proportion of participants with diabetes between age groups stayed relatively consistent throughout the evaluation period.

**Table 50. Demographic Characteristics of HealthChoice Participants with Diabetes, CY 2017–CY 2021**

Demographic Characteristic	Calendar Year				
	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Race/Ethnicity</b>					
Asian	5.9%	5.9%	6.0%	6.1%	6.2%
Black	49.8%	49.5%	49.3%	48.9%	48.8%
White	28.5%	27.9%	27.8%	27.1%	26.6%
Hispanic	3.7%	3.7%	3.7%	3.9%	4.3%
Native American	0.3%	0.3%	0.3%	0.3%	0.3%
Other	11.7%	12.7%	13.0%	13.7%	13.9%
<b>Sex</b>					
Female	57.3%	56.7%	56.2%	55.8%	56.0%
Male	42.7%	43.3%	43.8%	44.2%	44.0%



Demographic Characteristic	Calendar Year				
	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Region</b>					
<b>Baltimore City</b>	23.5%	23.2%	22.9%	22.3%	21.5%
<b>Baltimore Suburban</b>	26.6%	26.9%	27.6%	27.9%	28.0%
<b>Eastern Shore</b>	10.0%	9.8%	9.8%	9.5%	9.2%
<b>Southern Maryland</b>	5.3%	5.3%	5.3%	5.3%	5.3%
<b>Washington Suburban</b>	26.8%	27.0%	26.6%	27.2%	28.0%
<b>Western Maryland</b>	7.7%	7.8%	7.8%	7.8%	7.9%
<b>Out of State</b>	0.2%	0.2%	0.1%	0.1%	0.1%
<b>Age Group (Years)</b>					
<b>18-40</b>	22.1%	22.2%	22.3%	22.3%	22.9%
<b>41-64</b>	78.0%	77.9%	77.8%	77.7%	77.2%
<b>Total Number of Participants</b>	<b>59,100</b>	<b>59,566</b>	<b>58,767</b>	<b>59,423</b>	<b>64,857</b>

Note: "Other" race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

Table 51 presents the number and percentage of HealthChoice participants with diabetes who had an ambulatory care visit. The rate increased from 94.5% in CY 2017 to 95.5% in CY 2021.

**Table 51. Number and Percentage of HealthChoice Participants with Diabetes Who Had an Ambulatory Care Visit, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit	
		Number	Percentage of Total
<b>2017</b>	59,100	55,828	94.5%
<b>2018</b>	59,566	56,177	94.3%
<b>2019</b>	58,767	55,787	94.9%
<b>2020</b>	59,423	55,891	94.1%
<b>2021</b>	64,857	61,915	95.5%

Table 52 presents the number and percentage of HealthChoice participants with diabetes who had an outpatient ED visit. The percentage of participants with diabetes who had an ED visit decreased from 45.3% in CY 2017 to 39.5% in CY 2021.

**Table 52. Number and Percentage of HealthChoice Participants with Diabetes Who Had an Outpatient ED Visit, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One ED Visit	
		Number	Percentage of Total
<b>2017</b>	59,100	26,771	45.3%
<b>2018</b>	59,566	25,422	42.7%
<b>2019</b>	58,767	25,846	44.0%
<b>2020</b>	59,423	22,370	37.6%
<b>2021</b>	64,857	25,602	39.5%

Table 53 presents the number and percentage of HealthChoice participants with diabetes who had at least one inpatient admission. This measure decreased during the evaluation period—from 21.1% in CY 2017 to 19.7% in CY 2021—indicating the potential success of the HealthChoice program in proactively targeting diabetes management.

**Table 53. Number and Percentage of HealthChoice Participants with Diabetes Who Had an Inpatient Admission, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Inpatient Admission	
		Number	Percentage of Total
2017	59,100	12,481	21.1%
2018	59,566	12,405	20.8%
2019	58,767	11,956	20.3%
2020	59,423	11,519	19.4%
2021	64,857	12,772	19.7%

Controlling diabetes requires monitoring blood glucose levels and looking for damaged nerve tissue in the eye that may threaten sight. The CDC recommends that people with diabetes receive at least two HbA1c tests a year (CDC, n.d.c). Table 54 presents the annual HealthChoice performance on these measures for CY 2017 through CY 2021. HEDIS® analyses use medical chart reviews, whereas the diabetes analyses presented in the rest of this section rely on administrative data (MCO encounter and FFS claims). HealthChoice performed above the national HEDIS® average on HbA1c testing from CY 2017 through CY 2019 but fell below the average in CY 2020 before rising above it again in CY 2021. HealthChoice also fell below the HEDIS® average on eye (retinal) exams from CY 2018 through CY 2021. The observed decrease in the eye exam measure may have resulted from the removal of this measure from the VBP program in CY 2015.

**Table 54. Percentage of HealthChoice Members Aged 18–64 Years with Diabetes Who Received Comprehensive Diabetes Care, Compared with the National HEDIS® Average, CY 2017–CY 2021\***

HEDIS® Measure	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Eye (Retinal) Exam</b>					
HealthChoice	57.8%	54.1%	54.7%	51.7%	50.3%
National HEDIS® Average	+	-	-	-	-
<b>HbA1c Test</b>					
HealthChoice	87.9%	88.8%	88.3%	82.9%	87.1%
National HEDIS® Average	+	+	+	-	+

Note: Because of the NCQA restrictions, national HEDIS® means cannot be published. Therefore, a “+” sign indicates that Maryland’s rate is above the national HEDIS® mean, while a “-” sign indicates that Maryland’s rate is below the national mean.

\*HealthChoice averages in CY 2017 were influenced by the inclusion of HEDIS® rates from newer MCOs.

Under the HealthChoice demonstration waiver, MDH received approval to expand coverage of the National DPP lifestyle change program to all eligible HealthChoice participants as of September 1, 2019. See Section VII for more information on the DPP and an analysis of its impact.

### **Diabetes Screenings and Utilization**

Table 55 presents the logistic regression results for estimating the odds of a HealthChoice participant with diabetes who received an eye (retinal) exam or a hemoglobin A1c (HbA1c) test—using HEDIS® standard screening measures—of having a diabetes-related ED visit that year or the following year. In addition to the screening conditions, the regression controlled for demographic characteristics (race/ethnicity and sex), comorbidity levels,<sup>53</sup> and region of residence (Model 1). Model 2 also controlled for whether the enrollee had an ED visit with a primary diagnosis of diabetes the previous year.

In Model 1, participants who received an HbA1c test had 27.8% increased odds of experiencing a diabetes-related ED visit compared to those who did not receive a test ( $p < 0.001$ ). However, receiving either an HbA1c test or an eye exam the previous year reduced the likelihood of having a diabetes-related ED visit the next year by 20.5% and 6.6%, respectively ( $p < 0.001$ ,  $p < 0.01$ ). Older participants had lower odds of having an ED visit compared to younger participants ( $p < 0.001$ ), and female participants were 25.9% less likely to experience a diabetes-related ED visit compared to males (OR= 0.741,  $p < 0.001$ ). Compared to participants in the Disabled coverage category, those in the Families & Children, MCHP, or Other coverage categories had no statistically significant impact on enrollees experiencing an ED visit with a primary diagnosis of diabetes.

Residents of Baltimore Suburban, Washington Suburban, and Western Maryland all had between 15.7% and 29.0% lower odds of experiencing a diabetes-related ED visit compared to Baltimore City residents ( $p < 0.001$ ,  $p < 0.001$ ,  $p < 0.01$ ). Asian participants were less than half as likely to incur a diabetes-related ED visit compared to White participants (OR= 0.471,  $p < 0.001$ ). However, Black participants were nearly 40% more likely to experience a diabetes-related ED visit (OR=1.389,  $p < 0.001$ ). All participants with moderate to very high comorbidity scores were more likely to incur a diabetes-related ED visit compared to those with a low comorbidity score; in particular, participants scoring very high were over 9 times as likely to have an ED visit compared to participants scoring low (OR= 9.761,  $p < 0.001$ ).

Model 2 added a lagged dependent variable that captured whether the participant had a diabetes-related ED visit the previous year. It also added an interaction term that reflects whether the participant had an eye exam and a HbA1c test in the same year. With the addition of these variables to the analysis, participants who received an eye test had slightly lower odds of experiencing a diabetes-related ED visit compared to those who did not receive a test, but this

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<sup>53</sup> A person's comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High, Other) based on their claim records in the measurement years (2017 to 2021).

result was just shy of statistical significance (OR = 0.881 p=0.051). Enrollees who incurred a diabetes-related ED visit the previous year were over 5 times more likely to experience one the following year (OR=5.653, p<0.001). Receiving both an eye exam and an HbA1c test in the same year was associated with a 15.2% increase in the odds of having a diabetes-related ED visit (OR= 1.152, p<0.05). Taken together, an enrollee who had both screenings the same year would have roughly 27.9% increased odds of having a diabetes-related ED visit.<sup>54</sup>

These results suggest that receiving a HbA1c test does not prevent ED visits for those with existing diabetes health issues. However, the direction and strength of the odds ratio on the lagged HbA1c test and eye exam variables suggest that previous screenings may protect participants from future diabetes-related ED visits.

**Table 55. Associations between Diabetes Screenings and ED Visits with a Primary Diagnosis of Diabetes, HealthChoice Participants Aged 5–64 Years, CY 2017–CY 2021**

Effect	ED Visit with Diabetes as a Primary Diagnosis					
	Model 1			Model 2		
	OR	95% CI		OR	95% CI	
<b>Screenings</b>						
<i>HbA1c Test</i>	1.278 ***	1.21	1.35	1.245 ***	1.16	1.33
<i>Eye exam</i>	1.000	0.96	1.04	0.881	0.78	1.00
<i>HbA1c Test and Eye exam</i>				1.152 *	1.01	1.32
<i>HbA1c Test (1 year Lag)</i>	0.795 ***	0.75	0.84	0.745 ***	0.71	0.79
<i>Eye exam (1 year Lag)</i>	0.934 **	0.89	0.98	0.930 **	0.89	0.97
<b>ED Visit Count (1 year Lag)</b>				5.653 ***	5.34	5.99
<b>Age</b>	0.951 ***	0.95	0.95	0.960 ***	0.96	0.96
<b>Female†</b>	0.741 ***	0.71	0.78	0.788 ***	0.75	0.82
<b>Last Coverage Category†</b>						
<i>Families &amp; Children</i>	1.006	0.95	1.07	1.004	0.95	1.06
<i>MCHP</i>	0.843	0.69	1.02	0.838	0.70	1.01
<i>Other</i>	0.887	0.77	1.02	0.888	0.77	1.02
<b>Region†</b>						
<i>Baltimore Suburban</i>	0.799 ***	0.74	0.86	0.833 ***	0.78	0.89
<i>Eastern Shore</i>	1.066	0.98	1.16	1.055	0.98	1.14
<i>Out of State</i>	1.130	0.66	1.93	1.062	0.67	1.68
<i>Southern Maryland</i>	1.017	0.91	1.14	1.025	0.93	1.13
<i>Washington Suburban</i>	0.710 ***	0.66	0.76	0.750 ***	0.70	0.80
<i>Western Maryland</i>	0.843 **	0.76	0.93	0.866 **	0.79	0.95

<sup>54</sup> Sum of HbA1c Test, Eye exam, and HbA1c Test and Eye exam odds ratios.

Effect	ED Visit with Diabetes as a Primary Diagnosis					
	Model 1			Model 2		
	OR	95% CI		OR	95% CI	
<b>Race†</b>						
Asian	0.471 ***	0.39	0.57	0.510 ***	0.43	0.61
Black	1.389 ***	1.30	1.48	1.332 ***	1.26	1.41
Hispanic	1.035	0.90	1.19	1.050	0.93	1.19
Other	0.988	0.90	1.09	0.975	0.89	1.06
<b>Comorbidity Score†</b>						
Moderate	1.683 ***	1.41	2.01	1.692 ***	1.41	2.03
High	4.022 ***	3.37	4.80	3.755 ***	3.14	4.49
Very High	9.761 ***	8.17	11.66	7.982 ***	6.68	9.55
Other	3.708	0.52	26.32	3.603	0.48	27.01
<b>Year†</b>						
2019	1.114 ***	1.06	1.17	1.137 ***	1.07	1.21
2020	0.954	0.90	1.01	0.962	0.91	1.02
2021	0.901 ***	0.85	0.95	0.943 *	0.89	1.00
<b>Constant</b>	0.149 ***	0.12	0.18	0.086 ***	0.07	0.11

\*\*\* p<.001, \*\*p<.01, \*p<.05

†, Reference Groups: Disabled Baltimore City, White, Low, 2018

Table 56 presents the results of a logistic regression that examined the odds of a HealthChoice participant with diabetes who received an eye exam or HbA1c test having a diabetes-related inpatient admission the current year and the following year. Similar to the diabetes ED visit analysis, the regression controlled for demographic characteristics (race/ethnicity and sex), comorbidity levels,<sup>55</sup> and region of residence (Model 1). Model 2 also controlled for whether the enrollee had an inpatient stay with a primary diagnosis of diabetes the previous year.

In Model 1, participants who received an HbA1c test were 15.1% less likely to have a diabetes-related inpatient stay that year compared to those who did not receive an HbA1c test (OR= 0.849, p<0.001). Having an eye exam also reduced the odds of an inpatient admission for diabetes by 9.4% (OR=0.906, p<0.01). Receiving an HbA1c test the previous year reduced the likelihood of experiencing a diabetes-related inpatient stay the following year by 17.4% (p<0.001). Furthermore, receiving an eye exam the previous year also reduced the likelihood of experiencing a diabetes-related inpatient stay the following year (OR= 0.928, p<0.05). Older participants were less likely to experience a diabetes inpatient stay, as were female participants (p<0.001). Among the coverage categories, only “Other” had statistically significant results. Those enrolled under the “Other” coverage groups had 37.1% higher odds of having a diabetes-

<sup>55</sup> A person’s comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High, Other) based on their claims records in the measurement years (2017 to 2021).

related inpatient stay compared to those enrolled under the Disabled coverage group (OR=1.371,  $p<0.001$ ).

Residents in all regions, except for out-of-state, had lower odds of experiencing a diabetes-related inpatient stay compared to the reference group of Baltimore City residents. Eastern Shore residents had the largest reduced odds at 35.4% ( $p<0.001$ ). Asian and Hispanic participants, along with those whose race/ethnicity is listed as “Other,” were all less likely to incur a diabetes-related inpatient stay, with Asian participants having 56.9% lower odds compared to White participants (OR= 0.431,  $p<0.001$ ). Compared to participants with a low comorbidity score, participants with a high to very high comorbidity score were roughly between 4 and 21 times more likely to experience a diabetes-related inpatient stay ( $p<0.001$ ). However, participants with a moderate comorbidity score were 28.7% less likely to experience a diabetes-related inpatient stay compared to participants with a low comorbidity score ( $p<0.05$ ).

Like with the ED visit analysis, Model 2 added a lagged dependent variable that captured whether the enrollee had a diabetes-related inpatient stay the previous year and an eye exam and a HbA1c interaction variable (HbA1c Test X exam). In Model 2, receiving both an eye exam and an HbA1c test reduced the odds of having an inpatient stay slightly, but the result was not statistically significant. Enrollees who incurred a diabetes-related inpatient stay the previous year were over 8 times more likely to experience one the following year (OR=8.479,  $p<0.001$ ).

The addition of these variables caused several variables to reach and lose statistical significance. The receipt of eye examination lost statistical significance dropping to  $p=0.161$ . Participants enrolled under MCHP were 28.1% less likely to have a diabetes-related inpatient stay compared to those enrolled under Disabled (OR=0.719,  $p<0.05$ ), whereas participants in the “Other” coverage groups were 33.6% more likely to have a diabetes-related inpatient stay compared to those enrolled under Disabled (OR= 1.336,  $p<0.001$ ). Finally, those with a comorbidity score of “Other” were over 9 times more likely to have an inpatient stay compared to enrollees with a low comorbidity score (OR=9.423,  $p<0.05$ ).

Unlike the diabetes ED visit analysis, receiving an HbA1c test is associated with reduced odds of existing diabetes health issues leading to an inpatient hospital admission. Furthermore, the direction and strength of the odds ratio on the lagged HbA1c test and eye exam variables indicate that this protection may carry over to the following year.

**Table 56. Associations between Diabetes Screenings and Inpatient Admissions with a Primary Diagnosis of Diabetes, HealthChoice Participants Aged 5–64 Years, CY 2017–CY 2021**

Effect	Inpatient Admission with Diabetes as a Primary Diagnosis					
	Model 1			Model 2		
	OR	95% CI		OR	95% CI	
<b>Screenings</b>						
<i>HbA1c Test</i>	0.849 ***	0.79	0.91	0.850 ***	0.79	0.92
<i>Eye exam</i>	0.906 **	0.86	0.96	0.901	0.78	1.04
<i>HbA1c Test and Eye exam</i>				0.993	0.85	1.16
<i>HbA1c Test (1 year Lag)</i>	0.826 ***	0.77	0.88	0.852 ***	0.79	0.91
<i>Eye exam (1 year Lag)</i>	0.928 *	0.88	0.98	0.931 *	0.88	0.99
<b>Inpatient Stay Count (1 year Lag)</b>				8.479 ***	7.87	9.13
<b>Age</b>	0.939 ***	0.94	0.94	0.952 ***	0.95	0.95
<b>Female†</b>	0.701 ***	0.66	0.75	0.765 ***	0.72	0.81
<b>Last Coverage Category†</b>						
<i>Families &amp; Children</i>	0.965	0.90	1.04	0.981	0.92	1.05
<i>MCHP</i>	0.793	0.61	1.04	0.719 *	0.55	0.94
<i>Other</i>	1.371 ***	1.17	1.60	1.336 ***	1.15	1.55
<b>Region†</b>						
<i>Baltimore Suburban</i>	0.840 ***	0.77	0.92	0.870 **	0.80	0.94
<i>Eastern Shore</i>	0.646 ***	0.57	0.73	0.680 ***	0.61	0.76
<i>Out of State</i>	1.136	0.64	2.03	1.062	0.63	1.79
<i>Southern Maryland</i>	0.839 *	0.72	0.98	0.866 *	0.76	0.99
<i>Washington Suburban</i>	0.871 **	0.79	0.96	0.877 **	0.80	0.96
<i>Western Maryland</i>	0.715 ***	0.62	0.83	0.753 ***	0.67	0.85
<b>Race†</b>						
<i>Asian</i>	0.431 ***	0.33	0.56	0.508 ***	0.40	0.65
<i>Black</i>	0.994	0.92	1.08	0.983	0.92	1.06
<i>Hispanic</i>	0.630 ***	0.51	0.78	0.701 ***	0.58	0.84
<i>Other</i>	0.872 *	0.77	0.98	0.886 *	0.79	0.99
<b>Comorbidity Score†</b>						
<i>Moderate</i>	0.713 *	0.55	0.93	0.748 *	0.57	0.98
<i>High</i>	3.948 ***	3.09	5.05	3.798 ***	2.94	4.91
<i>Very High</i>	21.408 ***	16.72	27.42	16.804 ***	13.01	21.71
<i>Other</i>	6.703	0.67	67.18	9.423 *	1.02	86.70
<b>Year†</b>						
<i>2019</i>	1.058	0.99	1.13	0.995	0.92	1.08
<i>2020</i>	0.938	0.88	1.00	0.929 *	0.86	1.00
<i>2021</i>	0.884 ***	0.83	0.95	0.919 *	0.85	0.99
<b>Constant</b>	0.185 ***	0.14	0.25	0.079 ***	0.06	0.10

\*\*\* p<.001, \*\*p<.01, \*p<.05

†, Reference Groups: Disabled Baltimore City, White, Low, 2018



## HIV/AIDS

MDH continuously monitors service utilization for HealthChoice participants with HIV/AIDS. This section of the report presents the enrollment distribution of HealthChoice participants with HIV/AIDS by age group and race/ethnicity, as well as measures of ambulatory care service utilization, outpatient ED visits, CD4 testing, and viral load testing. CD4 testing is used to determine how well the immune system is functioning in individuals diagnosed with HIV. The viral load test monitors the progression of the HIV infection by measuring the level of immunodeficiency virus in the blood. Antiretroviral therapy (ART) is a combination of HIV medications used to slow the progression of HIV. ART is recommended for everyone with HIV and should begin as soon as possible after diagnosis (CDC, 2022c). Early initiation of ART lowers the risk of an individual with HIV of developing AIDS and other complications (Lundgren et al., 2015).

Table 57 presents the percentage of participants with HIV/AIDS by age group and race/ethnicity for CY 2017 and CY 2021.

**Table 57. Distribution of HealthChoice Participants with HIV/AIDS, by Age Group and Race/Ethnicity, CY 2017 and CY 2021**

Demographic Characteristic	CY 2017		CY 2021	
	Number of Participants	Percentage of Total	Number of Participants	Percentage of Total
<b>Age Group (Years)</b>				
<b>0–18</b>	182	2.9%	108	1.8%
<b>19–39</b>	1,866	29.4%	1,799	29.3%
<b>40–64</b>	4,290	67.7%	4,232	68.9%
<b>Total</b>	<b>6,338</b>	<b>100%</b>	<b>6,139</b>	<b>100%</b>
<b>Race/Ethnicity*</b>				
<b>Asian</b>	*	*	74	1.2%
<b>Black</b>	5,238	82.6%	4,937	80.4%
<b>White</b>	608	9.6%	560	9.1%
<b>Hispanic</b>	77	1.2%	76	1.2%
<b>Native American</b>	*	*	13	0.2%
<b>Other</b>	364	5.7%	479	7.8%
<b>Total</b>	<b>6,338</b>	<b>100%</b>	<b>6,139</b>	<b>100%</b>

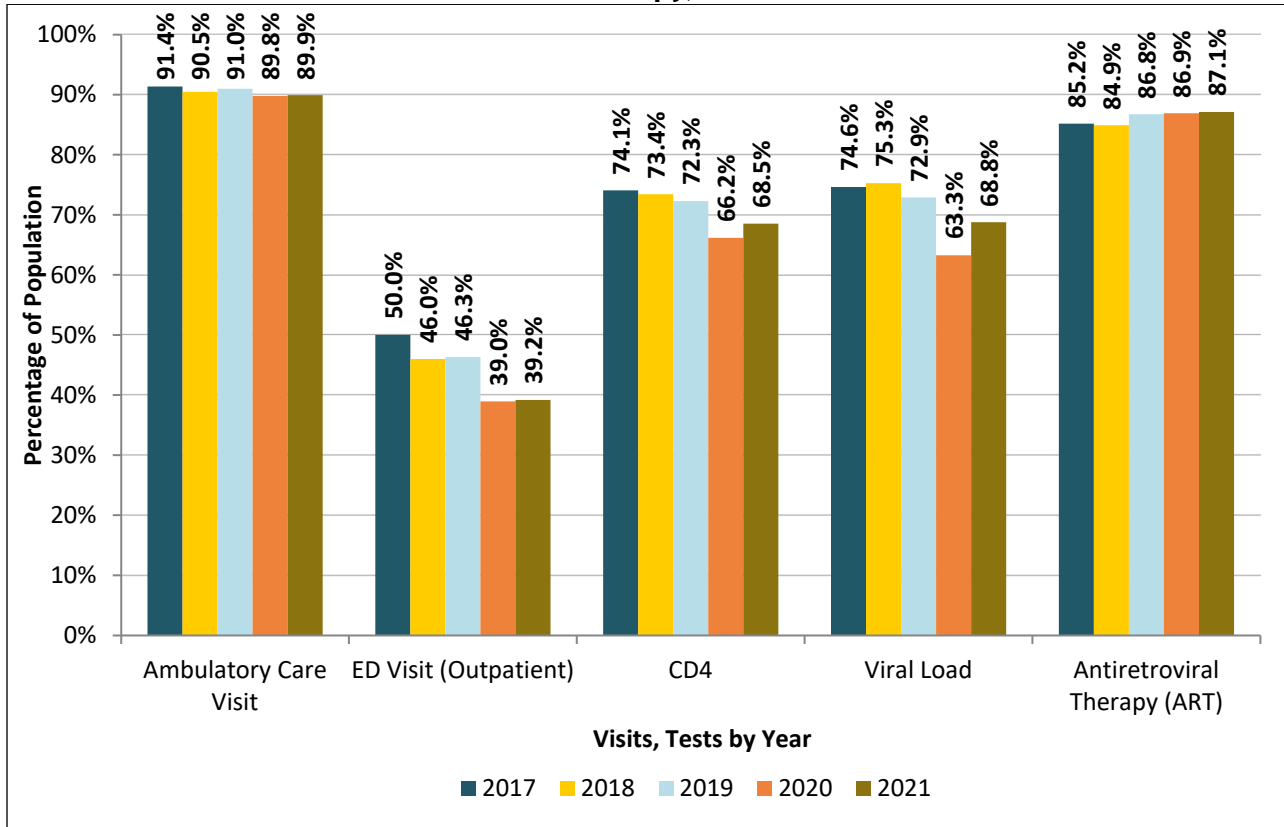
Note: "Other" race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

\*Cell values of 10 or less have been suppressed

Figure 18 shows service utilization by HealthChoice participants with HIV/AIDS during the study period. The percentage of participants with an outpatient ED visit fell by 10.8 percentage points between CY 2017 and CY 2021. The HealthChoice program also experienced decreases in ambulatory care visits, CD4 testing, and viral load testing (1.5, 5.6, and 5.8 percentage points, respectively). ART increased by 1.9 percentage points over the evaluation period.



**Figure 18. Percentage of HealthChoice Participants with HIV/AIDS Who Had an Ambulatory Care Visit, Outpatient ED Visit, CD4 Testing, Viral Load Testing, or Antiretroviral Therapy, CY 2017–CY 2021**



According to the CDC’s annual HIV Surveillance Report (2021b), for people aged 13 and older, there was a national HIV incidence rate of 13.2 per 100,000 people in 2019. In Maryland, the incidence rate of HIV diagnoses for 2019 was 18.0 per 100,000 people, a decrease from the previous year’s rate of 19.6 (CDC, 2021b). The CDC (2022b) estimates that nearly 40% of new HIV infections are transmitted by people who have undiagnosed HIV. Thus, HIV screening is an important step in determining HIV status and starting appropriate treatment. The CDC currently recommends that everyone between 13 and 64 years of age be tested for HIV at least once—or more frequently if they are at high risk.

Table 58 shows HIV screenings for HealthChoice participants aged 15<sup>56</sup> to 64 years from CY 2017 through CY 2021.

<sup>56</sup> HIV tests are recommended starting at age 15 for Maryland Medicaid recipients: <https://health.maryland.gov/mmcp/epsdt/Documents/Maryland%20EPSDT%20Schedule-01-01-22%20HealthRiskAssessment.pdf>

**Table 58. HIV Screening in the HealthChoice Population for Participants Aged 15–64 Years, CY 2017–CY 2021**

HealthChoice Participants	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Total Number</b>	811,183	836,653	824,976	847,412	927,415
<b>Number Received HIV Screening</b>	130,107	142,678	148,213	127,875	148,052
<b>Percentage Received HIV Screening</b>	16.0%	17.1%	18.0%	15.1%	16.0%

For people who are not HIV positive but are at risk of contracting the infection, pre-exposure prophylaxis (PrEP) can help prevent HIV (CDC, 2019). PrEP is a daily medication that reduces the risk of HIV infection (CDC, 2019). Table 59 presents the percentage of HealthChoice participants who received PrEP from CY 2017 to CY 2021.

**Table 59. HealthChoice Participants, Aged 0 to 64, Who Received HIV PrEP, CY 2017–CY 2021**

HealthChoice Participants	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Total Number</b>	1,355,443	1,389,716	1,377,493	1,392,876	1,487,449
<b>Number Received PrEP</b>	2,146	1,949	1,958	990	478
<b>Percentage Received PrEP</b>	0.2%	0.1%	0.1%	0.1%	0.0%

\* The definition of PrEP was modified in 2020 to exclude participants who are receiving Truvada or Descovy in addition to another ART, which would indicate treatment for HIV/AIDs rather than PrEP. This has resulted in a small decrease in the number of participants receiving PrEP compared to previous years.

## Behavioral Health

MDH contracts with an ASO to administer specialty MHD and SUD services, collectively called behavioral health services. Although the managed care benefit package excludes these services, MCOs are mandated to ensure that their enrollees receive all needed health services, including those that are carved out. In taking a whole-person view, this section includes behavioral health services paid on an FFS basis by the ASO but provided to individuals enrolled in the HealthChoice program.

### **Behavioral Health Demographics and Service Utilization**

Table 60 presents the number and percentage of HealthChoice participants by behavioral health diagnosis group. These groups include MHD-only, SUD-only, dual diagnosis of MHD and SUD, and none of these diagnoses. The percentage of HealthChoice participants without a behavioral health diagnosis increased from 82.9% in CY 2017 to 83.1% in CY 2021, accompanied by a slight increase in the percentage of participants with an MHD-only diagnosis.

**Table 60. Number and Percentage of HealthChoice Participants with a Behavioral Health Diagnosis, by Diagnosis, CY 2017–CY 2021**

Diagnosis	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>MHD-Only</b>	156,694 (11.6%)	165,198 (11.9%)	171,971 (12.5%)	167,183 (12.0%)	177,284 (11.9%)
<b>SUD-Only</b>	41,632 (3.1%)	43,274 (3.1%)	42,062 (3.1%)	39,298 (2.8%)	38,838 (2.6%)
<b>Dual Diagnosis (MHD + SUD)</b>	33,085 (2.4%)	34,615 (2.5%)	36,812 (2.7%)	34,070 (2.5%)	34,815 (2.3%)
<b>No Behavioral Health Diagnosis</b>	1,124,032 (82.9%)	1,146,629 (82.5%)	1,126,648 (81.8%)	1,152,325 (82.7%)	1,236,512 (83.1%)
<b>Total</b>	<b>1,355,443</b>	<b>1,389,716</b>	<b>1,377,493</b>	<b>1,392,876</b>	<b>1,487,449</b>

MDH monitors the extent to which participants with a behavioral health diagnosis access ambulatory care services. In CY 2021, 91.7% of participants with a behavioral health condition visited a health care provider for an ambulatory care visit (Table 61).

From CY 2017 through CY 2021, the ambulatory care visit rate among participants with an MHD-only diagnosis remained stable overall at roughly 92.8% despite dropping to 90.2% in CY 2020, while the rate increased by 5.9 percentage points for participants with an SUD-only diagnosis. Participants with a dual diagnosis of MHD and SUD were consistently more likely to receive an ambulatory care visit than participants with an SUD-only diagnosis but had similar utilization to those with an MHD-only diagnosis across the evaluation period.

**Table 61. HealthChoice Participants with a Behavioral Health Condition Who Had an Ambulatory Care Visit, by Behavioral Health Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit	
		Number of Participants	Percentage of Total Participants
<b>MHD-Only</b>			
<b>2017</b>	156,694	145,397	92.8%
<b>2018</b>	165,198	153,182	92.7%
<b>2019</b>	171,971	159,515	92.8%
<b>2020</b>	167,183	150,833	90.2%
<b>2021</b>	177,284	164,585	92.8%
<b>SUD-Only</b>			
<b>2017</b>	41,632	32,222	77.4%
<b>2018</b>	43,274	35,152	81.2%
<b>2019</b>	42,062	34,839	82.8%
<b>2020</b>	39,298	31,800	80.9%
<b>2021</b>	38,838	32,359	83.3%
<b>Dual Diagnosis (MHD + SUD)</b>			
<b>2017</b>	33,085	30,674	92.7%
<b>2018</b>	34,615	32,499	93.9%
<b>2019</b>	36,812	34,876	94.7%
<b>2020</b>	34,070	32,110	94.2%

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit	
		Number of Participants	Percentage of Total Participants
2021	34,815	33,248	95.5%
<b>Total</b>			
2017	231,411	208,293	90.0%
2018	243,087	220,833	90.8%
2019	250,845	229,230	91.4%
2020	240,551	214,743	89.3%
2021	250,937	230,192	91.7%

Table 62 displays the number and percentage of HealthChoice participants with a behavioral health diagnosis who had at least one outpatient ED visit.<sup>57</sup> The percentage of participants with an MHD-only diagnosis who visited the ED declined from 43.1% in CY 2017 to 34.0% in CY 2021. In each year of the evaluation period, participants with co-occurring diagnoses had a higher rate of ED utilization compared to participants with an MHD-only or SUD-only diagnosis.

**Table 62. HealthChoice Participants with a Behavioral Health Condition Who Had at Least One Outpatient ED Visit, by Behavioral Health Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One ED Visit	
		Number of Participants	Percentage of Total Participants
<b>MHD-Only</b>			
2017	156,694	67,557	43.1%
2018	165,198	65,561	39.7%
2019	171,971	67,352	39.2%
2020	167,183	52,060	31.1%
2021	177,284	60,235	34.0%
<b>SUD-Only</b>			
2017	41,632	20,972	50.4%
2018	43,274	20,430	47.2%
2019	42,062	19,965	47.5%
2020	39,298	16,593	42.2%
2021	38,838	16,779	43.2%
<b>Dual Diagnosis (MHD + SUD)</b>			
2017	33,085	22,530	68.1%
2018	34,615	22,663	65.5%
2019	36,812	23,419	63.6%
2020	34,070	19,860	58.3%
2021	34,815	20,639	59.3%
<b>Total</b>			
2017	231,411	111,059	48.0%

<sup>57</sup> This measure excludes ED visits that resulted in an inpatient hospital admission.

Calendar Year	Total Number of Participants	At Least One ED Visit	
		Number of Participants	Percentage of Total Participants
2018	243,087	108,654	44.7%
2019	250,845	110,736	44.1%
2020	240,551	88,513	36.8%
2021	250,937	97,653	38.9%

Table 63 displays the number and percentage of HealthChoice participants with a behavioral health diagnosis who had at least one inpatient admission. Overall, the percentage of participants with a behavioral health diagnosis who had an inpatient admission declined from 15.4% in CY 2017 to 12.5% in CY 2021. Each of the behavioral health diagnosis groups experienced the same downward trend during this time. In each year of the evaluation period, participants with co-occurring diagnoses had a higher rate of inpatient admissions than participants with an MHD-only or SUD-only diagnosis.

**Table 63. HealthChoice Participants with a Behavioral Health Condition Who Had an Inpatient Admission, by Behavioral Health Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Inpatient Visit	
		Number of Participants	Percentage of Total Participants
<b>MHD-Only</b>			
2017	156,694	19,198	12.3%
2018	165,198	19,172	11.6%
2019	171,971	18,363	10.7%
2020	167,183	15,055	9.0%
2021	177,284	17,564	9.9%
<b>SUD-Only</b>			
2017	41,632	6,176	14.8%
2018	43,274	6,126	14.2%
2019	42,062	5,772	13.7%
2020	39,298	5,286	13.5%
2021	38,838	5,356	13.8%
<b>Dual Diagnosis (MHD + SUD)</b>			
2017	33,085	10,352	31.3%
2018	34,615	10,166	29.4%
2019	36,812	9,850	26.8%
2020	34,070	8,566	25.1%
2021	34,815	8,558	24.6%
<b>Total</b>			
2017	231,411	35,726	15.4%
2018	243,087	35,464	14.6%
2019	250,845	33,985	13.5%
2020	240,551	28,907	12.0%
2021	250,937	31,478	12.5%

Table 64 shows the rates of MHD-only, SUD-only, and co-occurring MHD and SUD diagnoses among HealthChoice participants by race and ethnicity during CY 2017 and CY 2021. Between CY 2017 and CY 2021, the percentage of HealthChoice participants who had a behavioral health condition remained fairly stable, with a slight increase in MHD-only diagnoses and a slight decrease in participants diagnosed with an SUD only. The largest increase in MHD-only diagnoses from CY 2017 to CY 2021 was noted for Asian participants, among whom this measure increased by 1.5 percentage points.

**Table 64. Distribution of HealthChoice Participants Aged 0–64 Years, by Race/Ethnicity and Behavioral Health Conditions, CY 2017 and CY 2021**

Race/Ethnicity	CY 2017		CY 2021	
	Number of Participants	Percentage of Total Race/Ethnicity	Number of Participants	Percentage of Total Race/Ethnicity
<b>MHD-Only</b>				
Black	72,910	12.6%	82,474	13.7%
White	58,518	15.3%	58,861	15.6%
Hispanic	9,252	7.9%	10,128	8.9%
Asian	2,305	3.7%	3,825	5.2%
Native American	493	12.8%	601	13.5%
Other	13,255	6.3%	21,395	6.8%
<b>Total</b>	<b>156,733</b>	<b>11.6%</b>	<b>177,284</b>	<b>11.9%</b>
<b>SUD-Only</b>				
Black	15,392	2.7%	13,011	2.2%
White	22,191	5.8%	21,284	5.6%
Hispanic	711	0.6%	646	0.6%
Asian	340	0.5%	357	0.5%
Native American	161	4.2%	136	3.1%
Other	3,030	1.4%	3,404	1.1%
<b>Total</b>	<b>41,825</b>	<b>3.1%</b>	<b>38,838</b>	<b>2.6%</b>
<b>Dual Diagnosis (MHD + SUD)</b>				
Black	12,732	2.2%	13,215	2.2%
White	17,989	4.7%	18,222	4.8%
Hispanic	414	0.4%	433	0.4%
Asian	160	0.3%	227	0.3%
Native American	125	3.2%	151	3.4%
Other	1,764	0.8%	2,567	0.8%
<b>Total</b>	<b>33,184</b>	<b>2.4%</b>	<b>34,815</b>	<b>2.3%</b>
<b>No Behavioral Health Diagnosis</b>				
Black	478,735	82.6%	492,997	81.9%
White	282,950	74.1%	279,745	74.0%
Hispanic	106,090	91.1%	102,669	90.2%
Asian	59,908	95.5%	69,319	94.0%
Native American	3,080	79.8%	3,560	80.0%
Other	192,588	91.4%	288,222	91.3%
<b>Total</b>	<b>1,123,351</b>	<b>82.9%</b>	<b>1,236,512</b>	<b>83.1%</b>

Note: "Other" race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

**Mental Health Services**

Table 65 displays the key demographic characteristics of HealthChoice participants with a diagnosis of an MHD.<sup>58</sup> The proportion of White participants with an MHD decreased across the evaluation period: from 40.2% in CY 2017 to 36.3% in CY 2021. In CY 2017, children and adults made up 38.5% and 61.5%, respectively, of participants with an MHD. The proportion of adults rose to 65.5% in CY 2021.

**Table 65. Demographic Characteristics of HealthChoice Participants with an MHD, CY 2017–CY 2021**

Demographic Characteristic	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
	% of Total	% of Total	% of Total	% of Total	% of Total
<b>Race/Ethnicity</b>					
Asian	1.3%	1.4%	1.5%	1.7%	1.9%
Black	45.1%	44.8%	45.4%	45.2%	45.1%
White	40.2%	38.9%	37.5%	36.9%	36.3%
Hispanic	5.1%	5.3%	5.2%	5.1%	5.0%
Native American	0.3%	0.3%	0.3%	0.3%	0.4%
Other	8.1%	9.2%	10.1%	10.8%	11.3%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Sex</b>					
Female	54.3%	54.6%	54.9%	56.0%	57.9%
Male	45.7%	45.5%	45.1%	44.0%	42.2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Region</b>					
Baltimore City	26.1%	25.3%	25.4%	25.1%	24.4%
Baltimore Suburban	30.2%	30.7%	31.2%	31.5%	32.1%
Eastern Shore	11.2%	10.9%	10.9%	10.8%	10.3%
Southern Maryland	4.7%	4.7%	4.6%	4.6%	4.7%
Washington Suburban	17.3%	18.0%	17.9%	17.9%	18.3%
Western Maryland	10.3%	10.2%	9.9%	10.1%	10.1%
Out of State	0.1%	0.1%	0.1%	0.1%	0.1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Age Group (Years)</b>					
0–18	38.5%	38.7%	38.6%	37.3%	34.5%
19–64	61.5%	61.3%	61.4%	62.7%	65.5%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Total Participants</b>	<b>189,779</b>	<b>199,813</b>	<b>208,783</b>	<b>201,253</b>	<b>212,099</b>

Note: “Other” race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

<sup>58</sup> Individuals are identified as having an MHD if they have any ICD-10 diagnosis codes that begin with F200-203, F205, F2081, F2089, F209, F21-24, F250, F251, F258, F259, F28-29, F301-304, F308-325, F328-334, F338-341, F348-349, F39-45, F48, F50, F53-54, F60, F63-66, F68-69, F843, F900-902, F908-913, F918-919, F930, F938-942, F948-949, F980-981, F984, F9888-989, F99, G21, G24-25, R45, O99, Z046; OR any ICD-9 diagnosis codes that begin with 295-302, 307-309, 311- 314, 332.1, 333.90, 333.99, 648 according to the COMAR definition of MHD.

Table 66 displays the number and percentage of HealthChoice participants with an MHD diagnosis who had at least one ambulatory care visit, as well as participants with at least one ambulatory care visit with an MHD as a primary diagnosis. The percentage of HealthChoice participants with an MHD-only diagnosis with at least one ambulatory care visit remained steady from CY 2017 to CY 2021 at 92.8%. Among the same population, the percentage who had an ambulatory care visit with an MHD as a primary diagnosis decreased by 3.2 percentage points over the evaluation period.

The percentage of participants with a dual diagnosis of MHD and SUD who had at least one ambulatory care visit increased by 2.8 percentage points between CY 2017 and CY 2021, while the percentage of this population who had at least one ambulatory care visit with an MHD as a primary diagnosis decreased by 2.8 percentage points across the evaluation period.

Between CY 2017 and CY 2021, the overall percentage of participants with an MHD or a dual diagnosis who had at least one ambulatory care visit increased from 92.8% to 93.3%. The percentage with at least one ambulatory care visit where MHD was a primary diagnosis decreased between CY 2017 and CY 2021 (from 18.0% to 14.9%).

**Table 66. HealthChoice Participants with an MHD Who Had an Ambulatory Care Visit, by MHD Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit (Any Diagnosis)		At Least One Ambulatory Care Visit with MHD as Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>MHD-Only</b>					
2017	156,694	145,397	92.8%	28,962	18.5%
2018	165,198	153,182	92.7%	30,601	18.5%
2019	171,971	159,515	92.8%	29,391	17.1%
2020	167,183	150,833	90.2%	25,481	15.2%
2021	177,284	164,585	92.8%	27,100	15.3%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	33,085	30,674	92.7%	5,270	15.9%
2018	34,615	32,499	93.9%	5,594	16.2%
2019	36,812	34,876	94.7%	5,477	14.9%
2020	34,070	32,110	94.2%	4,792	14.1%
2021	34,815	33,248	95.5%	4,568	13.1%
<b>Total</b>					
2017	189,779	176,071	92.8%	34,232	18.0%
2018	199,813	185,681	92.9%	36,195	18.1%
2019	208,783	194,391	93.1%	34,868	16.7%
2020	201,253	182,943	90.9%	30,273	15.0%
2021	212,099	197,833	93.3%	31,668	14.9%



Table 67 displays the number and percentage of HealthChoice participants who had at least one outpatient ED visit with either any diagnosis or a primary diagnosis of an MHD. Between CY 2017 and CY 2021, the overall percentage of participants with an MHD or a dual diagnosis who had at least one outpatient ED visited decreased by 9.0 percentage points. The percentage that had an ED visit with a primary diagnosis of an MHD decreased by 3.5 percentage points.

The percentages of HealthChoice participants with a dual diagnosis (MHD and SUD) and an MHD-only diagnosis who had at least one outpatient ED visit decreased by 8.8 and 9.1 percentage points, respectively. The percentage of HealthChoice participants with a dual diagnosis and at least one outpatient ED visit with a primary diagnosis of an MHD decreased by 6.3 percentage points, whereas the corresponding rate among participants with an MHD-only diagnosis decreased by 2.9 percentage points.

**Table 67. HealthChoice Participants with an MHD Who Had an Outpatient ED Visit, by MHD Diagnosis, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Outpatient ED Visit (Any Diagnosis)		At Least One Outpatient ED Visit with MHD as Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>MHD-Only</b>					
2017	156,694	67,557	43.1%	13,516	8.6%
2018	165,198	65,561	39.7%	13,915	8.4%
2019	171,971	67,352	39.2%	12,504	7.3%
2020	167,183	52,060	31.1%	8,851	5.3%
2021	177,284	60,235	34.0%	10,144	5.7%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	33,085	22,530	68.1%	5,201	15.7%
2018	34,615	22,663	65.5%	4,846	14.0%
2019	36,812	23,419	63.6%	4,273	11.6%
2020	34,070	19,860	58.3%	3,102	9.1%
2021	34,815	20,639	59.3%	3,262	9.4%
<b>Total</b>					
2017	191,309	90,087	47.1%	18,717	9.8%
2018	202,010	88,224	43.7%	18,761	9.3%
2019	206,041	90,771	44.1%	16,777	8.1%
2020	201,253	71,920	35.7%	11,953	5.9%
2021	212,099	80,874	38.1%	13,406	6.3%

MDH monitors the extent to which HealthChoice participants who had an ED visit with a primary diagnosis of an MHD receive a follow-up outpatient visit with any practitioner within 7 or 30 days.

Table 68 displays the number of ED visits with a primary diagnosis of an MHD among participants aged 6 to 64 years and the percentage of visits where appropriate follow-up care was provided; i.e., an outpatient visit within 7 or 30 days (FUM) during CY 2017 to CY 2021.<sup>59</sup> A higher percentage of participants with only an MHD completed follow-up visits than participants with a dual diagnosis of MHD and SUD (within both 7 and 30 days) throughout the evaluation period. Among all participants with an MHD or dual diagnosis, the percentage of ED visits with a primary MHD diagnosis and a follow-up appointment within 7 days remained stable at around 37.0% from CY 2017 to CY 2021, despite a decrease by 5.9 percentage points in CY 2020. The overall percentage of follow-up visits within 30 days increased from 56.9% in CY 2017 to 57.4% in CY 2021.

**Table 68. Number and Percentage of ED Visits for MHD and a Follow-Up Visit within 7 or 30 Days, CY 2017–CY 2021**

Calendar Year	Total Number of Visits	At Least One Follow-Up within 7 Days		At Least One Follow-Up within 30 Days	
		Number of Visits	Percentage of Visits	Number of Visits	Percentage of Visits
<b>MHD-Only</b>					
2017	9,307	3,854	41.4%	5,661	60.8%
2018	9,702	4,011	41.3%	5,992	61.8%
2019	8,947	3,682	41.2%	5,525	61.8%
2020	7,191	2,399	33.4%	4,012	55.8%
2021	7,423	2,991	40.3%	4,512	60.8%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	4,424	1,209	27.3%	2,149	48.6%
2018	4,195	1,124	26.8%	2,037	48.6%
2019	3,916	1,113	28.4%	1,953	49.9%
2020	3,497	954	27.3%	1,744	49.9%
2021	3,156	928	29.4%	1,561	49.5%
<b>Total</b>					
2017	13,731	5,063	36.9%	7,810	56.9%
2018	13,897	5,135	37.0%	8,029	57.8%
2019	12,863	4,795	37.3%	7,478	58.1%
2020	10,688	3,353	31.4%	5,756	53.9%
2021	10,579	3,919	37.0%	6,073	57.4%

**Substance Use Disorder Services**

This section evaluates the quality and comprehensiveness of SUD-related care provided to HealthChoice participants.

SUD services are carved out and administered by the ASO in alignment with specialty mental health services.<sup>60</sup> Table 69 presents the demographic characteristics of HealthChoice participants

<sup>59</sup> This measure—Follow-Up After Emergency Department Visit for Mental Illness, or FUM—was calculated using the HEDIS® proprietary software from Cognizant.

<sup>60</sup> Individuals were identified as having an SUD if they had a claim that met the COMAR 10.67.08.02 definition of SUD, which includes presence of one of the following: (ICD-10 diagnosis codes: F10-19, O99310-99315, O99320-

with a diagnosis of SUD. Among racial and ethnic groups, White participants made up the highest proportion of persons with an SUD, followed by Black participants. The share of Black participants with an SUD decreased from CY 2017 to CY 2021 by 1.9 percentage points, while the share of White participants remained the same. Between CY 2017 and CY 2021, males remained the majority of participants with an SUD, making up 56.9% of participants with an SUD in CY 2021. The Baltimore Suburban region had the highest share of persons with an SUD during the evaluation period.

**Table 69. Demographic Characteristics of HealthChoice Participants with an SUD, CY 2017–CY 2021**

Demographic Characteristics	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
	% of Total	% of Total	% of Total	% of Total	% of Total
<b>Race/Ethnicity</b>					
Asian	0.6%	0.7%	0.7%	0.8%	0.8%
Black	37.5%	37.3%	36.9%	35.7%	35.6%
White	53.6%	52.6%	52.4%	53.4%	53.6%
Hispanic	1.5%	1.6%	1.6%	1.6%	1.5%
Native American	0.4%	0.4%	0.4%	0.4%	0.4%
Other	6.5%	7.4%	8.0%	8.1%	8.1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Sex</b>					
Female	43.4%	43.6%	43.2%	43.7%	43.1%
Male	56.6%	56.4%	56.8%	56.3%	56.9%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Region</b>					
Baltimore City	30.1%	29.3%	28.9%	28.6%	27.9%
Baltimore Suburban	31.6%	32.0%	32.1%	32.2%	32.8%
Eastern Shore	12.7%	12.6%	12.9%	12.6%	12.6%
Southern Maryland	5.8%	5.7%	5.7%	5.6%	5.7%
Washington Suburban	8.5%	8.9%	8.8%	8.7%	8.2%
Western Maryland	11.2%	11.3%	11.6%	12.3%	12.8%
Out of State	0.1%	0.1%	0.1%	0.1%	0.1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Age Group (Years)</b>					
0-18	4.1%	4.2%	4.0%	3.3%	1.9%
19-64	95.9%	95.8%	96.0%	96.7%	98.1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Total Participants</b>	<b>74,717</b>	<b>77,889</b>	<b>78,874</b>	<b>73,368</b>	<b>73,653</b>

Note: “Other” race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.

99325, R780-785; OR ICD-9 diagnosis codes:291-292, 303-304, 305.0, 305.2-305.9),648.3; WITH (Revenue codes 0114, 0116, 0124, 0126, 0134, 0136, 0154, 0156, 0762, 0900, 0905-0906, 0911-0916, 0918-0919, 0944-0945, 0450-0452, 0456, 0459 OR Procedure codes 99.201-99.205, 99.211-99.215, J8499, J2315); HCPCS H0001, H0004, H0005, H0014-H0016, H0020, H0047, H2036, J8499—OR Revenue code of “0100” and a provider type of “55.”

### Screening, Brief Intervention, and Referral to Treatment

Screening, Brief Intervention, and Referral to Treatment (SBIRT) is a public health approach for delivering population screening, early intervention, and treatment services<sup>61</sup> targeting SUDs. Health care providers using SBIRT ask participants about substance use during routine medical and dental visits, provide brief advice, and then, if appropriate, refer participants who are at risk of SUDs to more intensive treatment (SAMHSA, 2022). In July 2016, new SBIRT codes were introduced to give providers greater flexibility when billing for SBIRT services (Maryland Department of Health, 2016).

Table 70 presents the number of HealthChoice participants who received an SBIRT service during the evaluation period. The total number of people receiving SBIRT services increased through CY 2019 and then decreased during CY 2020, increasing again in CY 2021. The number of services completed per 1,000 HealthChoice participants increased by 12 between CY 2017 and CY 2021. The number of services increased by 318% over the evaluation period.

Adolescents aged 15 to 18 years had the highest rate of SBIRT services completed per 1,000 participants in CY 2017 and CY 2018, and adolescents aged 12 to 14 had the highest rate per 1,000 in CY 2019 through CY 2021. The number of services completed per 1,000 HealthChoice participants aged 15 to 18 years increased by over 400% between CY 2017 and CY 2021.

**Table 70. Number of HealthChoice Participants Who Received an SBIRT Service, by Age Group, CY 2017–CY 2021**

	Age Group (Years)						Total
	11 and under	12–14	15–18	19–20	21–39	40–64	
<b>CY 2017</b>							
<b># of Participants</b>	450,094	93,935	113,790	49,229	371,558	276,606	<b>1,355,212</b>
<b># with Service</b>	61	656	1,131	256	1,676	2,005	<b>5,785</b>
<b>Per 1000</b>	0.1	7.0	9.9	5.2	4.5	7.2	<b>4.3</b>
<b>CY 2018</b>							
<b># of Participants</b>	452,536	100,306	117,167	51,214	385,419	282,853	<b>1,389,495</b>
<b># with Service</b>	557	2,764	3,485	704	3,577	3,870	<b>14,957</b>
<b>Per 1000</b>	1.2	27.6	29.7	13.7	9.3	13.7	<b>10.8</b>
<b>CY 2019</b>							
<b># of Participants</b>	447,017	105,427	118,243	51,600	377,114	278,019	<b>1,377,420</b>
<b># with Service</b>	1,063	5,532	6,076	1,278	4,164	4,537	<b>22,650</b>
<b>Per 1000</b>	2.4	52.5	51.4	24.8	11.0	16.3	<b>16.4</b>
<b>CY 2020</b>							
<b># of Participants</b>	436,643	108,778	120,077	52,009	385,628	289,698	<b>1,392,833</b>
<b># with Service</b>	941	4,946	5,017	1,026	2,648	2,891	<b>17,469</b>

<sup>61</sup> An SBIRT service is identified by the following procedure codes: 99408, 99409, W7000, W7010, W7020, W7021, and W7022 during the calendar year.

	Age Group (Years)						Total
	11 and under	12–14	15–18	19–20	21–39	40–64	
<b>Per 1000</b>	2.2	45.5	41.8	19.7	6.9	10.0	<b>12.5</b>
<b>CY 2021</b>							
<b># of Participants</b>	446,258	113,776	130,854	57,684	424,554	314,323	<b>1,487,449</b>
<b># with Service</b>	1,035	6,471	6,842	1,514	3,941	4,376	<b>24,179</b>
<b>Per 1000</b>	2.3	56.9	52.3	26.2	9.3	13.9	<b>16.3</b>

Note: The 14 and under age group was changed to 12–14 and 11 and under, so some of the numbers have changed.

MDH also monitors the extent to which HealthChoice participants with an SUD access ambulatory care services. Table 71 displays the percentage of HealthChoice participants with an SUD who had an ambulatory care visit, as well as those having at least one ambulatory care visit with a primary diagnosis of SUD. From CY 2017 to CY 2021, ambulatory care utilization by participants with an SUD-only diagnosis increased from 77.4% to 83.3%.

The overall percentage of participants with an SUD or a dual diagnosis who had at least one ambulatory care visit increased from 84.2% in 2017 to 89.1% in CY 2021. Participants with a co-occurring MHD and SUD were consistently more likely to receive an ambulatory care visit. The rate of ambulatory care utilization among participants with a co-occurring MHD and SUD increased from 92.7% in CY 2017 to 95.5% in CY 2021.

The overall percentage of participants who had at least one ambulatory care visit with a primary diagnosis of an SUD increased across the measurement period as well, rising 13.7 percentage points between CY 2017 and CY 2021.

**Table 71. HealthChoice Participants with an SUD, Who Had an Ambulatory Care Visit, by SUD Status, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit		At Least One Ambulatory Care Visit with Primary Diagnosis of SUD	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>SUD-Only</b>					
<b>2017</b>	41,632	32,222	77.4%	15,038	36.1%
<b>2018</b>	43,274	35,152	81.2%	19,060	44.0%
<b>2019</b>	42,062	34,839	82.8%	19,859	47.2%
<b>2020</b>	39,298	31,800	80.9%	18,542	47.2%
<b>2021</b>	38,838	32,359	83.3%	18,984	48.9%
<b>Dual Diagnosis (MHD + SUD)</b>					
<b>2017</b>	33,085	30,674	92.7%	12,773	38.6%
<b>2018</b>	34,615	32,499	93.9%	16,146	46.6%
<b>2019</b>	36,812	34,876	94.7%	19,059	51.8%

Calendar Year	Total Number of Participants	At Least One Ambulatory Care Visit		At Least One Ambulatory Care Visit with Primary Diagnosis of SUD	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
2020	34,070	32,110	94.2%	17,142	50.3%
2021	34,815	33,248	95.5%	18,491	53.1%
<b>Total</b>					
2017	74,717	62,896	84.2%	27,811	37.2%
2018	77,889	67,651	86.9%	35,206	45.2%
2019	78,874	69,715	88.4%	38,918	49.3%
2020	73,368	63,910	87.1%	35,684	48.6%
2021	73,653	65,607	89.1%	37,475	50.9%

Table 72 displays the percentage of HealthChoice participants with an SUD who had at least one outpatient ED visit, as well as the percentage with at least one ED visit with an SUD as a primary diagnosis.<sup>62</sup> From CY 2017 to CY 2021, the percentages of participants with an SUD-only and dual diagnosis (MHD and SUD) who had at least one ED visit decreased by 7.2 and 8.8 percentage points, respectively. The overall percentage of participants who had at least one ED visit with a primary diagnosis of SUD increased slightly, from 12.5% in CY 2017 to 12.6% in CY 2021.

**Table 72. HealthChoice Participants with an SUD Who Had an Outpatient ED Visit, by SUD Status, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One ED Visit		At Least One ED Visit with SUD Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>SUD-Only</b>					
2017	41,632	20,972	50.4%	3,884	9.3%
2018	43,274	20,430	47.2%	3,969	9.2%
2019	42,062	19,965	47.5%	3,929	9.3%
2020	39,298	16,593	42.2%	3,475	8.8%
2021	38,838	16,779	43.2%	3,855	9.9%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	33,085	22,530	68.1%	5,430	16.4%
2018	34,615	22,663	65.5%	5,437	15.7%
2019	36,812	23,419	63.6%	5,564	15.1%
2020	34,070	19,860	58.3%	4,760	14.0%
2021	34,815	20,639	59.3%	5,433	15.6%
<b>Total</b>					

<sup>62</sup> This measure excludes ED visits that resulted in an inpatient hospital admission.

Calendar Year	Total Number of Participants	At Least One ED Visit		At Least One ED Visit with SUD Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
2017	74,717	43,502	58.2%	9,314	12.5%
2018	77,889	43,093	55.3%	9,406	12.1%
2019	78,874	43,384	55.0%	9,493	12.0%
2020	73,368	36,453	49.7%	8,235	11.2%
2021	73,653	37,418	50.8%	9,288	12.6%

Table 73 displays the percentage of HealthChoice participants with an SUD who had at least one inpatient visit, as well as the percentage with at least one inpatient visit with an SUD as a primary diagnosis. From CY 2017 to CY 2021, the percentages of participants with an SUD-only and a dual diagnosis (MHD and SUD) who had at least one inpatient visit decreased by 1.0 and 6.7 percentage points, respectively. The overall percentage of participants who had at least one inpatient visit with a primary diagnosis of an SUD decreased slightly, from 5.5% in CY 2017 to 4.3% in CY 2021.

**Table 73. HealthChoice Participants with an SUD Who Had an Inpatient Admission, by SUD Status, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Inpatient Visit		At Least One Inpatient Visit with SUD Primary Diagnosis	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>SUD-Only</b>					
2017	41,632	6,176	14.8%	1,351	3.2%
2018	43,274	6,126	14.2%	1,098	2.5%
2019	42,062	5,772	13.7%	1,131	2.7%
2020	39,298	5,286	13.5%	1,114	2.8%
2021	38,838	5,356	13.8%	1,131	2.9%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	33,085	10,352	31.3%	2,795	8.4%
2018	34,615	10,166	29.4%	2,506	7.2%
2019	36,812	9,850	26.8%	2,371	6.4%
2020	34,070	8,566	25.1%	2,142	6.2%
2021	34,815	8,558	24.6%	2,030	5.8%
<b>Total</b>					
2017	74,717	16,528	22.1%	4,146	5.5%
2018	77,889	16,292	20.9%	3,604	4.6%
2019	78,874	15,622	19.8%	3,502	4.4%
2020	73,368	13,852	18.9%	3,256	4.4%
2021	73,653	13,914	18.9%	3,161	4.3%



Table 74 presents the number and percentage of HealthChoice participants with an SUD who received at least one methadone replacement therapy or at least one medication-assisted treatment (MAT).<sup>63</sup> The percentage of participants with an SUD-only diagnosis who received at least one methadone replacement therapy decreased across the evaluation period—from 39.3% in CY 2017 to 35.2% in CY 2019—then increased to 37.7% in CY 2020 before decreasing again to 36.3% in CY 2021. The percentage of participants with an SUD-only diagnosis who received at least one MAT increased during the evaluation period—from 59.6% in CY 2017 to 66.8% in CY 2021.

**Table 74. Number and Percentage of HealthChoice Participants with an SUD Who Received Methadone Replacement Therapy or MAT, by SUD Status, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	At Least One Methadone Replacement Therapy		At Least One MAT	
		Number of Participants	Percentage of Total Participants	Number of Participants	Percentage of Total Participants
<b>SUD-Only</b>					
2017	41,632	16,344	39.3%	24,830	59.6%
2018	43,274	16,109	37.2%	26,323	60.8%
2019	42,062	14,799	35.2%	25,884	61.5%
2020	39,298	14,810	37.7%	26,337	67.0%
2021	38,838	14,105	36.3%	25,942	66.8%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	33,085	10,221	30.9%	20,131	60.8%
2018	34,615	10,141	29.3%	21,440	61.9%
2019	36,812	10,870	29.5%	23,894	64.9%
2020	34,070	10,334	30.3%	22,781	66.9%
2021	34,815	10,409	29.9%	23,630	67.9%
<b>Total</b>					
2017	74,717	26,565	35.6%	44,961	60.2%
2018	77,889	26,250	33.7%	47,763	61.3%
2019	78,874	25,669	32.5%	49,778	63.1%
2020	73,368	25,144	34.3%	49,118	66.9%
2021	73,653	24,514	33.3%	49,572	67.3%

MDH also monitors the extent to which HealthChoice participants with an ED visit and a primary diagnosis of SUD receive a follow-up outpatient visit with any practitioner within 7 or 30 days.

Table 75 shows the number and percentage of ED visits with a primary diagnosis of SUD with an outpatient FUA from CY 2017 to CY 2021.<sup>64</sup> The results are displayed by the participant’s status as having an SUD-only or co-occurring MHD and SUD. In CY 2017, 17.4% of all ED visits with a primary diagnosis of SUD had a follow-up visit within 7 days, and 29.2% had an appointment

<sup>63</sup> MAT was defined as any treatment with buprenorphine, naloxone, methadone, or naltrexone.

<sup>64</sup> This measure was calculated using the HEDIS® proprietary software from Cognizant.



within 30 days; by CY 2021, these values had increased overall to 22.3% and 34.7%, respectively, despite decreases in both in CY 2020. The overall percentage of ED visits with a primary diagnosis of SUD with a follow-up appointment within 7 and 30 days increased for both participants with an SUD-only and those with a co-occurring diagnosis during the evaluation period.

**Table 75. Number and Percentage of ED Visits by HealthChoice Participants with an SUD for SUD Treatment with a Follow-Up Visit within 7 or 30 days, CY 2017–CY 2021**

Calendar Year	Total Number of Visits	At Least One Follow-Up within 7 Days		At Least One Follow-Up within 30 Days	
		Number of Visits	Percentage of Visits	Number of Visits	Percentage of Visits
<b>SUD-Only</b>					
2017	4,708	581	12.3%	953	20.2%
2018	4,562	649	14.2%	1,045	22.9%
2019	4,644	673	14.5%	1,034	22.3%
2020	3,887	507	13.0%	798	20.5%
2021	4,277	623	14.6%	967	22.6%
<b>Dual Diagnosis (MHD + SUD)</b>					
2017	7,097	1,475	20.8%	2,489	35.1%
2018	7,327	1,743	23.8%	2,801	38.2%
2019	7,567	2,004	26.5%	3,066	40.5%
2020	6,488	1,557	24.0%	2,454	37.8%
2021	7,224	1,946	26.9%	3,026	41.9%
<b>Total</b>					
2017	11,805	2,056	17.4%	3,442	29.2%
2018	11,889	2,392	20.1%	3,846	32.3%
2019	12,211	2,677	21.9%	4,100	33.6%
2020	10,375	2,064	19.9%	3,252	31.3%
2021	11,501	2,569	22.3%	3,993	34.7%

### Corrective Managed Care (CMC)

The Corrective Managed Care (CMC) Program was developed to identify participants who are likely to be engaging in a large number of controlled substances across multiple pharmacies (Maryland Department of Health Office of Pharmacy Services et al., n.d). The CMC program serves as an intervention for decreasing potential abuse of these controlled substances. On March 1, 2016, MDH mandated MCOs with HealthChoice members to implement the CMC program. MDH, with the assistance of The Hilltop Institute, places specific participants in the program, using the Conduent system, to be restricted to one pharmacy for a two-year period. This limits the participant’s access to other pharmacies and controlled substances.

Table 76 presents the number, percentage, and average of HealthChoice participants in the CMC Program with an overdose. The percentage of participants with an overdose increased from 25.5% in CY 2017 to 37.0% in CY 2021.

**Table 76. Corrective Managed Care Pharmacy Lock-in Participants with an Overdose, CY 2017–CY 2021**

Calendar Year	Total Number of Participants	Total Number of Participants with an Overdose	Percentage of Participants with an Overdose	Total Number of Overdoses	Average Number of Overdose per Survivor	Average Number of Overdose per Participant
2017	642	164	25.5%	622	3.8	1.0
2018	421	104	24.7%	328	3.2	0.8
2019	219	40	18.3%	177	4.4	0.8
2020	90	27	30.0%	94	3.5	1.0
2021	*	*	37.0%	*	3.0	1.1

\*Cell values of 10 or less have been suppressed.

Table 77 presents the demographic characteristics of HealthChoice participants in the Corrective Managed Care Program with an overdose. The data presented are five-year totals representing individuals who participated in the program at any point during the evaluation period.<sup>65</sup> Of CMC participants with an overdose, 29.2% were male and 21.6% were female, with 25.4% of CMC participants represented as White between CY 2017 and CY 2021. Based on regional data over the evaluation period, Washington Suburban and Baltimore City areas had the higher percentage of CMC participants with an overdose at 29.9% and 27.7%, respectively. The number of deaths reported during and after the two-year CMC lock-in period totaled 46 and 28 CMC participants, respectively.

**Table 77. Demographic Characteristics of Corrective Managed Care Pharmacy Lock-in Participants with an Overdose, CY 2017–CY 2021**

Demographic Characteristic						
	Total Number of Participants	Total Number of Participants with an Overdose	Percentage of Participants with an Overdose	Total Number of Overdoses	Average Number of Overdoses per Survivor	Average Number of Overdoses per Participant
<b>Race/Ethnicity</b>						
Asian	*	*	*	*	*	*
Black	394	89	22.6%	332	3.7	0.8
White	894	227	25.4%	801	3.5	0.9
Hispanic	*	*	*	*	*	*
Other	*	*	*	*	*	*
<b>Total</b>	<b>1,399</b>	<b>345</b>	<b>24.7%</b>	<b>1,251</b>	<b>3.6</b>	<b>0.9</b>
<b>Sex</b>						
Female	841	182	21.6%	700	3.8	0.8
Male	558	163	29.2%	551	3.4	1.0
<b>Total</b>	<b>1,399</b>	<b>345</b>	<b>24.7%</b>	<b>1,251</b>	<b>3.6</b>	<b>0.9</b>

<sup>65</sup> Data are presented this way to account for the fact that many participants had multiple two-year lock-in periods over the evaluation period as well as to avoid additional small cells.

Demographic Characteristic						
	Total Number of Participants	Total Number of Participants with an Overdose	Percentage of Participants with an Overdose	Total Number of Overdoses	Average Number of Overdoses per Survivor	Average Number of Overdoses per Participant
<b>Region</b>						
Baltimore City	318	88	27.7%	308	3.5	1.0
Baltimore Suburban	515	126	24.5%	460	3.7	0.9
Eastern Shore	163	34	20.9%	103	3.0	0.6
Out of State	*	*	*	*	*	*
Southern Maryland	*	*	*	*	*	*
Washington Suburban	164	49	29.9%	237	4.8	1.4
Western Maryland	136	30	22.1%	107	3.6	0.8
<b>Total</b>	<b>1,399</b>	<b>345</b>	<b>24.7%</b>	<b>1,251</b>	<b>3.6</b>	<b>0.9</b>
<b>Total Deaths During Lock-in</b>	<b>46</b>					
<b>Total Deaths After Lock-in</b>	<b>28</b>					

Note: "Other" race/ethnicity category includes Pacific Islanders, Alaskan Natives, and Unknown.  
 \*Cell values of 10 or less have been suppressed.

### Section VI Conclusion

The HealthChoice program focuses on providing a variety of preventive services to participants. Over the evaluation period, some performance measures improved, such as blood lead screening, HPV vaccination, and colorectal cancer screening rates. The percentage of pregnant women who received prenatal services in a timely manner remained relatively stable from CY 2017 to CY 2021. Breast cancer and cervical cancer screening rates decreased in CY 2020 and decreased or remained stable in CY 2021. These trends correspond with the sharp decline in the number of breast and cervical cancer screenings received by women nationally during CY 2020 and the failure to return to pre-pandemic levels in CY 2021 (CDC, 2021e, Oakes et al., 2023). The majority of participants in the Asthma Home Visiting Program experienced improvements in their symptoms for most symptom categories across the evaluation period. Greater adherence to asthma medication was associated with reductions in Asthma ED use in the current year and the following. However, the effects of AMR on asthma inpatient admissions only had associations with admissions in the following year.

HealthChoice covers a broad range of populations with low income and various service needs. Therefore, health promotion activities under HealthChoice have an extensive scope. From care for persons with chronic diseases like asthma, diabetes, and HIV infection to those with behavioral health conditions, most measures of performance were improving until the COVID-19 pandemic in CY 2020 negatively impacted service utilization, after which few measures have returned to pre-pandemic levels. While the percentage of HealthChoice participants with a behavioral health diagnosis decreased slightly during the evaluation period, these participants continue to have ED visits and inpatient admissions at a higher rate compared to the general HealthChoice population, particularly for participants with a dual diagnosis of MHD and SUD. This

may represent the need for better access to care for persons with MHD and SUD. MDH will monitor the use of services to assure that necessary care is being delivered and that, where possible, prevention and early intervention can minimize the severity and duration of such conditions. The CMC program restricts participants to one pharmacy to decrease potential abuse of controlled substances and during the evaluation period the percentage of participants in the CMC program who had an overdose increased from 25.5% in CY 2017 to 37.0% in CY 2021. MDH considers constant monitoring of performance measures for each aspect of health promotion and disease prevention to be a necessary part of demonstrating the HealthChoice program's effectiveness.

## **Section VII. Expanding Coverage to Additional Low-Income Marylanders with Resources Generated through Managed Care Efficiencies**

Section §1115 demonstrations, like HealthChoice, can use calculated cost savings under budget neutrality provisions to fund a federal match for services otherwise not covered by Medicaid. In addition to testing the effectiveness of a managed care program to improve health outcomes and generate expenditure savings, the HealthChoice demonstration can test new services anticipated to benefit the enrolled population. This section of the report analyzes the innovative programs designed to address the social determinants of health and improve the health and wellbeing of the Maryland population using savings from the HealthChoice managed care program. These programs include Residential Treatment for Individuals with SUD, HVS and ACIS, dental services for former foster care individuals, Adult Dental pilot, ICS, and the Family Planning program.

In mid-2018, MDH submitted an amendment to the approved waiver containing requests to expand the Residential Treatment for Individuals with SUD and ACIS programs, provide dental services to dually eligible adults, implement the DPP, and adjust the criteria for the Family Planning program. The waiver amendment application was approved in March 2019.

In mid-2019, MDH submitted an amendment request to implement a CoCM pilot. This request was approved in April 2020, and coverage for collaborative care services began in July 2020. The CoCM pilot integrates primary care and behavioral health services for HealthChoice participants who have experienced a behavioral health need (either an MHD or SUD) but have not received effective treatment.

MDH submitted its application for §1115 waiver renewal in July 2021 for the five-year period of January 1, 2022, through December 31, 2026—which was approved by CMS in December 2021. This approval allows Maryland to modify existing programs as well as add new programs.

Under the 2022 to 2026 waiver period, Residential Treatment was expanded to include individuals with SMI and SED who are primarily receiving treatment for an SMI/SED and residing in short-term facilities that meet the definition of an institution for mental diseases. The ACIS pilot program increased the statewide capacity to 900 spaces. Residential and Inpatient Treatment Services for SUD were expanded to remove caps on lengths of stays for SUD treatment in an IMD and aim for a statewide average LOS of 30 days or less. The MOM program, approved July 1, 2021, was established to address the fragmentation in the care of pregnant and postpartum Medicaid beneficiaries with opioid use disorder (OUD). The Family Planning program, HVS program, and Adult Dental pilot were not renewed because they were added to the State Plan.

### ***Residential Treatment for Individuals with Substance Use Disorders (SUD)***

In 2016, CMS approved Maryland Medicaid to expand coverage to include SUD treatment in IMDs. Effective July 1, 2017, the approval permitted otherwise-covered services to be provided to Medicaid-eligible individuals aged 21 to 64 who are enrolled in an MCO and reside in a non-

public IMD based on American Society of Addiction Medicine (ASAM) residential levels 3.7-WM, 3.7, 3.5, and 3.3 for up to two non-consecutive 30-day stays annually.

On January 1, 2019, MDH phased in coverage of ASAM level 3.1. In March 2019, MDH received approval for a waiver amendment to allow coverage for ASAM level 4.0 for beneficiaries with a primary SUD and a secondary MHD in inpatient hospital settings only for up to 15 days per month. MDH extended coverage to individuals dually eligible for Medicare and Medicaid as of January 1, 2020. Residential Treatment was expanded in the 2022 to 2026 waiver renewal to include individuals with SMI and SED, and the waiver renewal revised the LOS to a global average of 30 days.

Table 78 displays IMD utilization (level of care) for individuals aged 21 and older under the HealthChoice demonstration from CY 2017 to CY 2021. The number of unique users of IMD services increased from CY 2017 to CY 2020, then decreased in CY 2021. The total count of IMD services (excluding level 3.1 services) also increased between CY 2017 and CY 2019 with decreases in CY 2020 and CY 2021. The level 3.1 services increased from CY 2019 to CY 2020 and decreased in CY 2021.

**Table 78. Utilization of Residential Treatment for SUDs, CY 2017–CY 2021**

Level of Care	CY 2017		CY 2018		CY 2019		CY 2020***		CY 2021	
	Unique Recipient Count**	Service Count	Unique Recipient Count**	Service Count	Unique Recipient Count**	Service Count	Unique Recipient Count**	Service Count	Unique Recipient Count**	Service Count
Level 3.3	408	573	1,669	2,259	1,619	2,226	2,901	2,040	1,124	1,361
Level 3.5	906	1,057	2,192	2,560	3,787	5,190	5,834	4,123	2,292	2,837
Level 3.7	2,993	3,367	6,032	6,975	5,874	6,829	5,821	4,810	2,237	2,533
Level 3.7-WM	2,366	2,578	4,957	5,609	5,186	5,927	5,652	4,662	1,982	2,143
Level 3.1*	N/A	N/A	N/A	N/A	1,279	2,832	2,460	8,052	1,175	2,292
<b>Total Excluding Level 3.1</b>	<b>6,673</b>	<b>7,575</b>	<b>14,850</b>	<b>17,403</b>	<b>16,466</b>	<b>20,172</b>	<b>20,208</b>	<b>15,635</b>	<b>7,635</b>	<b>8,874</b>
<b>Total</b>	<b>6,673</b>	<b>7,575</b>	<b>14,850</b>	<b>17,403</b>	<b>17,745</b>	<b>23,004</b>	<b>22,668</b>	<b>23,687</b>	<b>8,810</b>	<b>11,166</b>

\*Level 3.1 services were covered as of January 1, 2019.

\*\*The unique recipient count (unique number of users) does not equal the sum of all recipients. The unique number of users had at least one service, and some recipients had more than one service.

\*\*\*These data are updated due to improvement in the quality of the behavioral health data during 2020.

In addition to IMD visits identified with the ASAM criteria, IMD visits were also identified using revenue codes billed by psychiatric hospitals. Claims that met IMD criteria on subsequent days with the same ASAM or revenue code were combined into a single visit. Visits were identified as SUD based on the primary diagnosis associated with the claim.

Table 79 shows the number of admissions, number of unique participants, and total cost of SUD-related IMD treatment for CY 2017 through CY 2021, along with several measures illustrating the frequency and characteristics of a given participant’s visits. The number of admissions increased

overall during the evaluation period for SUD visits, with a decrease in CY 2021. Generally, other measures followed similar trends over time. Low utilization numbers in CY 2021 could be a result of pandemic-related changes in healthcare utilization or data submission issues that affected MMIS2 behavioral health data.

**Table 79. Summary of Utilization and Costs of SUD-Related IMD Treatment, CY 2017–CY 2021**

Measures	SUD				
	2017	2018	2019	2020	2021
Number of Admissions	8,447	18,067	23,606	28,714	11,920
Unique Number of Participants	5,040	10,280	11,871	11,449	7,575
Average Admissions per Participant	1.7	1.8	2.0	2.5	1.6
Average LOS (Days)	10.2	11.8	12.5	18.8	11.7
Average IMD Days per Participant	17.1	20.7	24.8	47.2	18.3
Total Cost for IMD Participants	\$210,822,964	\$396,980,767	\$393,451,149	\$541,056,679	\$201,449,080
Average Total Cost per IMD Participant	\$41,830	\$38,617	\$33,144	\$47,258	\$26,594

Table 80 shows the number of IMD visits where the level of care changed during the participant’s visit from CY 2017 to CY 2021. This analysis was restricted to IMD visits identified using the ASAM procedure codes. The majority of IMD visits where the level of care changed were downgrades,<sup>66</sup> although a minority of visits included an upgrade in the level of care.

**Table 80. IMD Treatment Visits with Change in Level of Care, CY 2017–CY 2021**

Calendar Year	Measure	Change in Level of Care	Upgrade in Level of Care	Downgrade in Level of Care
2017	Admissions	1,816	68	1,759
	Recipients	1,813	68	1,757
2018	Admissions	3,700	257	3,508
	Recipients	3,699	257	3,507
2019	Admissions	4,103	435	3,814
	Recipients	4,089	435	3,805
2020	Admissions	4,104	545	3,738
	Recipients	4,061	542	3,712
2021	Admissions	1,300	174	1,153
	Recipients	1,299	174	1,152

Table 81 shows the demographics of HealthChoice participants who had IMD treatment for SUD. In 2017, White participants were the group most represented among those who received treatment for each diagnosis, followed by Black participants. However, for each diagnosis, the share of participants who were White decreased over the evaluation, while the share of participants who were Black increased. Throughout the evaluation period, the majority of

<sup>66</sup> Downgrades are any change to a lower level of care, i.e., 3.7 to 3.3; 3.3 to 3.1.

participants who received IMD treatment for SUD were male. The majority of participants were in the Baltimore Metropolitan region across the evaluation period. Participants aged 21 to 39 and 40 to 64 years were the first and second most represented age groups, respectively, across the evaluation period. The share of participants receiving SUD-related IMD treatment who were aged 21 to 39 decreased by 5.0 percentage points across the evaluation period, while the proportion who were aged 40 to 64 increased by 2.2 percentage points.

**Table 81. Demographic Characteristics of HealthChoice Participants Who Received SUD-Related IMD Treatment, CY 2017–CY 2021**

Demographic Characteristic	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
	SUD				
<b>Race/Ethnicity</b>					
Asian	0.5%	0.5%	0.5%	0.6%	0.6%
Black	38.4%	39.7%	40.2%	41.7%	42.5%
White	52.8%	51.4%	50.3%	48.2%	46.6%
Hispanic	1.2%	0.9%	0.9%	1.1%	1.2%
Other	7.1%	7.5%	8.1%	8.4%	9.1%
<b>Sex</b>					
Female	34.5%	34.2%	33.6%	32.3%	29.7%
Male	65.5%	65.8%	66.4%	67.7%	70.3%
<b>Region</b>					
Baltimore Metro	59.0%	60.4%	62.7%	60.2%	59.2%
Eastern Shore	12.5%	12.1%	11.9%	11.5%	12.7%
Montgomery and Prince George's County	11.0%	9.2%	8.1%	9.8%	10.3%
Southern Maryland	7.1%	6.8%	5.8%	5.9%	6.0%
Western Maryland	10.2%	11.2%	11.3%	12.5%	11.7%
Out of State	0.2%	0.3%	0.2%	0.1%	0.1%
<b>Age Group (Years)</b>					
Under 19	0.2%	0.2%	0.2%	0.2%	0.1%
19-20	0.9%	0.6%	0.6%	0.6%	0.5%
21-39	55.2%	56.5%	54.0%	52.6%	50.2%
40-64	43.6%	42.5%	44.8%	45.8%	47.8%
65 and older	0.2%	0.3%	0.4%	0.9%	1.4%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



Table 82 presents the average number of SUD-related ED visits (defined as visits with a primary diagnosis of an SUD) for HealthChoice participants aged 19 and older who received IMD treatment for an SUD from CY 2017 to CY 2021. The table compares the average number of ED visits IMD patients experienced 6 months prior to IMD treatment with the average number of visits 6 months after treatment. If there were multiple IMD visits within 6 months of each other, the first visit was used as the index visit.<sup>67</sup>

From pre-IMD-treatment to post-IMD-treatment, the total number of SUD-related ED visits fell during each calendar year, except for CY 2017. The total number of IMD patients with an ED visit also fell post-IMD-treatment for each calendar year. However, for each calendar year except for CY 2019 and CY 2020, the average number of ED visits per ED user (meaning the average number of ED visits for participants who had at least one ED visit) rose slightly following IMD treatment, with the highest increase seen in CY 2021. These results indicate that, while IMD treatment may reduce total ED visits, there is a group of high-ED-utilizing IMD participants contributing to high user rates.

**Table 82. Average Number of SUD-Related ED Visits among HealthChoice Participants Who Received IMD Treatment Over 12 Months, CY 2017–CY 2021**

Calendar Year	Before IMD				After IMD			
	Total ED Visits	Total Unique ED Users	Average ED Visits per ED User*	Average ED Visits per IMD Participant*	Total ED Visits	Total Unique ED Users	Average ED Visits per ED User	Average ED Visits per IMD Participant
2017	293	112	2.62	0.06	300	106	2.83	0.06
2018	732	275	2.66	0.07	617	227	2.72	0.06
2019	906	316	2.87	0.08	794	282	2.82	0.07
2020	1,428	580	2.46	0.12	1,062	434	2.45	0.09
2021	915	466	1.96	0.12	494	224	2.21	0.07

\*The “per ED User” column uses the denominator of HealthChoice participants who received IMD Treatment and had an ED visit, while the “per IMD Participant” column uses the denominator of all HealthChoice IMD participants, regardless of whether they had an ED visit.

Table 83 presents a summary of the number of IMD visits that ended in a discharge to an ED visit. The analysis in Table 83 was restricted to enrollees who had IMD treatments with an SUD primary diagnosis. Around 1% of SUD IMD treatments ended in discharge to the ED for SUD each year, with the percentage increasing every year from CY2018 to CY 2021. The percentage of SUD IMD visits that ended in ED discharge for any cause also increased over the evaluation period, from around 3% in CY 2017 to almost 5% in CY 2021. The average number of discharges to the ED for all participants who received IMD treatment for SUD increased from CY 2018 to CY 2021

<sup>67</sup> The index visit is the visit used to identify the 6-month lookback and look-forward periods for the measures in the table. ED visits within the 6 months prior to the index visit and the 6 months following are shown in the table.

for SUD ED visits and increased for all-cause ED visits from CY 2017 to CY 2020, with a decrease in CY 2021.

**Table 83. ED Visits after SUD IMD Discharge, CY 2017–CY 2021**

Calendar Year	SUD ED Visits Only				All ED Visits			
	Total ED Visits after IMD Discharge	Total Participants with SUD ED Visits after IMD Discharge	Percentage of IMD Visits with SUD ED Visits after IMD Discharge	Average Number of SUD ED Visits per IMD Participant	Total ED Visits after IMD Discharge	Total Participants with ED Visits after IMD Discharge	Percentage of IMD Visits with ED Visits after IMD Discharge	Average Number of ED Visits per IMD Participant
2017	93	77	1.10%	0.018	261	189	3.09%	0.052
2018	124	109	0.69%	0.012	610	358	3.38%	0.059
2019	207	150	0.88%	0.017	957	470	4.05%	0.081
2020	261	158	0.91%	0.023	1,414	587	4.92%	0.123
2021	173	137	1.45%	0.023	591	363	4.95%	0.078

Table 84 presents the average number of intensive outpatient (IOP) visits for HealthChoice participants who received IMD treatment with a primary diagnosis of SUD aged 19 and older from CY 2017 to CY 2021. The table compares the average number of IOP visits the SUD IMD patients incurred 6 months prior to IMD treatment with the average number of IOP visits 6 months after treatment. If there were multiple IMD visits within 6 months of each other, the first visit was used as the index visit.<sup>68</sup>

For each calendar year in the analysis, the total number of IOP visits rose post-IMD-treatment. Similarly, the total number of unique IMD participants who incurred an IOP visit also rose post-IMD-treatment. As a result, the average number of IOP visits per IOP participant rose threefold post-IMD-treatment.

**Table 84. Average Number of IOP Visits among HealthChoice Participants Who Received IMD Treatment for an SUD Over 12 Months, CY 2017–CY 2021**

Calendar Year	Before IMD				After IMD			
	Total IOP visits	Total IOP Participants	Average IOP Visits per IOP Participant	Average IOP Visits per IMD Participant	Total IOP visits	Total IOP Participants	Average IOP Visits per IOP Participant	Average IOP Visits per IMD Participant
2017	1,746	165	10.58	2.58	9,109	298	30.57	4.97
2018	4,140	412	10.05	2.70	24,633	680	36.23	5.86
2019	5,106	463	11.03	3.40	24,773	624	39.70	5.83
2020	8,143	726	11.22	2.94	36,015	953	37.79	4.25
2021	4,331	461	9.39	2.16	15,098	537	28.12	2.32

<sup>68</sup> The index visit is the visit used to identify the 6-month lookback and look-forward periods for the measures in the table. IOP visits within the 6 months prior to the index visit and the 6 months following are shown in the table.

Table 85 presents the average number of MAT visits incurred by IMD participants during the 6 months prior to their IMD treatment and the 6 months after their treatment. Analysis was restricted to enrollees who had IMD treatments with an SUD primary diagnosis. Except for CY 2017 and CY 2020, the total number of MAT visits fell after IMD treatments, with the greatest reduction seen in CY 2021. The total number of IMD participants who received MAT services also fell post-IMD-treatment each calendar year except for CY 2018, with the greatest reduction again seen in CY 2021. The average number of MAT visits per MAT participant fell after IMD treatment during all measurement years except for CY 2017 and CY 2020: in CY 2021, it dropped by almost 3 visits (2.99) post-IMD-treatment.

**Table 85. Average Number of MAT Visits among HealthChoice Participants Who Received IMD Treatment Over 12 Months, CY 2017–CY 2021**

Calendar Year	Before IMD				After IMD			
	Total MAT Visits	Total MAT Participants	Average MAT Visits per MAT Participant	Average MAT Visits per IMD Participant	Total MAT Visits	Total Participants	Average MAT Visits per MAT Participant	Average MAT Visits per IMD Participant
2017	6,171	365	16.91	1.22	6,647	362	18.36	1.32
2018	17,044	879	19.39	3.38	16,997	915	18.58	3.37
2019	17,969	877	20.49	3.57	17,407	870	20.01	3.45
2020	25,336	1,527	16.59	5.03	26,721	1,461	18.29	5.30
2021	14,892	1,069	13.93	2.95	10,242	936	10.94	2.03

### **Evidence-Based Home Visiting Services (HVS) Community Health Pilot**

The HVS program implements evidence-based models focused on the health of pregnant women from the Nurse Family Partnership (NFP) and Healthy Families America (HFA). HVS covers home visiting services to Medicaid-eligible, high-risk pregnant individuals and their children up to age two. If someone other than the mother (caregiver) is providing care for the child after birth,<sup>69</sup> then the family will also receive services until the child reaches two years of age. Each HVS pilot program is managed by a local government (lead) entity. There are two lead entities participating in the pilot program: the Harford County Health Department, which joined in January 2018 and is approved for up to 30 families, and the Garrett County Health Department, which joined in July 2018 and is approved for up to 13 families.

Hilltop analyzed whether the HVS Pilot improves health outcomes for participating families and children for CY 2018<sup>70</sup> to CY 2021. Specifically, Hilltop analyzed whether participation impacted the following:

- Mother and newborn’s ED visits for all causes<sup>71</sup>

<sup>69</sup> Please note that the term “caregiver” is the standard term used for the non-child participant. However, some measures are intended only for mothers who have given birth. It is inferred based on enrollment data that all current participants are mothers of the infants enrolled in the HVS program.

<sup>70</sup> HVS began in July 2017, therefore, CY 2017 data is not available.

<sup>71</sup> All cause ED use or ED use with injury, poisoning, or trauma.

- Mothers and infants' inpatient admission rates
- Length of time to mother's first postpartum visit
- Frequency of well-child visits around appropriate ages in months
- Mother's use of dental services

Poisson regression models were used for all outcomes except length of time to mother's first postpartum visit and appropriate number of well-care visits, which used a hazard probability model and logistic regression, respectively. A full methodology explanation is provided in the following sections.

## Methodology

This analysis includes all participants who were enrolled in either the Harford County or Garrett County HVS pilot program from CY 2018 to CY 2021. Lead entities provided lists of mothers and children enrolled in the program, including the participant's full name, date of birth, and Medicaid identification (ID) number. Hilltop used the Medicaid ID to match participants to their data in MMIS2.

Enrollees who appeared in the HEDIS® Prenatal and Postpartum Care (PPC) measure numerator from 2017 to 2021 were used as a comparison group for the analyses. The PPC data were chosen because it contained a list of infant deliveries paired with the mother's prenatal and postpartum visit status. HVS participants were merged with PPC enrollee data to detect the presence of HVS participants in the PPC data. Once HVS and PPC data were merged, their demographic, geographic, and comorbidity information was generated using HealthChoice data sets. Propensity scores were calculated for each observation in the combined data set based on mother's age, race, comorbidity score<sup>72</sup>, region, coverage category, and prenatal visit status. HVS participants were then matched to PPC-eligible enrollees using a nearest neighbor matching approach, which matches a control individual with the smallest distance or closest propensity score to a treatment individual (Rubin, 1973).

Hilltop used all FFS claims and MCO encounters to identify Medicaid service use after the birth of the child. Each participant had a unique measurement period for the evaluation. The measurement period was anchored to the child's date of birth for all measures except inpatient stays. The measurement period for inpatient stays was anchored at seven days after the infant's date of birth to ensure that inpatient stays associated with the infant's birth were not counted. The measurement period ended 12 months post-birth for all measures.

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<sup>72</sup> A person's comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High, Other) based on their claim records in the measurement years (CY 2018 to CY 2021).

## Demographics

Table 86 presents the demographic characteristics of mothers by age group and race/ethnicity. Overall, there were 65 participants, with 45 enrollees in Harford County and 20 in Garrett County. Most participants were aged 26 years or older, with an average age of 27.6 years. The largest proportion (58.5%) of mothers were White, followed by Black (30.8%).

**Table 86. Number and Percentage of Mothers by Age Group, Race/Ethnicity, and Program, CY 2018–CY 2021**

Demographic Characteristics		
	#	%
<b>Age Group</b>		
<b>25 and Under</b>	24	36.9%
<b>26-30</b>	20	30.8%
<b>31+</b>	21	32.3%
<b>Race/Ethnicity</b>		
<b>Asian</b>	*	*
<b>Black</b>	20	30.8%
<b>White</b>	38	58.5%
<b>Hispanic</b>	*	*
<b>Other</b>	*	*
<b>Total</b>	<b>65</b>	<b>100%</b>

\*Cell values of 10 or less have been suppressed.

## Mothers' Health Care Utilization

Poisson models were used to analyze the impact of HVS program participation on the number of ED visits, inpatient stays, and ED admissions (ED visits that result in an inpatient stay) experienced by the mother in the first 12 months post-delivery. Poisson models are used to examine relationships where the outcome of interest is a rate or a count variable. Poisson models assume that the occurrence of one outcome event does not affect the probability that a second event will occur. For example, if a mother has an ED visit in the first month, it should not affect the probability that she may have an ED visit in the following month. Poisson coefficients represent the log scale (linear predictor) change in the outcome variable based on a one unit or level increase in the independent variable.

Table 87 presents the results of the impact of HVS participation on healthcare utilization controlling for demographics, region, and comorbidity scores. Model 1 shows the impact of ED visits. Participation in the HVS program was associated with higher rates of ED visits in the first 12 months of postpartum ( $p < 0.05$ ). A marginal increase in a mother's age was associated with lower rates of ED visits ( $p < 0.001$ ), although this result should be interpreted with caution, as the sample age ranged from 16 to 49 years. Conversely, receiving a prenatal visit was associated with increased ED visit rates ( $p < 0.001$ ).

Compared to those in the Disabled coverage category, the Family and Children, MCHP, and “Other” coverage categories (including ACA) were associated with lower ED utilization ( $p < 0.001$ ). Compared to Baltimore City, each region except for the Eastern Shore was associated with lower ED utilization. However, the results for Southern Maryland were not statistically significant. Compared to White mothers, Black mothers had higher ED utilization rates, whereas Asian, Hispanic, and “Other” mothers had lower ED utilization rates ( $p < 0.001$ ). All comorbidity score levels had higher rates of ED utilization compared to the low comorbidity level ( $p < 0.001$ ). Results for the comorbidity level “Other” were not statistically significant.

Model 2 presents the results the impact of HVS participation had on inpatient stays. Similar to the results for ED visits, participation in the HVS program was associated with a higher number of inpatient stays over the measurement period, although the result was not statistically significant. A marginal increase in age and receiving a prenatal visit during pregnancy were both associated with a lower rate of inpatient stays. However, neither result was statistically significant. Similar to ED visits, enrollees in the Family and Children, MCHP, and “Other” coverage categories all had lower rates of inpatient stays compared to enrollees in the Disabled coverage category ( $p < 0.01$ ).

Among the results for regions, only the coefficients for Baltimore Suburban and Washington Suburban were statistically significant. Enrollees from these two areas had lower rates of inpatient stays compared to residents of Baltimore City ( $p < 0.05$  and  $p < 0.001$ , respectively). Both Asian and “Other” enrollees had lower rates of inpatient stays compared to White enrollees ( $p < 0.001$  and  $p < 0.05$ , respectively). Black enrollees had higher rates of inpatient stays compared to White enrollees ( $p < 0.05$ ). Like with the result for ED visits, all comorbidity score levels had higher rates of inpatient stays compared to the low comorbidity level ( $p < 0.001$ ). Results for comorbidity “Other” were not statistically significant.

Model 3 presents the results of ED admissions. Mothers who participated in the HVS program were linked to higher rates of ED admission compared to mothers who did not participate ( $p < 0.05$ ). Enrollees in the Family and Children, MCHP, and “Other” coverage categories had lower rates of ED admission compared to enrollees in the Disabled coverage category ( $p < 0.01$  and  $p < 0.001$ ). Residents of the Washington Suburban region had lower ED admission rates compared to Baltimore City residents ( $p < 0.001$ ). The results for the remaining regions were not statistically significant.

Compared to White enrollees, Asian, Hispanic, and “Other” enrollees experienced lower rates of ED admissions. However, only the results for Asian enrollees were statistically significant ( $p < 0.001$ ). Like the two previous regressions, all comorbidity score levels had higher rates of ED admissions compared to the low comorbidity level ( $p < 0.01$  and  $p < 0.001$ ). Again, results for comorbidity “Other” were not statistically significant.

**Table 87. Effect of HVS Participation on Maternal Health Care Utilization Post-Delivery**

Effect	Effect of HVS Participation on Maternal Medicaid Service Utilization Post-Delivery								
	Model (1) ED Visits			Model (2) Inpatient Stays			Model (3) ED Admission		
	Est.	CI		Est.	CI		Est.	CI	
<b>Home Visit Service</b>	0.475 *	0.02	0.93	0.493	-0.24	1.22	0.828 *	0.09	1.569
<b>Age</b>	-0.035 ***	-	-	-0.003	-0.01	0.01	0.007	0.00	0.02
<b>Prenatal Visit</b>	0.143 ***	0.10	0.19	-0.104	-0.22	0.01	-0.036	-0.16	0.09
<b>Last Coverage Cat.</b>									
<i>Families &amp; Children</i>	-0.952 ***	-	-	-1.346 ***	-1.61	-1.08	-1.391 ***	-1.72	-1.06
<i>MCHP</i>	-1.243 ***	-	-	-2.428 **	-3.83	-1.03	-1.975 **	-3.40	-0.55
<i>Other</i>	-1.686 ***	-	-	-1.897 ***	-2.26	-1.53	-1.901 ***	-2.28	-1.52
<b>Region†</b>									
<i>Baltimore Suburban</i>	-0.378 ***	-	-	-0.186 *	-0.33	-0.04	-0.106	-0.28	0.06
<i>Eastern Shore</i>	0.092 **	0.03	0.16	-0.156	-0.35	0.04	-0.138	-0.39	0.11
<i>Southern Maryland</i>	-0.016	-	0.06	-0.099	-0.29	0.09	0.044	-0.17	0.26
<i>Washington Suburban</i>	-0.470 ***	-	-	-0.276 ***	-0.42	-0.13	-0.302 ***	-0.47	-0.13
<i>Western Maryland</i>	-0.234 ***	-	-	-0.133	-0.32	0.05	-0.099	-0.32	0.12
<i>Out of State</i>	-0.124	-	0.38	0.056	-1.49	1.60	0.220	-1.26	1.70
<b>Race†</b>									
<i>Asian</i>	-0.490 ***	-	-	-0.694 ***	-0.93	-0.46	-0.733 ***	-1.02	-0.45
<i>Black</i>	0.191 ***	0.14	0.24	0.114 *	0.00	0.23	0.095	-0.04	0.23
<i>Hispanic</i>	-0.168 ***	-	-	-0.144	-0.33	0.05	-0.198	-0.42	0.02
<i>Other</i>	-0.301 ***	-	-	-0.195 *	-0.34	-0.05	-0.107	-0.28	0.07
<b>Comorbidity Score†</b>									
<i>Moderate</i>	0.659 ***	0.57	0.75	0.546 ***	0.31	0.79	0.440 **	0.18	0.70
<i>High</i>	0.986 ***	0.90	1.07	1.079 ***	0.87	1.29	0.888 ***	0.67	1.11
<i>Very High</i>	2.017 ***	1.81	2.22	3.057 ***	2.68	3.43	2.870 ***	2.48	3.26
<i>Other</i>	0.359	-	0.84	0.598	-0.40	1.59	-0.603	-2.57	1.36
<b>Constant</b>	0.586	0.40	0.77	-2.179	-2.63	-1.73	-2.730	-3.23	-2.23

\*\*\*<0.001, \*\*<0.01, \*<0.05

†, Reference Groups: Disabled, Baltimore City, White, Low.

Table 88 presents the results from a Poisson regression and a hazard probability model. The Poisson regression examines the relationship between HVS participation, and the number of



dental visits mothers received, whereas the hazard probability regression investigates the relationship between HVS participation and the time to the mothers' first postpartum visit.

In Model 4, HVS participation was associated with an increase in the number of dental visits for the mothers in the first 12 months postpartum. However, the results were not statistically significant. A marginal increase in age was associated with lower rates of dental service utilization, whereas receiving a prenatal visit was associated with higher rates of dental service utilization ( $p < 0.001$ ). Among coverage groups, both enrollees in Families and Children and "Other" were associated with lower rates of dental utilization compared to those enrolled under the Disabled coverage category ( $p < 0.05$  and  $p < 0.001$ , respectively). Enrollees in MCHP had higher rates of dental utilization compared to those in the Disabled coverage category ( $p < 0.001$ ).

Compared to enrollees from Baltimore City, residents of the other regions (excluding out of state) had lower rates of dental utilization. However, only the results for Eastern Shore, Southern Maryland, and Washington Suburban were statistically significant. Both Black and Hispanic enrollees had higher rates of dental utilization compared to White enrollees ( $p < 0.05$  and  $p < 0.001$ , respectively). Compared to enrollees with a low comorbidity score, enrollees with a comorbidity score of moderate or higher had higher rates of dental service utilization ( $p < 0.001$  and  $p < 0.01$ ).

Model 5 presents the results from a hazard probability model analysis, which examines the relationship between HVS participation and the time to the mothers' first postpartum visit. A hazard probability model (also known as a Cox proportional hazard model) is a time-to-event analysis. It estimates a hazard ratio (HR) that reflects the probability of an event occurring in the treatment group relative to the probability of the same event occurring among the comparison group over a unit of time. Estimates with an HR greater than 1 can be interpreted as the treatment group having a higher event probability within any given period than the comparison group, whereas an HR less than 1 can be interpreted as the treatment group having a lower event probability within any given period than the comparison group. An HR of exactly 1 means both groups have the same event probability. In Model 5, the unit of time is measured in days. Therefore, an HR of 1.2 should be interpreted as the treatment group being 20% more likely to experience the event of interest than the comparison group over the same time period. In other words, the treatment group is experiencing the event 20% faster than the comparison group.

In Model 5, HVS participants' HR indicated that they had a lower probability of having their first postpartum visit than the comparison group over the same time period. However, the results were not statistically significant. Participant ages did not seem to affect the speed at which mothers received their first postpartum visit ( $p < 0.001$ ). Mothers who received a prenatal visit received their first postpartum visit 2.5% faster than those who did not ( $p < 0.05$ ).

Enrollees residing in the Eastern Shore and Western Maryland were roughly 11% and 17% slower to receive their first postpartum visit compared to Baltimore City residents ( $p < 0.001$ ). Residents of Washington Suburban experienced their first postpartum visit roughly 6% faster than Baltimore City residents ( $p < 0.001$ ). Both Asian and Black enrollees received their first visit faster than White enrollees: 5% and 2.5% faster, respectively ( $p < 0.05$ ). Higher comorbidity scores were



associated with a slower time to a postpartum visit, but none of these estimates were statistically significant.

**Table 88. Effect of HVS Participation on Maternal Dental Visits and Time to First Postpartum Visit**

Effect	Effect of HVS Participation on Maternal Medicaid Service Utilization Post-Delivery					
	Model (4) Dental Visits			Model (5) Postpartum Visit		
	Est.	CI		HR	CI	
<b>Home Visit Service</b>	0.403	-0.18	0.99	0.842	0.68	1.04
<b>Age</b>	-0.039 ***	-0.04	-0.03	1.00 ***	1.00	1.01
<b>Prenatal Visit</b>	0.412 ***	0.35	0.48	1.025 *	1.00	1.05
<b>Last Coverage Cat.</b>						
<i>Families &amp; Children</i>	-0.192 *	-0.35	-0.03	1.004	0.92	1.09
<i>MCHP</i>	0.840 ***	0.51	1.17	1.053	0.85	1.30
<i>Other</i>	-0.940 ***	-1.13	-0.75	1.044	0.96	1.14
<b>Region†</b>						
<i>Baltimore Suburban</i>	-0.070	-0.14	0.00	1.003	0.97	1.03
<i>Eastern Shore</i>	-0.556 ***	-0.66	-0.45	0.886 ***	0.85	0.92
<i>Southern Maryland</i>	-0.198 **	-0.32	-0.08	0.956	0.91	1.00
<i>Washington Suburban</i>	-0.078 *	-0.15	-0.01	1.055 ***	1.02	1.09
<i>Western Maryland</i>	-0.087	-0.18	0.01	0.824 ***	0.79	0.86
<i>Out of State</i>	0.213	-0.54	0.96	1.114	0.74	1.67
<b>Race†</b>						
<i>Asian</i>	-0.111	-0.23	0.01	1.050 *	1.01	1.09
<i>Black</i>	0.075 *	0.01	0.14	1.026 *	1.00	1.05
<i>Hispanic</i>	0.265 ***	0.16	0.37	0.967	0.93	1.00
<i>Other</i>	0.015	-0.06	0.09	1.004	0.98	1.03
<b>Comorbidity Score†</b>						
<i>Moderate</i>	0.408 ***	0.29	0.53	0.979	0.94	1.01
<i>High</i>	0.462 ***	0.36	0.57	0.993	0.96	1.02
<i>Very High</i>	0.673 **	0.27	1.07	1.236	0.98	1.56
<i>Other</i>	-0.246	-0.90	0.41	1.090	0.90	1.33
<b>Constant</b>	0.279	0.02	0.54			

\*\*\*<0.001, \*\*<0.01, \*<0.05

†, Reference Groups: Disabled, Baltimore City, White, Low.

### Infant Health Care Utilization

Poisson regression models were used to analyze the impact of HVS participation on the number of ED visits, inpatient stays, and ED admissions experienced by the infants over their first 12 months. Table 89 presents the impact of HVS participation on healthcare utilization controlling for the infant mother’s demographics, region of residence, and comorbidity scores. Model 1

shows that HVS participation reduced the number of ED visits the infant had during their first 12 months. However, the effect was not statistically significant. A marginal increase in maternal age at birth was also associated with decreases in infant ED visits, with results reaching statistical significance ( $p < 0.001$ ). Having a prenatal visit prior to birth was associated with increased infant ED visits within the first 12 months of life ( $p < 0.001$ ).

Compared to the Disabled coverage category, having their mother in the Families and Children, MCHP, and “Other” categories was associated with lower infant ED utilization ( $p < 0.001$ ). Living in a region other than Baltimore City was associated with lower infant ED visit rates. Baltimore Suburban, Southern Maryland, Washington Suburban, and Western Maryland residents all had lower ED rates with p-values less than 0.001. Results for the remaining regions were not statistically significant. For maternal race, all races and ethnicities, except for Asians ( $p < 0.001$ ), had higher infant ED utilization rates than Whites. Infants with a mother who identified as Asian had lower ED utilization rates compared to infants with White mothers ( $p < 0.05$ ). Similar to the results seen for adults, higher maternal comorbidity scores were associated with higher infant ED utilization ( $p < 0.001$ ).

Model 2 presents the results for infant inpatient stays. Like with the results for ED visits, HVS participation was associated with lower infant inpatient stays. However, the results were not statistically significant. Encouragingly, receiving a prenatal visit prior to birth was associated with lower inpatient stays compared to those who did not have a prenatal visit ( $p < 0.001$ ). Infants whose mother was enrolled under the Families and Children, MCHP, or Other coverage group had lower rates of inpatient stays compared to those enrolled under Disabled ( $p < 0.05$  and  $p < 0.001$ ).

Living in a region other than Baltimore City was associated with lower rates of infant inpatient stays, with p-values ranging from less than 0.05 to less than 0.001. Results for out of state were not statistically significant. Having a mother with a race/ethnicity other than White was also associated with lower inpatient stay among infants, though the results for children with Hispanic mothers was not statistically significant ( $p < 0.001$ ). Only infants with mothers with a comorbidity score of high or very high had increased infant inpatient stays compared to those with a low comorbidity score ( $p < 0.05$  and  $p < 0.001$ , respectively).

Model 3 presents the results for infant ED admissions (ED visits that resulted in an inpatient stay). Participation in the HVS program was associated with lower ED admission for infants, but the results were not statistically significant. The mother’s age at birth was associated with lower ED admissions for infants ( $p < 0.01$ ), while a prenatal visit was associated with increased ED admissions but was not statistically significant.

While all regions were associated with lower ED admission rates compared to Baltimore City, only the results for Baltimore Suburban, Washington Suburban, and Western Maryland were statistically significant ( $p < 0.05$  and  $p < 0.001$ ). Infants with Black or Asian mothers had lower ED admission rates compared to those with White mothers ( $p < 0.001$  and  $p < 0.01$ , respectively).

**Table 89. Effect of HVS Participation on Infant Health Care Utilization Post-Delivery**

Effect	Effect of HVS Participation on Maternal Medicaid Service Utilization Post-Delivery								
	Model (1) ED Visits			Model (2) Inpatient Stays			Model (3) ED Admission		
	Est.	CI		Est.	CI		Est.	CI	
<b>Home Visit Service</b>	-0.441	-1.00	0.12	-0.039	-1.33	1.25	-0.397	-2.35	1.556
<b>Mother's Age</b>	-0.035 ***	-0.04	-0.03	0.004	0.00	0.01	-0.011 **	-0.02	0.00
<b>Prenatal Visit</b>	0.292 ***	0.26	0.33	-0.350 ***	-0.44	-0.26	0.047	-0.05	0.15
<b>Last Coverage Cat.</b>									
<i>Families &amp; Children</i>	-0.509 ***	-0.60	-0.42	-0.744 ***	-0.98	-0.51	-0.848 ***	-1.13	-0.57
<i>MCHP</i>	-0.627 ***	-0.94	-0.31	-1.180 *	-2.12	-0.24	-1.140 *	-2.20	-0.08
<i>Other</i>	-0.500 ***	-0.60	-0.40	-0.930 ***	-1.19	-0.67	-0.904 ***	-1.21	-0.60
<b>Region†</b>									
<i>Baltimore Suburban</i>	-0.327 ***	-0.37	-0.29	-0.369 ***	-0.49	-0.25	-0.292 ***	-0.43	-0.16
<i>Eastern Shore</i>	0.010	-0.04	0.06	-0.166 *	-0.31	-0.03	-0.013	-0.18	0.15
<i>Southern Maryland</i>	-0.291 ***	-0.36	-0.22	-0.229 **	-0.40	-0.06	-0.061	-0.25	0.12
<i>Washington Suburban</i>	-0.529 ***	-0.57	-0.49	-0.462 ***	-0.58	-0.34	-0.139 *	-0.27	-0.01
<i>Western Maryland</i>	-0.374 ***	-0.43	-0.32	-0.439 ***	-0.61	-0.27	-0.416 ***	-0.60	-0.23
<i>Out of State</i>	0.171	-0.31	0.65	-0.289	-1.31	0.74	0.438	-0.59	1.47
<b>Maternal Race†</b>									
<i>Asian</i>	-0.072 *	-0.14	0.00	-0.488 ***	-0.71	-0.27	-0.323 **	-0.54	-0.11
<i>Black</i>	0.229 ***	0.19	0.27	-0.180 ***	-0.28	-0.08	-0.202 ***	-0.31	-0.09
<i>Hispanic</i>	0.322 ***	0.26	0.38	-0.088	-0.25	0.07	0.097	-0.07	0.26
<i>Other</i>	0.084 ***	0.04	0.13	-0.235 ***	-0.35	-0.12	-0.094	-0.22	0.03
<b>Comorbidity Score†</b>									
<i>Moderate</i>	0.284 ***	0.22	0.34	0.147	-0.01	0.31	0.122	-0.04	0.29
<i>High</i>	0.335 ***	0.28	0.39	0.146 *	0.01	0.28	0.067	-0.08	0.21
<i>Very High</i>	0.661 ***	0.44	0.88	1.108 ***	0.68	1.54	0.510	-0.12	1.14
<i>Other</i>	0.120	-0.21	0.45	-0.428	-1.46	0.61	-0.355	-1.55	0.84
<b>Constant</b>	0.702	0.57	0.83	-1.260	-1.62	-0.90	-1.722	-2.13	-1.32

\*\*\*<0.001, \*\*<0.01, \*<0.05

†, Reference Groups: Disabled, Baltimore City, White, Low,

Table 90 presents results for infant well-care visits. Model 1 uses a Poisson model in which the outcome variable is the number of well-care visits an infant received during their first 12 months. Model 2 is a logistic regression in which the outcome is whether the infant received the recommended number of well-care visits in their first 12 months. The appropriate number of well-care visits was defined as receiving at least the minimum number of well-care visits recommended (four) but no more than seven, or the maximum number of visits an infant would receive if they received a visit at every developmental milestone. For the logistic regression, infants who received eight or more visits were removed from the analysis, as these infants likely have other health factors that necessitated more visits and would bias the analysis.

In Model 1, participation in HVS was associated with receiving fewer well-care visits compared to those who did not participate in the program (p<0.001). Compared to the Disabled coverage category, those with mothers in the Families and Children, MCHP, or Other categories had more well-care visits (p<0.001). Living in a region other than Baltimore City was also associated with

higher numbers of well-care visits ( $p < 0.001$ ). Compared to infants with White mothers, having a mother who identified as Asian, Hispanic, or “Other” was associated with receiving more well-care visits, while having a mother who identified as Black was associated with experiencing less well-care visits ( $p < 0.001$ ). Finally, having a maternal comorbidity score of moderate or high was associated with more well-care visits compared to those with a low maternal comorbidity score ( $p < 0.001$ ).

Model 2 presents the result of the logistic regression, examining whether HVS participation impacts if an infant and their families receives the recommended number of well-care visits (between four and seven). According to the analysis, maternal participation in the HVS program was associated with 85% lower odds for receiving the recommended number of well-care visits compared to mothers who did not participate in the program ( $p < 0.001$ ). The mother’s age did not impact the odds of the family reaching the recommended number of well-care visits. However, having a prenatal visit increased infant probability of achieving the recommended number of well-care visits by 71% ( $p < 0.001$ ).

Infants with mothers in the Families and Children or Other categories were over 30% more likely to reach the recommended number of well-care visits compared to those in the Disabled coverage category ( $p < 0.01$ ). Living in a region other than Baltimore City increased a family’s odds of receiving the recommended number of well-care visits, with families living in the Eastern Shore region experiencing 92% greater odds ( $p < 0.01$  and  $p < 0.001$ ). Infants with Black mothers were 7% less likely to receive the recommended number of well-care visits compared to infants with White mothers ( $p < 0.05$ ). Infants with Asian or Hispanic mothers were, respectively, 51% and 60% more likely to receive the recommended number of visits compared to infants with White mothers ( $p < 0.001$ ). Comorbidity scores had no statistically significant impact on researching the well-care visit target.

**Table 90. Effect of HVS Participation on Infant Well-Care in first 12 Months Post-Delivery**

Effect	Effect of HVS Participation on Well Care Visits Post-Delivery					
	Model (4) Well-Care Visit Count			Model (5) Well-Care Visit Target		
	Est.	CI		OR	CI	
<b>Home Visit Service</b>	-0.523 ***	-0.75	-0.29	0.154 ***	0.09	0.26
<b>Age</b>	0.000	0.00	0.00	0.999	0.99	1.00
<b>Prenatal Visit</b>	0.087	0.08	0.09	1.710 ***	1.63	1.80
<b>Last Coverage Cat.</b>						
<i>Families &amp; Children</i>	0.087 ***	0.06	0.11	1.312 **	1.12	1.53
<i>MCHP</i>	0.127 ***	0.06	0.19	1.450	0.77	2.72
<i>Other</i>	0.111 ***	0.08	0.14	1.340 **	1.13	1.59
<b>Region†</b>						
<i>Baltimore Suburban</i>	0.099 ***	0.09	0.11	1.217 ***	1.14	1.30
<i>Eastern Shore</i>	0.163 ***	0.15	0.18	1.929 ***	1.75	2.13
<i>Southern Maryland</i>	0.096 ***	0.08	0.11	1.170 **	1.05	1.30
<i>Washington Suburban</i>	0.129 ***	0.12	0.14	1.279 ***	1.20	1.37

Effect	Effect of HVS Participation on Well Care Visits Post-Delivery					
	Model (4) Well-Care Visit Count			Model (5) Well-Care Visit Target		
	Est.	CI		OR	CI	
<i>Western Maryland</i>	0.131 ***	0.12	0.14	1.801 ***	1.63	2.00
<i>Out of State</i>	-0.023	-0.16	0.12	1.145	0.52	2.53
<b>Maternal Race†</b>						
<i>Asian</i>	0.066 ***	0.05	0.08	1.514 ***	1.34	1.71
<i>Black</i>	-0.020 ***	-0.03	-0.01	0.930 *	0.88	0.99
<i>Hispanic</i>	0.047 ***	0.04	0.06	1.605 ***	1.42	1.81
<i>Other</i>	0.027 ***	0.02	0.04	1.173 ***	1.09	1.27
<b>Comorbidity Score†</b>						
<i>Moderate</i>	0.0468 ***	0.03	0.06	1.434	1.31	1.57
<i>High</i>	0.039 ***	0.03	0.05	1.280	1.19	1.38
<i>Very High</i>	-0.029	-0.09	0.03	1.088	0.74	1.59
<i>Other</i>	-0.088	-0.18	0.00	0.709	0.46	1.08
<b>Constant</b>	1.497	1.46	1.53	1.287	1.04	1.60

\*\*\*<0.001, \*\*<0.01, \*<0.05

†, Reference Groups: Disabled, Baltimore City, White, Low,

The results from the maternal and infant healthcare utilization Poisson regression and a hazard probability models should be interpreted with caution. The treatment group for the analysis was very small compared to the matched comparison group. Moreover, there were a limited number of variables available to match the treatment group to the comparison group. Therefore, there is a possibility that the two groups may still differ in a way that may impact the regression results. As a result, some of the statistical significance and direction of the results on the main independent variable were unexpected.

### HVS Provider Interviews

In addition to our quantitative analysis of the HVS program, we conducted qualitative interviews with representatives from the Garrett County Health Department and the Harford County Health Department, two of the lead entities for the HVS pilot program. However, due to recent personnel changes, only the representative from one of the entities was able to provide information pertinent to the evaluation. The interviewees were recommended by MDH, who supplied us with their contact information. We held the interviews virtually and followed an interview guide approach, wherein we asked a predetermined list of questions (see Appendix C for the list of questions that was used for the interview) and added follow-up questions during the interview in response to what was being discussed.

### Findings

The interviewee that was able to offer information on the HVS program explained that prior to the pilot their agency had an ongoing Healthy Families America (HFA) program, a prerequisite for participation in the HVS pilot. They noted that, after the pilot began, the actual service delivery involved in the program remained identical to their pre-existing HFA model, although billing

details changed. In fact, the program has continued to be known as HFA even throughout and following the pilot.

Participants are introduced to the program through being referred. The individual we spoke with characterized their division within the county health department as a centralized intake unit for all new expecting families in the county: they target all births in the county rather than the common HFA practice of limiting their focus to specific demographics. The interviewee noted that referrals come from several entities but not from MCOs themselves. They identified doctors' offices as their highest referring source, noting that they provide incentives to the office that gives them the most referrals each quarter. In addition, they listed several other major sources of referrals: the county's Department of Child Protective Services (CPS); the county public school system; the Women, Infants, and Children (WIC) unit of the county health department, and the Maryland Administrative Care Coordination Unit, which sends referrals based on the results of the Maryland Prenatal Risk Assessment. They noted that they receive some self-referrals as well and that it is not uncommon to receive referrals from multiple sources for the same family. The referrals from other entities are facilitated through informal memoranda of understanding (MOUs) between the county health department and those partners. The interviewee noted that they are meeting their targets for the number of referrals they receive each month.

After being referred, an outreach worker attempts to reach a family by phone to administer a preliminary screening to determine the likelihood that they are eligible for the program. The person we spoke with estimated that around half of families appear to be eligible, of which around half agree to proceed to the next step: an in-home visit to further screen for eligibility. In this visit, an hour-long structured screening known as the Family Resource and Opportunities for Growth (FROG) Scale is used to assess the family's childhood history, mental health information, previous encounters with CPS, and their access to resources such as housing, food, transportation, and phone services. The FROG Scale is primarily used to assess eligibility for the HFA program, which families can qualify for regardless of eligibility for the HVS program. While there is no income element to the FROG Scale that determines who qualifies for the HFA program, individuals must be enrolled in Maryland Medicaid to qualify for the HVS program. The interviewee indicated that most families who reach the stage of being assessed using the FROG Scale are indeed eligible for participation in the program.

Individuals deemed ineligible are often referred to one of many other county programs according to their needs, including childbirth and breastfeeding classes, a car seat assistance program that provides child car seats at a sliding scale fee, programs for assistance with insurance enrollment, a safe sleep program that distributes infant playpens to parents, and a program that provides infant swings to help regulate infants born with Neonatal Abstinence Syndrome.

Families that enroll in the program are expected to keep around 75% of their visits over three months. The interviewee described how they use creative outreach to attempt to reengage families in the program's services, but after three months families who continue to be inactive are discharged from the program, with the option to reenroll if they want to continue with the

services. Families that enter the Head Start program are also discharged, as this is considered duplication of the services offered under the HVS program. The HVS pilot allowed for families to remain enrolled and have their services covered until age 2, with a focus on families starting in the program as early in their pregnancy as possible.

The home visits around which the program centers have a duration of at least an hour; shorter visits are not billable and do not count toward the quota required to maintain the program's funding. The first of the program's foci is safety in the home: the person we spoke with described how home visitors check in about the child's well-care visits as well as ensuring that the family has access to safety amenities such as smoke detectors and child car seats. The second is parent-child interaction; an age-appropriate parent-child interaction activity is included in each visit. Florida State University's Partners for a Healthy Baby curriculum is the main curriculum that the county uses, and they also incorporate aspects of the American Academy of Pediatrics' Bright Futures curriculum. Additionally, at various stages throughout a family's time enrolled in the program, home visitors conduct screenings on children's social, emotional, and motor skills development, as well as several screenings with the family focused on addressing social determinants of health, including food security screenings and mental health screenings for mothers.

While there are standard components to the home visits, many of the services delivered to families are individualized. Families draft goal plans early in the program, and the curricula that the county uses encourage home visitors to adapt the content of visits to meet these goals and families' individual needs. For instance, it is not uncommon for home visitors to join families as they attend medical visits. Additionally, a Spanish interpreter can be provided to accompany the home visitor and translate for the duration of a visit. The interviewee we spoke with noted that an additional complication present with some families is that they are undocumented, necessitating special effort on the home visitor's part to gain their trust.

Another way that staff with the program exercised flexibility was in adapting the program in response to the COVID-19 pandemic. Prior to the implementation of restrictions on interpersonal interaction during the pandemic, the pilot (which was already underway) did not have an option for virtual or telephone-based home visits, but they implemented these types of visits in response to the pandemic. However, the results of a survey that the county health department asked families to complete indicated that most families wanted to resume home visits in person. As such, the county resumed in-person visits while continuing to observe the CDC's recommendations regarding the use of personal protective equipment, social distancing, and temperature checking in order to note possible COVID-19 symptoms; the county continued to offer the option for virtual visits, but most participating families opted to have them in person.

The staff members working as home visitors are required to have a high school diploma or a General Education Diploma (GED). Applicants who have experience working with families are preferred, and the county looks for them to exhibit the ability to establish trusting relationships with families. Each home visitor can take on a caseload of 24 to 30 "points" at maximum, which equates to 12 families with whom the home visitor meets weekly or 24 families with whom they



visit every other week. Typically, home visitors have a mix of weekly and every-other-week families in their caseload. The number of families served is based on funding.

The interviewee we spoke with identified several services that are most needed by the families the program serves. Many families need treatment for an SUD, and another area of need is in mental health services: the county has a shortage of mental health providers, but this is one of the most common types of services to which the county refers families. Likewise, the county suffers from a lack of specialty somatic health providers: for instance, there are very few pediatricians and obstetricians operating in the county. Food insecurity is also a major issue for many families participating in the program. In addition to referring families to other organizations that can help address their food needs, funds from ARPA have allowed for a two-year program to provide families with prepaid gas and grocery cards. Additionally, the person we spoke with described giving families helpful items such as children's books, both as an incentive for continuing to engage with the program and for their inherent benefit to families.

The county used several metrics to measure the pilot's success, including the following: the number of children who are up to date on their immunizations; well-child visit completion (verified by contacting the doctor's office); completion of developmental screens; the number of children with a developmental delay and the number of parents of children with developmental delays who accept referrals to early intervention; the child abuse and neglect reporting rate; the number of mothers receiving depression and substance use screenings, the proportion whose screenings indicate they are positive for these issues, and rates of treatment for them. By these measures, they reported that the pilot was very successful, and the ongoing HFA program continues to be so: in recent numbers, 95% of children in the program are up to date on their well-child visits, over 90% of children are receiving the appropriate developmental screens, no neglect or abuse was indicated, and close to 100% of mothers were screened for depression, with around 30% of mothers returning positive results for depression.

Chief among the factors the interviewee identified as contributing to the program's success is the continuity of service provision from the preexisting HFA program. Additionally, they highlighted that their principal funders have allowed for billing with them in addition to the standard reimbursement they receive, indicating that this has allowed them to weather some financial hurdles and should help them increase their number of clients and reach more of the county's population.

The person we spoke with expressed that the pilot was straightforward overall, but they did note some challenges. Determining the cost of a home visit represented a challenge for the county as well as other sites participating in the pilot. Establishing consistent contact with Maryland's MCOs also proved challenging: they were unable to locate MCO staff members who could be tasked with visiting families at the hospital after births, and they had difficulty establishing relationships with MCO stakeholders to discuss issues such as missing referrals for families who seek care in another state rather than Maryland. The interviewee closed by stating that deeper relationships and better communication with the MCOs are the most important changes they would recommend; in addition to helping to resolve issues that arise, they expressed a desire to



better understand the MCOs’ activities and in-house services as they relate to HVS clients, as well as helping the MCOs understand the HVS program better. More information exchange between the county health department and the MCOs would have allowed for the HVS program to better serve families across the county.

### **Assistance in Community Integration Services (ACIS) Community Health Pilot**

The goals of the Assistance in Community Integration Services (ACIS) pilot program, which began in late 2017, are to reduce unnecessary health services use, increase housing stability, and improve health outcomes for individuals at risk of institutional placement or homelessness.<sup>73</sup> Four jurisdictions, referred to as lead entities (LEs), currently participate in the pilot program: the Baltimore City Mayor’s Office of Homeless Services (Baltimore City), the Cecil County Health Department (Cecil County), the Montgomery County Department of Health and Human Services (Montgomery County), and the Prince George’s County Health Department (Prince George’s County).

Hilltop recently completed the first summative evaluation of the ACIS pilot program, with a focus on its implementation across the jurisdictions involved, ACIS service utilization, housing stability, and health service utilization. Since ACIS service delivery began in CY 2018, the evaluation focuses on CY 2018 through CY 2021.

Hilltop analyzed ACIS service utilization and Maryland Medicaid Management Information System (MMIS2) health service utilization for the 615 program participants enrolled during CYs 2018 to 2021, who had at least one eligible ACIS service. Table 91 shows the number of ACIS enrollments by sex, racial group, and age group during each CY. During the study period, more males were enrolled than females: approximately 60% of enrolled individuals were males, while around 40% were females. Each year in the evaluation period, the program enrolled more Black participants (58%) than any other racial category. Finally, more 51- to 60-year-olds were enrolled each year compared to any other age group.

**Table 91. Demographics of Newly Enrolled ACIS Participants, CY 2018–CY 2021**

Demographic Characteristic	CY 2018 N=109		CY 2019 N=166		CY 2020 N=163		CY 2021 N=177		Total N=615	
	#	%	#	%	#	%	#	%	#	%
<b>Sex</b>										
<b>Female</b>	44	40.4%	85	51.2%	44	27.0%	69	39.0%	242	39.3%
<b>Male</b>	65	59.6%	81	48.8%	119	73.0%	108	61.0%	373	60.7%
<b>Race</b>										
<b>Black</b>	66	60.6%	92	55.4%	88	54.0%	110	62.1%	356	57.9%
<b>Hispanic/Other/ Unknown</b>	15	13.8%	37	22.3%	38	23.3%	40	22.6%	130	21.1%
<b>White</b>	28	25.7%	37	22.3%	37	22.7%	27	15.3%	129	21.0%

<sup>73</sup> See ACIS press release at <https://health.maryland.gov/newsroom/Pages/Maryland-Medicaid-Announces-Community-Health-Pilot-Selections.aspx>

Demographic Characteristic	CY 2018 N=109		CY 2019 N=166		CY 2020 N=163		CY 2021 N=177		Total N=615	
	#	%	#	%	#	%	#	%	#	%
<b>Age Category</b>										
<b>&gt; 30</b>	19	17.4%	26	15.7%	20	12.3%	21	11.9%	86	14.0%
<b>31 to 40</b>	*	*	33	19.9%	36	22.1%	38	21.5%	121	19.7%
<b>41 to 50</b>	26	23.9%	41	24.7%	30	18.4%	36	20.3%	133	21.6%
<b>51 to 60</b>	41	37.6%	49	29.5%	57	35.0%	64	36.2%	211	34.3%
<b>61+</b>	*	*	17	10.2%	20	12.3%	18	10.2%	64	10.4%

\*Cell values of 10 or less have been suppressed.

The ACIS data analyzed included:

- General living situation at time of enrollment
- Specific living situation at time of enrollment
- Living situation at time of ACIS service delivery
- ACIS participants stably housed
- Number of months to stable housing from ACIS enrollment date
- ACIS service delivery and billing review

The MMIS2 services analyzed included:

- Emergency Department (ED) visits
- Avoidable ED visits
- Inpatient admissions
- Mental health disorder (MHD) inpatient admissions
- Substance use disorder (SUD) inpatient admissions
- Nursing facility admissions
- Ambulatory care visits
- Participants with a diagnosis of an MHD
- Participants with a diagnosis of an SUD

The review of the ACIS programmatic data measures showed that approximately 80% of ACIS participants were *homeless* at the time of their enrollment in the program for each study year. Of the ACIS participants who were homeless, the proportion utilizing *emergency shelter vouchers* was 52% in CY 2018 but increased to 82% in CY 2021, potentially due to service providers expanding hotel or motel placements in response to the COVID-19 pandemic. At the time of ACIS service delivery, on average across all years, over three-quarters of participants were residing in *permanent supportive housing-other than rapid-rehousing-for homeless persons*.

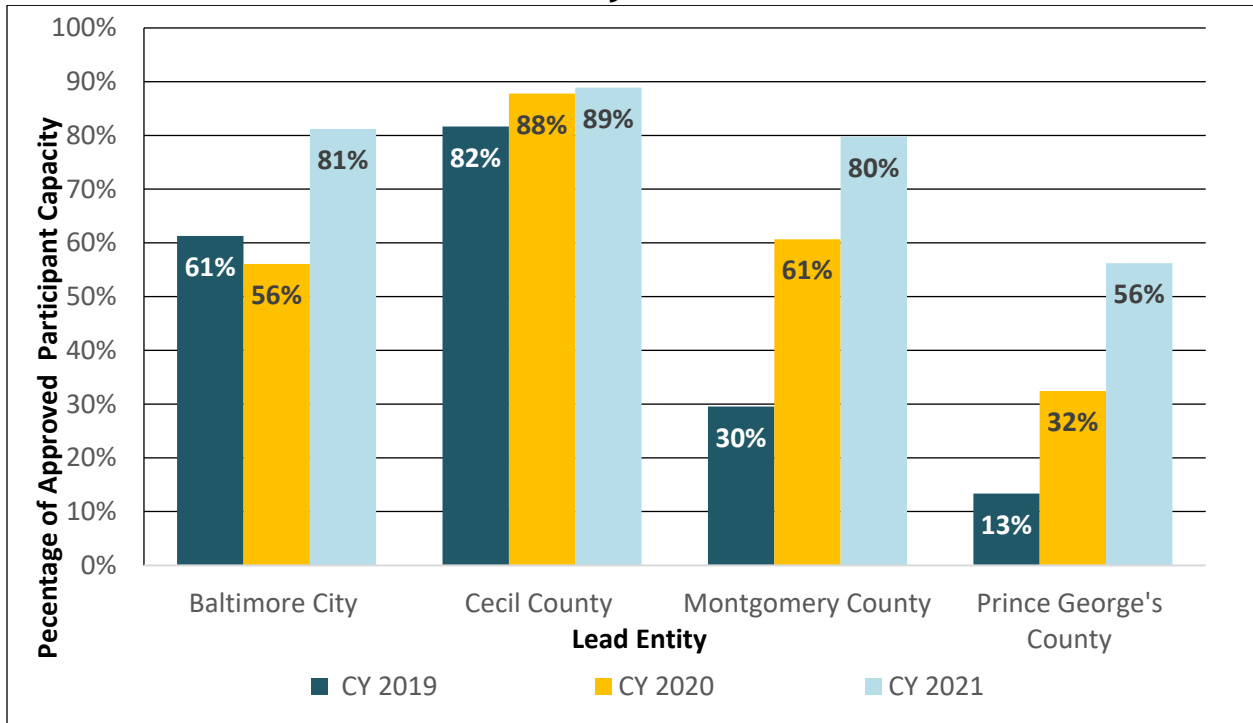
Approximately 77% of participants obtained stable housing during their ACIS enrollment. Table 92 shows the average, minimum, and maximum number of months that it took participants to obtain stable housing, by LE. There was considerable variation between different LEs in the length of time before clients were stably housed. The LEs have varied approaches to helping participants obtain housing: the metropolitan LEs typically will not enroll a participant in the pilot program if they do not have a housing voucher available, and even with a housing voucher it may still take some time getting a participant physically housed.

**Table 92. Average, Minimum, and Maximum Number of Months to Obtain Stable Housing for ACIS Participants**

Lead Entity	Number of Months		
	Average	Minimum	Maximum
<b>Baltimore City</b>	2.1	0	13
<b>Cecil County</b>	5.6	0	20
<b>Montgomery County</b>	1.0	0	11
<b>Prince George's County</b>	5.1	0	18

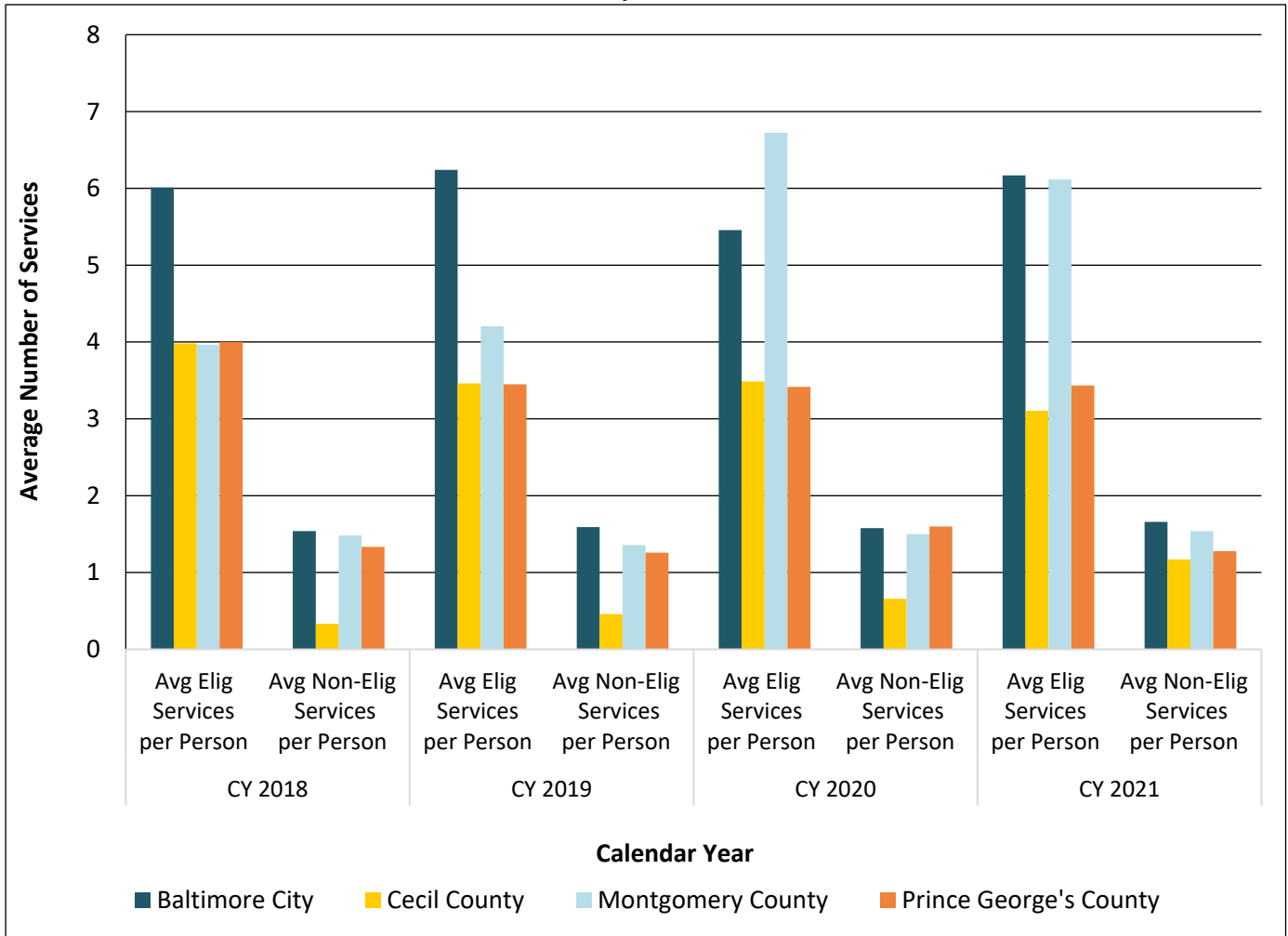
LEs also vary in their participant capacities and the degree to which they reach their respective capacities. MDH received approval from CMS to increase total ACIS participant capacity each CY, and Baltimore City and Montgomery County increased their capacities, while Cecil and Prince George’s Counties did not. Figure 19 illustrates the percentage of Medicaid eligible participants receiving at least one ACIS service out of the approved capacity of each LE, with only CY 2019 through CY 2021 shown because LEs began their programs at varying times during CY 2018. This data point illustrates the degree of success of an LE in serving their allotted number of participants. On average, Cecil County successfully served 86% of its allotted participant capacity during the study period, while Prince George’s County on average served the lowest percentage of its capacity, 34%. Montgomery County achieved the largest percentage point increase of serving their allotted participant capacity from CY 2019 to CY 2021, 30% to 80%, respectively.

**Figure 19. Percentage of Approved ACIS Participant Capacity Met, by Lead Entity, CY 2019–CY 2021**



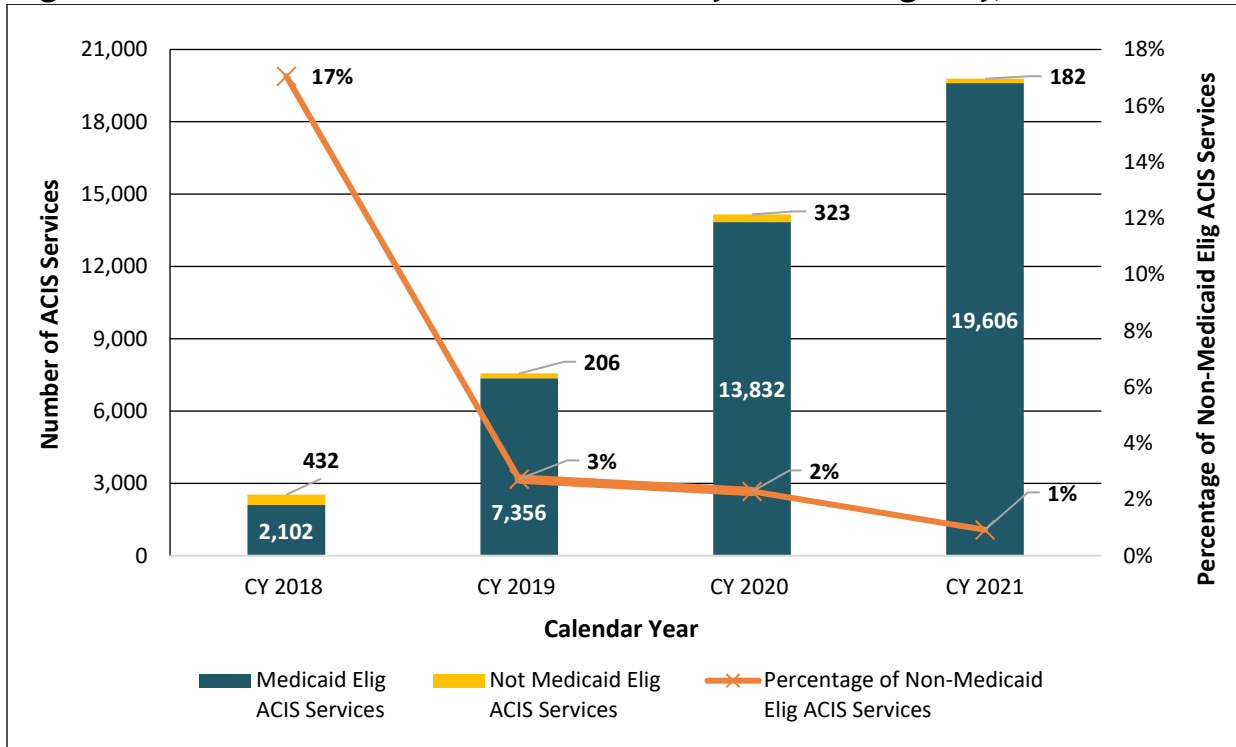
LEs are only reimbursed for ACIS services delivered when a participant is Medicaid-eligible, and the LE provided three or more ACIS services to that participant in a given month. This is a per member per month (PMPM) reimbursement model. Figure 20 shows the average number of services delivered to an ACIS participant, by LE and by whether the services were eligible for PMPM reimbursement. The average number of eligible services across all study years delivered per person was highest for Baltimore City (6), followed closely by Montgomery County (5.3).

**Figure 20. Average Number of ACIS Services Delivered per Person, by PMPM Status and Lead Entity, CY 2018–CY 2021**



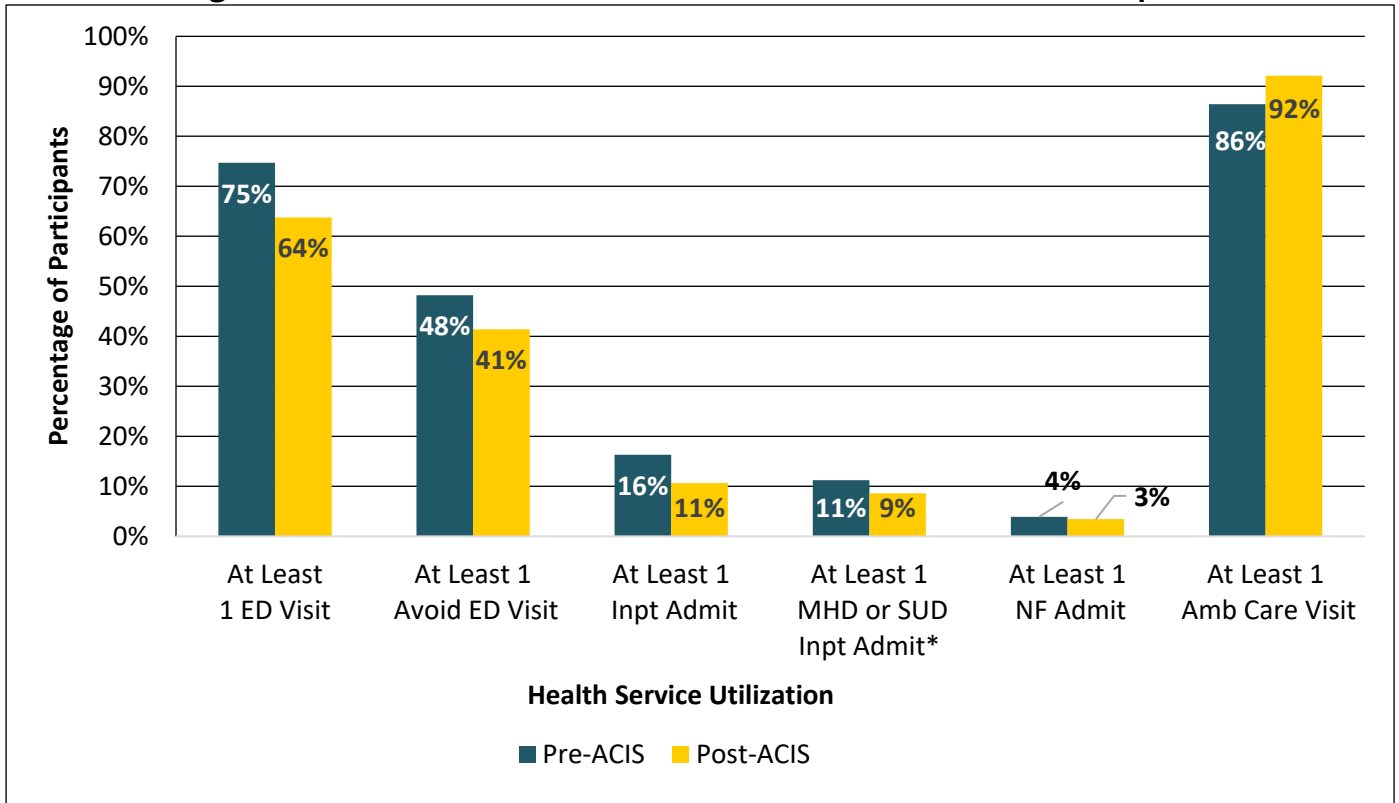
To ensure a participant was Medicaid-eligible, appropriate staff at both LEs and participating entities (PEs, providers of services who have contracted with an LE) were granted access to Maryland’s electronic verification system (EVS). MDH advised that the system be checked to ensure Medicaid eligibility of a participant prior to ACIS service delivery. Figure 21 shows the breakdown of all ACIS services delivered by whether participants were Medicaid-eligible at the time-of-service delivery. In CY 2018, 17% of ACIS services were delivered when a participant was not Medicaid-eligible, but this fell to 3% in CY 2019 and continued to decrease by 1% percentage point each year thereafter. Given the importance of determining Medicaid eligibility prior to service delivery, this improvement is significant.

**Figure 21. Breakout of All ACIS Services Delivered by Medicaid Eligibility, CY 2018–CY 2021**



Health service utilization was analyzed for participants in the year prior to their ACIS enrollment (pre-ACIS) and the year following their ACIS enrollment (post-ACIS). It should be noted that not all ACIS participants had a full year of Medicaid eligibility pre-ACIS and/or post-ACIS. Figure 22 illustrates the pre- and post-ACIS health service utilization for six different health services used by ACIS participants. The percentage of participants with at least one ED visit decreased by 11 percentage points from the pre-ACIS period to the post-ACIS period, while the proportion with at least one avoidable ED visit decreased by 7 percentage points. The utilization rates for other services also decreased, while ambulatory care utilization increased. These are promising results, although causation cannot be assumed.

**Figure 22. Pre- and Post- ACIS Health Service Utilization of ACIS Participants**



\*Due to small cell sizes (less than 11), MHD and SUD inpatient admissions were combined.

Table 93 shows the number of ACIS participants with any SUD or MHD diagnosis. Across all study years, approximately three-quarters of participants had an MHD diagnosis, while approximately one-half had an SUD diagnosis.

**Table 93. ACIS Participants with Any SUD or MHD Diagnoses, CY 2018–CY 2021**

Diagnosis	CY 2018 N = 100		CY 2019 N = 235		CY 2020 N = 329		CY 2021 N = 434	
	#	%	#	%	#	%	#	%
<b>Any SUD Diagnosis</b>								
<b>Yes</b>	48	48.0%	108	46.0%	146	44.4%	219	50.5%
<b>No</b>	52	52.0%	127	54.0%	183	55.6%	215	49.5%
<b>Any MHD Diagnosis</b>								
<b>Yes</b>	79	79.0%	179	76.2%	246	74.8%	267	61.5%
<b>No</b>	21	21.0%	56	23.8%	83	25.2%	167	38.5%

It is important to note that the study conclusions should be viewed cautiously, as there was no comparison control group. Additionally, the evaluation explains that the impact of the COVID-19 pandemic on the ACIS program may be difficult to gauge but notes the flexibility of MDH and the persistence of LEs and PEs in continuing to provide ACIS services throughout the pandemic.

Recommendations for future robust analyses include methods for exploring access to other data sets which include homeless data.

Another relevant analysis was a set of qualitative interviews performed by the Johns Hopkins University (JHU) research team to investigate the implementation of the ACIS program. See Appendix B for details on the methodology and findings of these interviews.

### **Dental Services for Former Foster Care Individuals**

Chapters 57 and 58 of the Maryland Acts of 2016 (SB 252/HB 511) authorized Medicaid to cover dental services for former foster care participants until they reach age 26.<sup>74</sup> They also required Medicaid to apply to CMS for the necessary waiver to receive a federal match for these services. CMS authorized this benefit as part of the 2016 waiver renewal and was renewed for the 2021 waiver, and Maryland has provided dental services as a benefit to former foster care individuals since January 1, 2017.

Table 94 shows the number and percentage of former foster care participants who were enrolled in Medicaid for at least 320 days and who received dental services in CY 2017 through CY 2021. The percentage of former foster care participants who had at least one dental visit increased by 4.2 percentage points from CY 2017 to CY 2019 before decreasing by 10.7 percentage points from CY 2019 to CY 2021, most likely as a result of the COVID-19 pandemic. In CY 2021, the percentage with at least one visit varied widely between regions, ranging from 5.3% to 20.7%. MDH anticipates that, over time, the number and percentage of former foster care participants receiving services will increase.

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<sup>74</sup> COMAR 10.09.05.04.



**Table 94. Number and Percentage of Former Foster Care Participants (E05) Enrolled in Medicaid for 320 Days who had Dental Services, by Region, CY 2017–CY 2021**

Region*	CY 2017			CY 2018			CY 2019			CY 2020			CY 2021		
	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits
Baltimore City	563	108	19.2%	540	104	19.3%	415	98	23.6%	392	66	16.8%	421	61	14.5%
Baltimore Suburban	374	88	23.5%	339	86	25.4%	306	84	27.5%	302	44	14.6%	343	51	14.9%
Eastern Shore	90	*	23.3%	70	*	24.3%	76	*	26.3%	69	*	17.4%	69	*	7.2%
Out of State	*	0	0.0%	*	0	0.0%	*	0	0.0%	*	0	0.0%	*	0	0.0%
Southern Maryland	*	*	19.4%	*	*	25.0%	*	*	21.2%	*	*	18.4%	*	*	5.3%
Washington Suburban	173	43	24.9%	161	37	23.0%	154	49	31.8%	166	34	20.5%	188	39	20.7%
Western Maryland	100	23	23.0%	91	22	24.2%	92	21	22.8%	86	13	15.1%	88	16	18.2%
<b>Total</b>	<b>1,333</b>	<b>289</b>	<b>21.7%</b>	<b>1,238</b>	<b>275</b>	<b>22.2%</b>	<b>1,077</b>	<b>279</b>	<b>25.9%</b>	<b>1,054</b>	<b>176</b>	<b>16.7%</b>	<b>1,148</b>	<b>174</b>	<b>15.2%</b>

\*Cell values of 10 or less have been suppressed.

Table 95 shows the number and percentage of former foster care participants who had an outpatient ED visit with any dental diagnosis by region in CY 2017 through CY 2021. Overall, the percentage with an ED visit with any dental diagnosis decreased from 19.1% in CY 2017 to 14.7% in CY 2021. Participants living in Washington Suburban had the highest rate of ED visits related to dental diagnoses among Maryland regions in CY 2021—19.8%—a 1.3 percentage point increase from CY 2020. Participants living in Southern Maryland had the highest rate of dental-related ED visits in CY 2020—19.5%—but this decreased to 4.7% in CY 2021.

**Table 95. Number and Percentage of Former Foster Care Participants Enrolled in Medicaid for Any Period Who Had an Outpatient ED Visit with Any Dental Diagnosis, by Region, CY 2017–CY 2021**

Region*	CY 2017			CY 2018			CY 2019			CY 2020			CY 2021		
	Total Number of Enrollees	Number of Enrollees with Any Dental Service	Percentage with Any Service	Total Number of Enrollees	Number of Enrollees with Any Dental Service	Percentage with Dental Visits	Total Number of Enrollees	Number of Enrollees with Any Dental Service	Percentage with Dental Visits	Total Number of Enrollees	Number of Enrollees with Any Dental Service	Percentage with Any Service	Total Number of Enrollees	Number with at Least One Visit	Percentage with Dental Visits
Baltimore City	750	129	17.2%	692	118	17.1%	561	113	20.1%	451	75	16.6%	449	62	13.8%
Baltimore Suburban	457	94	20.6%	452	101	22.3%	427	99	23.2%	356	46	12.9%	368	54	14.7%
Eastern Shore	108	*	19.4%	101	*	18.8%	92	*	26.1%	79	*	17.7%	74	*	6.8%
Out of State	*	0	0.0%	*	0	0.0%	*	0	0.0%	*	0	0.0%	*	*	50.0%
Southern Maryland	*	*	18.4%	*	*	22.7%	*	*	16.7%	*	*	19.5%	*	*	4.7%
Washington Suburban	208	47	22.6%	210	45	21.4%	217	54	24.9%	195	36	18.5%	207	41	19.8%
Western Maryland	126	25	19.8%	130	26	20.0%	123	*	19.5%	99	*	14.1%	99	*	17.2%
<b>Total</b>	<b>1,690</b>	<b>323</b>	<b>19.1%</b>	<b>1,631</b>	<b>319</b>	<b>19.6%</b>	<b>1,469</b>	<b>322</b>	<b>21.9%</b>	<b>1,222</b>	<b>193</b>	<b>15.8%</b>	<b>1,242</b>	<b>182</b>	<b>14.7%</b>

\*Cell values of 10 or less have been suppressed.

Figure 23 shows the percentage of former foster care participants by region and type of service for CY 2021 enrolled in Medicaid for any period. Overall, 13.9% received diagnostic services, 10.0% received preventive services, and 4.4% received restorative services.

**Figure 23. Number and Percentage of Former Foster Care Participants (E05) Enrolled for Any Period in Medicaid Receiving Dental Services, by Type of Service and Region, CY 2021**

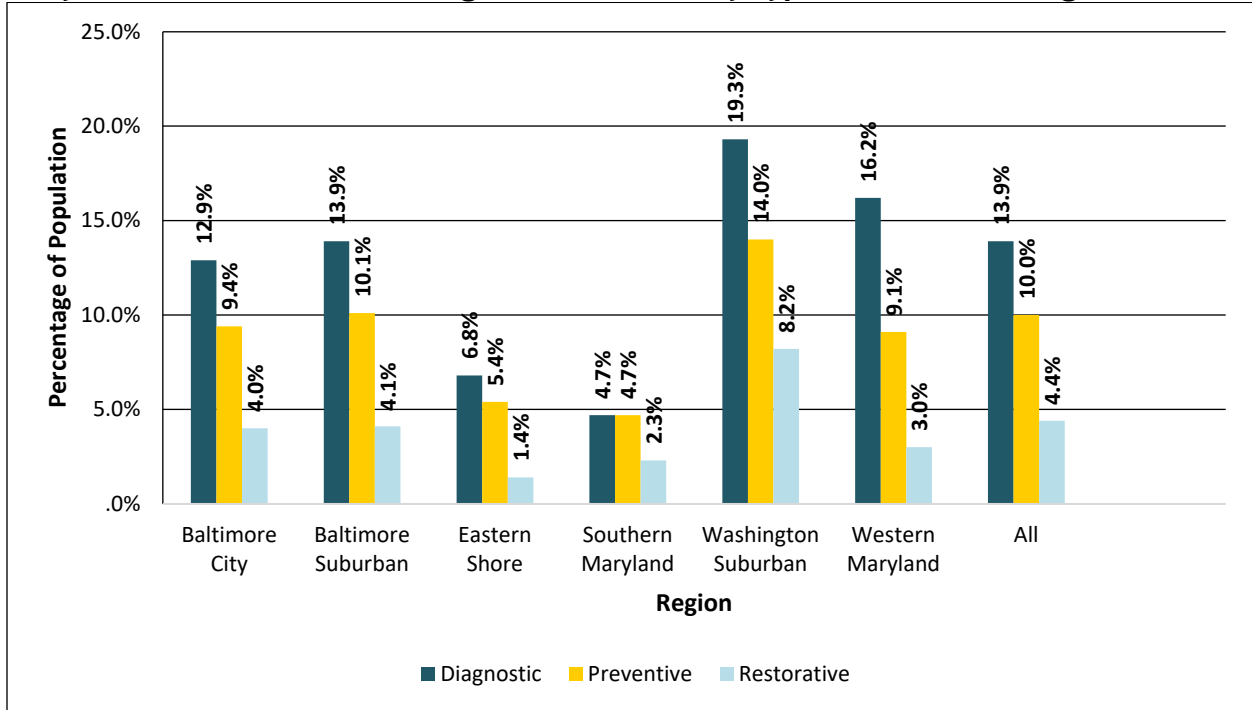


Table 96 presents the number and percentage of former foster care participants in Medicaid with at least one ED visit and a dental diagnosis. The program began in CY 2017, so CY 2016 shows participants' ED utilization prior to program implementation, and CY 2017 to CY 2021 show participants' utilization post-implementation. The percentages of total former foster care participants who had at least one ED visit with a dental diagnosis, or a primary dental diagnosis declined from 3.5% and 2.7% in CY 2016 to 1.1% and 0.9% in CY 2021, respectively. Users are enrollees who received dental services during the measurement period. The percentages of users with at least one ED visit with a dental diagnosis or a primary dental diagnosis declined from CY 2016 to CY 2021 by 10.1 and 7.3 percentage points, respectively.

**Table 96. Number and Percentage of Former Foster Care Participants in Medicaid with at Least One ED Visit and a Dental Diagnosis, CY 2016–CY 2021**

Calendar Year	Total Number of Participants	Total Unique Users	At Least One ED Visit with Dental Diagnosis			At Least One ED Visit with Primary Dental Diagnosis		
			Number of Participants	Percentage of Total Participants	Percentage of Users	Number of Participants	Percentage of Total Participants	Percentage of Users
2016	1,580	315	56	3.5%	17.8%	42	2.7%	13.3%
2017	1,689	323	45	2.7%	13.9%	31	1.8%	9.6%
2018	1,631	320	30	1.8%	9.4%	24	1.5%	7.5%
2019	1,468	322	33	2.2%	10.2%	26	1.8%	8.1%
2020	1,223	193	13	1.1%	6.7%	*	*	*
2021	1,242	182	14	1.1%	7.7%	11	0.9%	6.0%

Figures 24 to 26 present the percentages of former foster care, REM, and pregnant participants in Medicaid receiving any dental, restorative, or preventative-diagnostic services, by age group for CY 2016 to CY 2021. Former foster care participants are eligible for the dental program between the ages of 18 and 26,<sup>75</sup> and this analysis compares dental services of former foster care participants to REM and pregnant participants of similar age groups.

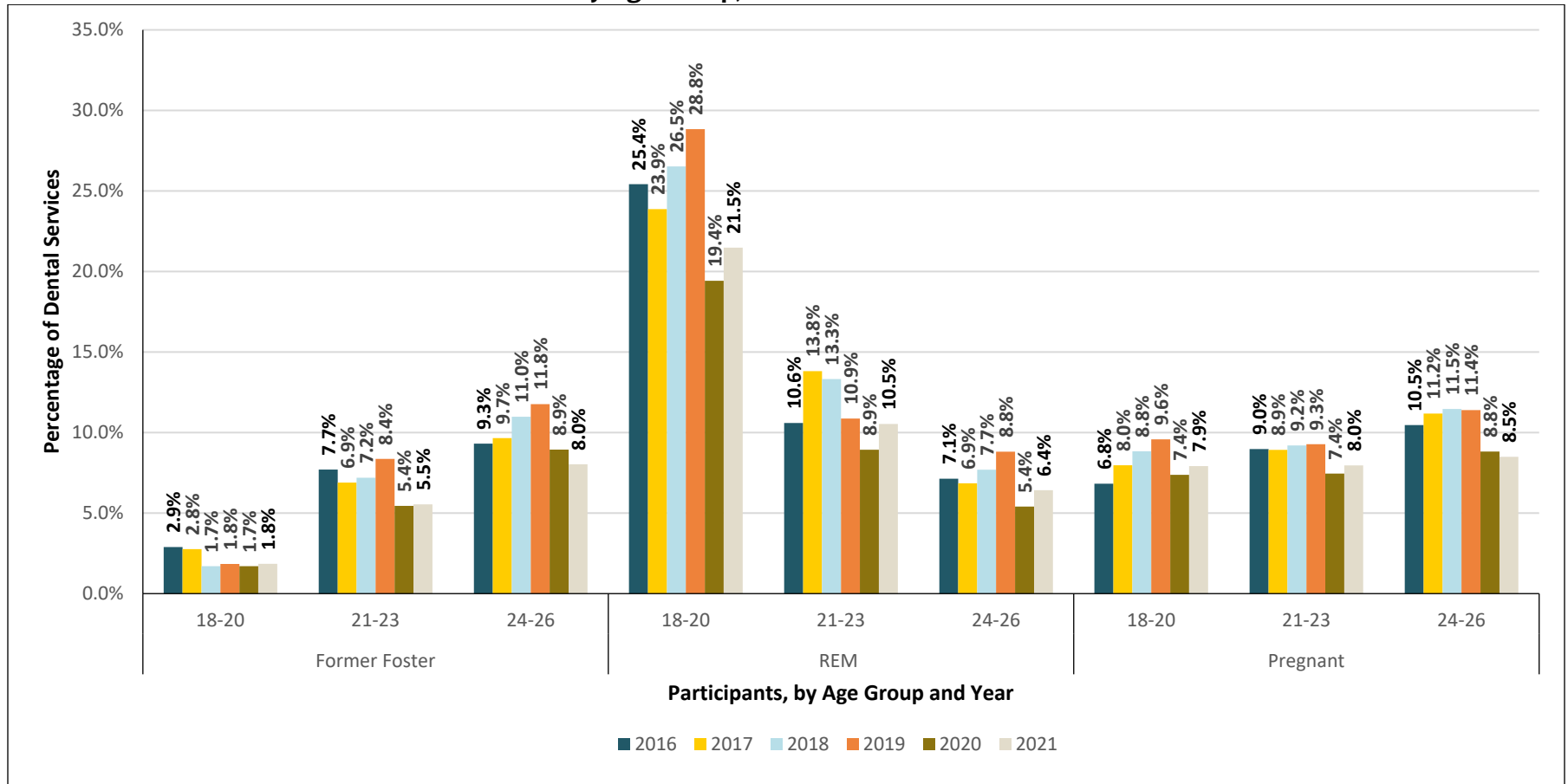
Among former foster care participants, the 24 to 26 years age group had the highest percentage of any dental services from CY 2016 to CY 2021. The percentage of former foster care participants aged 24 to 26 years with any dental service decreased by 1.3 percentage points from CY 2016 to CY 2021, while the percentages of participants in this age range receiving a restorative service or a preventive or diagnostic service decreased by 0.5 percentage points and 1.2 percentage points, respectively. In CY 2021, 8.0%, 2.0%, and 7.8% of former foster care participants aged 24 to 26 years received any dental service, restorative dental services, or preventative or diagnostic services, respectively.

REM participants aged 18 to 20 years had the highest percentage of dental services from CY 2016 to CY 2021. The percentage of REM participants aged 18 to 20 years with any dental service decreased from CY 2016 to CY 2021 by 3.9 percentage points, with the percentage of participants receiving a restorative service decreasing by 0.7 percentage points and participants receiving a preventive or diagnostic service decreasing by 3.2 percentage points. In CY 2021, 21.5%, 4.7%, and 21.1% of REM participants aged 18 to 20 years received any dental, restorative, and preventative-diagnostic services, respectively.

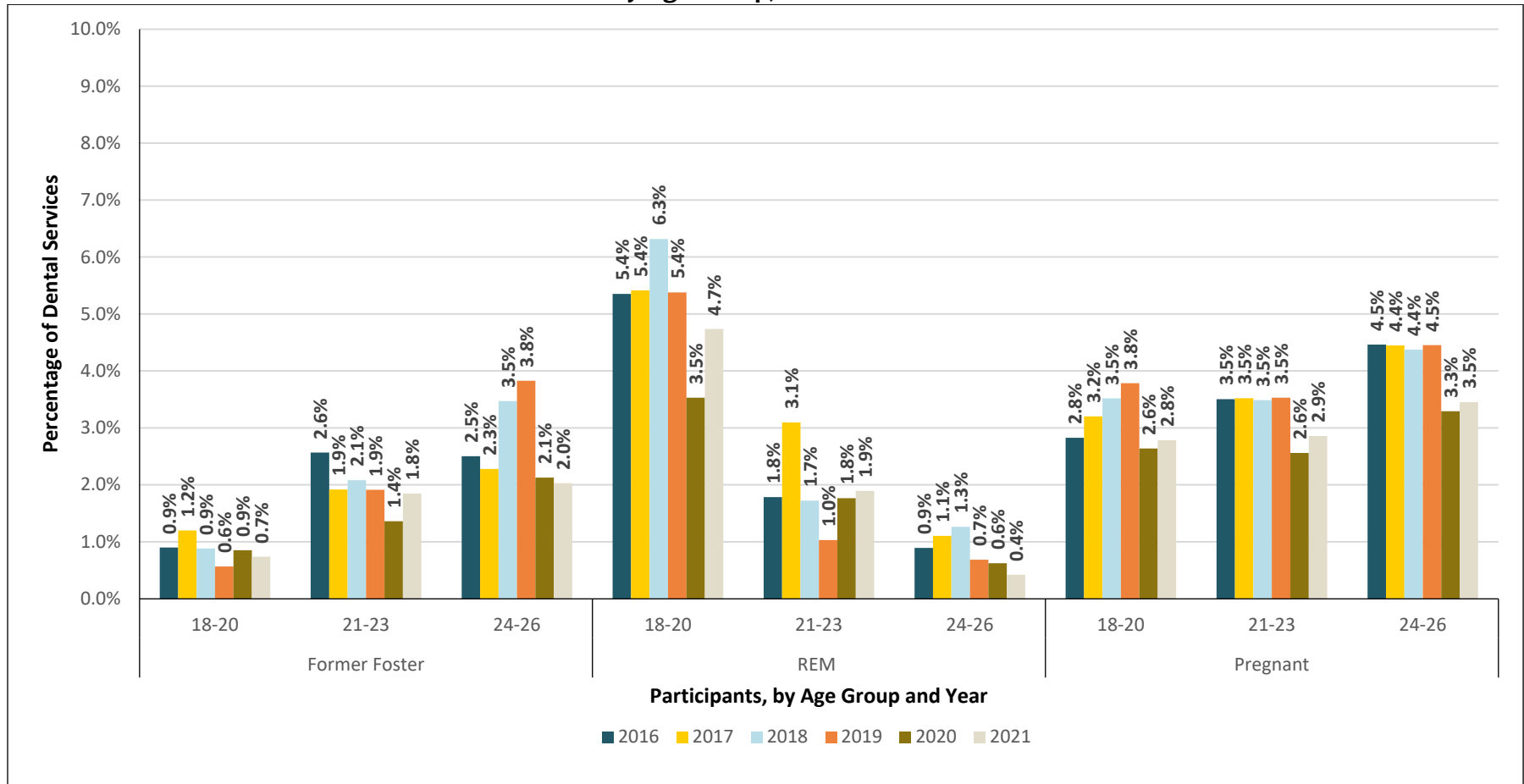
Similar to the former foster care participants, the 24 to 26 years age group had the highest rates of dental service usage among the pregnant population from CY 2016 to CY 2021. The percentage of pregnant participants aged 24 to 26 years with any dental services decreased by 2.0 percentage points from CY 2016 to CY 2021, while the percentage of participants receiving a restorative service decreased by 1.0 percentage point and the percentage receiving a preventive or diagnostic service decreased by 1.8 percentage points. In CY 2021, 8.5%, 3.5%, and 8.2% of pregnant participants aged 24 to 26 years received any dental service, restorative dental services, or preventative or diagnostic services, respectively.

<sup>75</sup> COMAR 10.09.05.04.

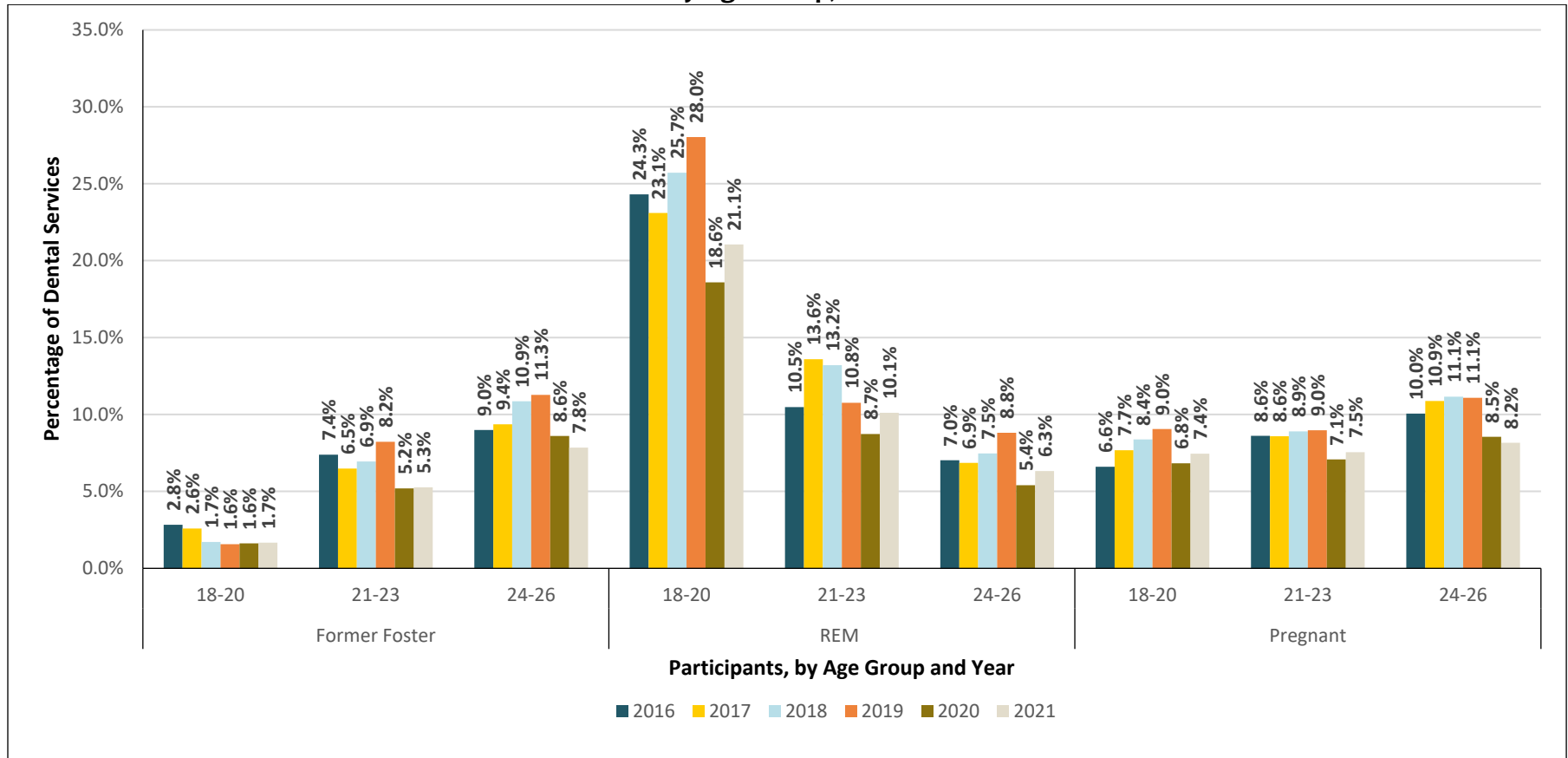
**Figure 24. Percentage of Former Foster Care, REM, and Pregnant Participants in Medicaid Receiving Any Dental Services by Age Group, CY 2016–CY 2021**



**Figure 25. Percentage of Former Foster Care, REM, and Pregnant Participants in Medicaid Receiving Restorative Dental Services by Age Group, CY 2016–CY 2021**



**Figure 26. Percentage of Former Foster Care, REM, and Pregnant Participants in Medicaid Receiving Preventative-Diagnostic Dental Services by Age Group, CY 2016–CY 2021**





### Adult Dental Pilot Program

On July 2, 2018, MDH submitted an amendment to its §1115 waiver for the adult dental pilot to provide dental services to adults between the ages of 21 and 64 who are eligible for both Medicare and Medicaid. Dually eligible individuals do not receive dental care through Medicaid; they receive limited coverage through Medicare. MDH received approval April 1, 2019, and implemented the program effective June 1, 2019. The adult pilot program was approved to continue in the next waiver renewal period through December 31, 2026. MDH’s aim is to determine whether adult dental benefits will improve health outcomes for vulnerable adults.

The pilot includes coverage for diagnostic, preventive, and restorative services, as well as extractions. In CY 2021, 5,040 (10.9%) participants in the pilot had at least one of any type of dental visit. 4,797 (10.4%) had a diagnostic visit, 2,856 (6.2%) had a preventive care visit, and 1,338 (2.9%) had a restorative visit (Table 97).

**Table 97. Number and Percentage of Adult Pilot Program Participants Enrolled for Any Period in Medicaid Receiving Dental Services, by Type of Service, CY 2021**

Dental Service	Any Dental Visit		Diagnostic		Preventive		Restorative	
	Number of Enrollees with Visit	Percentage with Visit	Number of Enrollees with Visit	Percentage with Visit	Number of Enrollees with Visit	Percentage with Visit	Number of Enrollees with Visit	Percentage with Visit
At least One Visit	5,040	10.9%	4,797	10.4%	2,856	6.2%	1,338	2.9%
No Services	41,033	89.1%	41,276	89.6%	43,217	93.8%	44,735	97.1%
<b>Total</b>	<b>46,073</b>	<b>100%</b>	<b>46,073</b>	<b>100%</b>	<b>46,073</b>	<b>100%</b>	<b>46,073</b>	<b>100%</b>

Table 98 presents the number and percentage of adult dental participants in Medicaid with at least one ED visit with a dental diagnosis or with a dental primary diagnosis. The adult dental pilot program began in 2019, so the period from CY 2016 to CY 2018 shows participants’ ED utilization prior to implementation of the program, and the period from CY 2019 to CY 2021 shows participants’ utilization after program implementation. Participants were eligible for the program if they were between the ages of 21 and 64 and were dually eligible for Medicare and Medicaid.<sup>76</sup> These same requirements were used to identify participants for inclusion in this analysis prior to implementation of the program. The percentages of total adult dental participants who had at least one ED visit with a dental diagnosis, or a primary dental diagnosis remained stable prior to implementation of the adult dental pilot program at 0.2% and 0.1%, respectively. After implementation of the pilot program in CY 2019 these rates increased to 0.8% and 0.5%, respectively, and then decreased slightly in 2021. In addition, the percentage of users (enrollees who received dental services during the evaluation period) with at least one ED visit with a dental diagnosis decreased by 3.8 percentage points during the evaluation period, and the percentage of users with at least one ED visit with a primary dental diagnosis declined by 1.9 percentage points.

<sup>76</sup> 2022 MD Laws Ch. 303.

**Table 98. Number and Percentage of Adult Dental Participants in Medicaid with at Least One ED Visit and a Dental Diagnosis, CY 2016–CY 2021**

Calendar Year	Total Number of Participants	Total Unique Users	At Least One ED Visits with Dental Diagnosis			At Least One ED Visits with Dental Primary Diagnosis		
			Number of Participants	Percentage of Total Participants	Percentage of Users	Number of Participants	Percentage of Total Participants	Percentage of Users
2016	53,826	1,234	121	0.2%	9.8%	60	0.1%	4.9%
2017	54,497	1,133	109	0.2%	9.6%	61	0.1%	5.4%
2018	51,757	1,164	96	0.2%	8.2%	53	0.1%	4.6%
2019	50,237	5,308	414	0.8%	7.8%	247	0.5%	4.7%
2020	45,181	4,760	334	0.7%	7.0%	168	0.4%	3.5%
2021	46,073	5,040	302	0.7%	6.0%	149	0.3%	3.0%

Table 99 presents the total Medicaid costs of adult dental participants. While the number of enrollees decreased from 54,497 in CY 2017 to 46,073 in CY 2021, the total fee-for-service Medicaid costs increased by \$202,974,157 throughout the measurement period.

**Table 99. Total Medicaid Costs of Adult Dental Participants, CY 2017–CY 2021**

Calendar Year	Total Fee-For-Service Costs	Total Enrollees	Average Cost per Enrollee	Total Member Months	Cost Per Member Month
2017	\$957,840,890	54,497	\$17,576	571,778	\$1,675
2018	\$991,398,079	51,757	\$19,155	544,317	\$1,821
2019	\$1,022,855,873	50,237	\$20,361	530,557	\$1,928
2020	\$1,053,825,881	45,181	\$23,325	498,418	\$2,114
2021	\$1,160,815,047	46,073	\$25,195	524,235	\$2,214

### **National Diabetes Prevention Program (DPP)**

MDH expanded coverage of the National DPP lifestyle change program to all eligible HealthChoice participants as of September 1, 2019. The National DPP is an evidence-based program established by the CDC to prevent or delay the onset of type 2 diabetes through healthy eating and physical activity. Hilltop partnered with MDH and MCOs to develop an algorithm that MCOs can use to search their members’ electronic medical records to identify individuals who may be at risk of developing type 2 diabetes and therefore potentially be eligible for enrollment in the DPP. MDH is also focusing on establishing needed infrastructure such as provider enrollment and MCO contracting. By identifying participants early through screening and testing for prediabetes, MDH hopes to reduce the incidence of diabetes and increase the quality of life for participants in the Maryland Medicaid program. This program also aligns with the population health goals under Maryland’s Total Cost of Care Model and the SIHIS initiative.

Since its implementation in September 2019 through December 31, 2021, there have been 418 DPP encounters. The earliest date of service was June 3, 2020. Of the 418 DPP encounters, 239 (57%) were in-person, 108 (26%) were in-person makeup sessions, and the remaining 71 (17%)

were conducted virtually. The average age of DPP participants was 49 years old (standard deviation: 10 years). The majority were women (80%), self-identified as Black/African American (65%), resided in Prince George’s County (45%) and were in the Families and Children Medicaid coverage group (91).

**Association between DPP Participation and Diabetes Incidence and Utilization**

Multivariate logistic models and multivariate linear models were used to analyze the impact of DPP participation on diabetes incidence, number of ED visits, and number of inpatient admissions. Table 100 presents the impact of DPP participation on diabetes incidence when controlling for demographic characteristics (race/ethnicity, age, gender, and county of residence), comorbidity levels, coverage group, MCO, and included year fixed effects.<sup>77</sup> Participation in the DPP program was associated with significantly lower odds of developing diabetes (p<0.05). A marginal increase in age was associated with an increase in the odd of developing diabetes (p<0.001). Compared to those in the Disabled coverage category, the Family and Children, MCHP, and “Other” coverage categories (including ACA) were associated with lower diabetes incidence (p<0.001). Increasing levels of comorbidity were positively associated with increasing odds of developing diabetes.

**Table 100. Associations between DPP Participation and Diabetes Incidence among HealthChoice Participants Aged 18-64 Years with Prediabetes, CY 2020–CY 2021**

Effect	Diabetes Incidence		
	Odds Ratio	95% CI	
<b>In DPP</b>	0.484 *	0.25	0.93
<b>Age</b>	1.014 ***	1.01	1.02
<b>Male†</b>	0.944 **	0.91	0.98
<b>Race†</b>			
<i>Black</i>	0.963	0.88	1.05
<i>White</i>	0.755 ***	0.69	0.83
<i>Hispanic</i>	0.972	0.86	1.09
<i>Other</i>	0.866 **	0.79	0.95
<b>County†</b>			
<i>Anne Arundel</i>	0.663 ***	0.55	0.79
<i>Baltimore City</i>	0.718 ***	0.61	0.85
<i>Baltimore County</i>	0.672 ***	0.57	0.79
<i>Calvert</i>	0.783	0.61	1.00
<i>Caroline</i>	0.886	0.67	1.17
<i>Carroll</i>	0.567 ***	0.45	0.72
<i>Cecil</i>	0.714 **	0.57	0.90
<i>Charles</i>	0.563 ***	0.46	0.69

<sup>77</sup> A person’s comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High) based on their claims records in the measurement years (2017 to 2021).

Effect	Diabetes Incidence		
	Odds Ratio	95% CI	
<i>Dorchester</i>	0.825	0.64	1.07
<i>Frederick</i>	0.609 ***	0.50	0.74
<i>Garrett</i>	1.303	0.95	1.78
<i>Harford</i>	0.698 ***	0.58	0.84
<i>Howard</i>	0.534 ***	0.44	0.65
<i>Kent</i>	0.667 *	0.48	0.93
<i>Montgomery</i>	0.588 ***	0.50	0.70
<i>Out of State</i>	0.931	0.51	1.69
<i>Prince George's</i>	0.625 ***	0.53	0.74
<i>Queen Anne's</i>	0.657 *	0.47	0.91
<i>Somerset</i>	0.582 ***	0.45	0.76
<i>St. Mary's</i>	0.664 ***	0.54	0.82
<i>Talbot</i>	0.707 *	0.52	0.97
<i>Washington</i>	0.653 ***	0.54	0.80
<i>Wicomico</i>	0.463 ***	0.38	0.57
<i>Worcester</i>	0.534 ***	0.42	0.68
<b>Last Coverage Cat. †</b>			
<i>Families &amp; Children</i>	0.704 ***	0.66	0.75
<i>MCHP</i>	0.387 ***	0.28	0.53
<i>Other</i>	0.808 ***	0.73	0.89
<b>Last MCO †</b>			
<i>Amerigroup</i>	1.039	0.91	1.18
<i>JAI</i>	1.269 **	1.07	1.51
<i>Kaiser</i>	0.760 **	0.65	0.89
<i>MPC</i>	1.098	0.96	1.25
<i>MedStar</i>	0.928	0.81	1.06
<i>Priority Partners</i>	1.061	0.93	1.21
<i>United</i>	0.967	0.85	1.10
<i>Univ of MD Health Partners</i>	1.106	0.96	1.28
<b>Comorbidity Score †</b>			
<i>Low</i>	0.368 ***	0.33	0.41
<i>Moderate</i>	0.596 ***	0.56	0.63
<i>Other</i>	0.474 ***	0.40	0.56
<i>Very High</i>	2.023 ***	1.90	2.15
<b>Year †</b>			
<i>2021</i>	0.915 ***	0.89	0.95
<b>Constant</b>	0.271 ***	0.21	0.35

\*\*\*p<0.001, \*\*p < 0.01, \*p<0.05

†, Reference Groups: Female, Asian, Allegany, Disabled, Aetna, High, 2020

Table 101 presents the impact of DPP participation on the number of ED visits demographic characteristics (race/ethnicity, age, gender, and county of residence), comorbidity levels, coverage group, MCO, and included year fixed effects.<sup>78</sup> DPP participation was not shown to significantly reduce the number of ED visits. Interestingly, a marginal increase in age was associated with a slight decrease in ED utilization ( $p < 0.001$ ). Compared to those in the Disabled coverage category, the Family and Children, MCHP, and “Other” coverage categories (including ACA) were associated with lower ED utilization ( $p < 0.001$ ). Increasing levels of comorbidity were positively associated with increasing number of ED visits.

**Table 101. Associations between DPP Participation and Number of ED Visits among HealthChoice Participants Aged 18-64 Years with Prediabetes, CY 2020–CY 2021**

Effect	Number of ED Visits		
	Coefficient	95% CI	
<b>In DPP</b>	-0.146	-0.42	0.13
<b>Age</b>	-0.038 ***	-0.04	-0.04
<b>Male†</b>	0.02	-0.04	0.08
<b>Race†</b>			
<i>Black</i>	0.491 ***	0.43	0.55
<i>White</i>	0.319 ***	0.25	0.39
<i>Hispanic</i>	0.193 ***	0.12	0.27
<i>Other</i>	0.143 ***	0.09	0.20
<b>County†</b>			
<i>Anne Arundel</i>	-0.059	-0.29	0.17
<i>Baltimore City</i>	0.671 ***	0.43	0.91
<i>Baltimore County</i>	0.059	-0.17	0.29
<i>Calvert</i>	0.081	-0.20	0.37
<i>Caroline</i>	0.132	-0.28	0.54
<i>Carroll</i>	-0.125	-0.39	0.14
<i>Cecil</i>	0.271 *	0.01	0.53
<i>Charles</i>	0.131	-0.12	0.38
<i>Dorchester</i>	-.728 ***	0.35	1.11
<i>Frederick</i>	-0.011	-0.26	0.24
<i>Garrett</i>	-0.140	-0.45	0.17
<i>Harford</i>	-0.078	-0.31	0.15
<i>Howard</i>	-0.235 *	-0.46	-0.01
<i>Kent</i>	0.342	0.00	0.69
<i>Montgomery</i>	-0.072	-0.29	0.15
<i>Out of State</i>	0.253	-0.54	1.05
<i>Prince George's</i>	-0.102	-0.32	0.12
<i>Queen Anne's</i>	0.508 **	0.17	0.85

<sup>78</sup> A person’s comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High) based on their claims records in the measurement years (2017 to 2021).

Effect	Number of ED Visits		
	Coefficient	95% CI	
<i>Somerset</i>	0.397 *	0.02	0.77
<i>St. Mary's</i>	0.406 **	0.13	0.68
<i>Talbot</i>	0.051	-0.25	0.35
<i>Washington</i>	0.009	-0.25	0.27
<i>Wicomico</i>	0.145	-0.10	0.39
<i>Worcester</i>	0.173	-0.09	0.43
<b>Last Coverage Cat.†</b>			
<i>Families &amp; Children</i>	-0.533 ***	-0.67	-0.40
<i>MCHP</i>	-1.411 ***	-1.60	-1.22
<i>Other</i>	-0.365 ***	-0.56	-0.17
<b>Last MCO†</b>			
<i>Amerigroup</i>	0.153 **	0.06	0.25
<i>JAI</i>	0.743 ***	0.40	1.09
<i>Kaiser</i>	-0.137 **	-0.23	-0.04
<i>MPC</i>	0.264 ***	0.16	0.37
<i>MedStar</i>	0.162 **	0.05	0.27
<i>Priority Partners</i>	0.192 ***	0.10	0.28
<i>United</i>	0.220 ***	0.12	0.32
<i>Univ of MD Health Partners</i>	0.261 ***	0.14	0.38
<b>Comorbidity Score†</b>			
<i>Low</i>	-0.764 ***	-0.83	-0.70
<i>Moderate</i>	-0.482 ***	-0.54	-0.42
<i>Other</i>	-0.507 ***	-0.59	-0.42
<i>Very High</i>	2.296 ***	2.19	2.41
<b>Year†</b>			
<i>2021</i>	0.084 ***	0.04	0.12
<b>Constant</b>	2.927 ***	2.61	3.24

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

†, Reference Groups: Female, Asian, Allegany, Disabled, Aetna, High, 2020

Table 102 present the impact of DPP participation on the number of inpatient admissions demographic characteristics (race/ethnicity, age, gender, and county of residence), comorbidity levels, coverage group, MCO, and included year fixed effects.<sup>79</sup> Participation in DPP was associated with lower inpatient admissions (p<0.01). Increasing age of participants was associated with a decrease in inpatient admission (p<0.001). Compared to those in the Disabled coverage category, the Family and Children and MCHP coverage categories (including ACA) were associated with lower inpatient utilization (p<0.001).

<sup>79</sup> A person's comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High) based on their claims records in the measurement years (2017 to 2021).

**Table 102. Associations Between DPP Participation and Number of Inpatient Admissions among HealthChoice Participants Aged 18-64 Years with Prediabetes, CY 2020–CY 2021**

Effect	Number of Inpatient Admissions		
	Coefficient	95% CI	
<b>In DPP Program</b>	-0.112 **	-0.20	-0.03
<b>Age</b>	-0.010 ***	-0.01	-0.01
<b>Male†</b>	-0.012	-0.03	0.00
<b>Race†</b>			
<i>Black</i>	0.023 *	0.01	0.04
<i>White</i>	0.057 ***	0.04	0.08
<i>Hispanic</i>	0.006	-0.02	0.03
<i>Other</i>	0.047 ***	0.03	0.07
<b>County†</b>			
<i>Anne Arundel</i>	-0.039	-0.11	0.03
<i>Baltimore City</i>	0.072 *	0.00	0.14
<i>Baltimore County</i>	-0.002	-0.07	0.07
<i>Calvert</i>	-0.059	-0.15	0.03
<i>Caroline</i>	-0.011	-0.16	0.14
<i>Carroll</i>	-0.043	-0.13	0.04
<i>Cecil</i>	-0.044	-0.13	0.04
<i>Charles</i>	-0.073	-0.15	0.00
<i>Dorchester</i>	-0.042	-0.14	0.06
<i>Frederick</i>	-0.055	-0.13	0.02
<i>Garrett</i>	-0.077	-0.19	0.04
<i>Harford</i>	-0.018	-0.09	0.05
<i>Howard</i>	-0.043	-0.11	0.03
<i>Kent</i>	-0.020	-0.15	0.11
<i>Montgomery</i>	-0.058	-0.13	0.01
<i>Out of State</i>	0.331	-0.06	0.72
<i>Prince George's</i>	-0.016	-0.08	0.05
<i>Queen Anne's</i>	-0.014	-0.14	0.11
<i>Somerset</i>	-0.105 *	-0.20	-0.01
<i>St. Mary's</i>	-0.017	-0.09	0.06
<i>Talbot</i>	-0.087	-0.20	0.02
<i>Washington</i>	-0.041	-0.12	0.04
<i>Wicomico</i>	-0.116 **	-0.19	0.04
<i>Worcester</i>	-0.143 **	-0.23	-0.06
<b>Last Coverage Cat. †</b>			
<i>Families &amp; Children</i>	-0.119 ***	-0.15	-0.09
<i>MCHP</i>	-0.359 ***	-0.40	-0.31
<i>Other</i>	0.021	-0.02	0.06

Effect	Number of Inpatient Admissions		
	Coefficient	95% CI	
<b>Last MCO†</b>			
<i>Amerigroup</i>	0.008	-0.02	0.04
<i>JAI</i>	0.106 **	0.04	0.17
<i>Kaiser</i>	0.030	0.00	0.06
<i>MPC</i>	0.015	-0.02	0.05
<i>MedStar</i>	-0.025	-0.05	0.00
<i>Priority Partners</i>	0.025	0.00	0.05
<i>United</i>	0.009	-0.02	0.04
<i>Univ of MD Health Partners</i>	0.061 **	0.02	0.10
<b>Comorbidity Score†</b>			
<i>Low</i>	-0.068 ***	-0.08	-0.05
<i>Moderate</i>	-0.098 ***	-0.11	-0.09
<i>Other</i>	-0.027 *	-0.05	0.00
<i>Very High</i>	0.801 ***	0.77	0.83
<b>Year†</b>			
<i>2021</i>	0.008	0.00	0.02
<b>Constant</b>	0.765 ***	0.68	0.85

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

†, Reference Groups: Female, Asian, Allegany, Disabled, Aetna, High, 2020

### DPP Provider Interviews

To enrich our quantitative analysis of the program, we conducted interviews with representatives from four DPP providers operating regionally in Maryland, statewide, or across multiple states to discuss their experiences with and thoughts on the DPP. We spoke with interviewees over a virtual platform and followed an interview guide approach, wherein we asked a predetermined list of questions for each interview (see Appendix D for the list of questions) and often added follow-up questions during the interview in response to what was being discussed.

### Findings

Everyone we spoke with represented organizations whose DPP programs had full recognition, meaning that they are recognized as fully meeting the CDC standards for a National DPP program provider for a period of three years before they will need to be reevaluated for continued recognition, or “full plus” recognition, meaning that they have achieved the same recognition for five years by meeting additional retention requirements at several intervals after a cohort begins (CDC, 2021a). Providers must submit data every six months on all ongoing DPP cohorts regardless of their recognition status, although one provider operating statewide noted that their practice is to submit data more frequently than is required.



To qualify for participation in the DPP, patients must be prediabetic based on results from laboratory A1c and glucose tests. Providers receive most of their enrolled participants from referrals, though occasionally individuals enroll in programs on their own. There is variation among providers in the entities sending them referrals and the forms those referrals take: two providers explained that many or most of their referrals come from healthcare providers, often patients' primary care providers, with one noting that this is an effective way to facilitate enrollment in the program given the importance many patients place on their doctors' recommendations. The other two providers described how they mainly receive referrals from the MCOs with whom they contract, and referrals are delivered in the form of a list of all patients who qualify for participation in the program based on test results indicating they are prediabetic. Both expressed that these large lists do not necessarily translate to participants enrolling in their DPP programs.

The conversion rate from referrals to program participants generally depends on successful outreach: DPP providers reach out through email or by phone to inform participants that they qualify. One provider whose work centered on Prince George's and Montgomery Counties and Baltimore City noted that, after reaching out to the list of referrals provided to them by the MCOs, around one tenth are likely to enroll, and fewer still may attend the sessions consistently. Another provider, which operates nationwide, noted that the Medicaid population is especially difficult to reach for enrollment because their low incomes mean that lifestyle change is a low priority. One provider, representing the DPP services offered directly by one of Maryland's managed care organizations, reported that incompatible schedules discourage many patients from enrolling.

When participants enroll in a DPP program, they fill out an electronic intake form. One interviewee reported that their organization's form collects data on a participant's social determinants of health in addition to the standardized national DPP questions.

All interviewees indicated that their programs use National DPP curricula developed by the CDC, delivered by lifestyle coaches trained by one of the recognized training entities under the National DPP. Three providers we spoke to currently offer only virtual services, while the fourth offers both in-person classes and classes that combine in-person and virtual.

In addition to the main sessions taught by lifestyle coaches, the providers we spoke with offer a range of additional services, including one-on-one sessions with their lifestyle coaches, meetings with fitness instructors and nutritionists with whom one provider partners, spa services offered as an incentive for accomplishing milestones in the program, cooking demonstration videos, and food distribution through a nonprofit partnership to participants in need of food.

The level of language services offered varies by provider: one interviewee reported having full Spanish-speaking and American Sign Language cohorts, while another had tried implementing Spanish-language classes virtually but experienced difficulties in effectively engaging the class and hoped to provide a future Spanish-speaking class in person. A third provider we spoke with explained that their organization usually refers Spanish-speaking eligible individuals elsewhere

for DPP care but described some instances when bilingual relatives who were not enrolled attended as translators alongside Spanish-speaking participants.

Providers reported using several metrics to measure the success of their programs, including retention (measured through continued session attendance), weight loss, A1c measurements, hypertension measurements, self-reported diet and exercise improvements, and qualitative feedback from participants. By these measures, providers reported that their programs have been largely successful, with each provider pointing to different metrics in which their program had seen particularly positive results.

Dedicated and qualified coaches were among the factors that interviewees reported contributing to the success of their programs' service delivery. One provider discussed how their person-centered approach, with small classes and the option for additional one-on-one sessions with the trainer that teaches the main sessions, made for success in their retention rates. The providers who contracted MCOs use integrated medical record systems identified these systems and their facilitation of data analysis and seamless communication of patient health data with participants' PCPs as major boons, and one provider also noted that the CDC's recognition of virtual DPP programs as a valid treatment modality contributed to successful service delivery.

Providers identified several challenges they face in enrolling participants and providing them with DPP services: patients' competing priorities and schedules complicate the task of persuading them to enroll in a DPP program once they are referred. Furthermore, interviewees noted issues with the immediacy of the labs that trigger referrals: one provider reported receiving some referrals based on labs that were performed over half a year prior, resulting in a lack of clarity as to whether referred individuals were still prediabetic at the time of outreach. While some of the providers we spoke with noted great success in their retention rates, one provider reported struggles in this area, citing attrition as a constant issue, and some organizations continue to face difficulties in offering language services. Another interviewee indicated that their organization faces issues with staffing since their lifestyle coaches have many traditional patients in addition to their DPP responsibilities. Multiple providers noted difficulties navigating the billing process, including coding for Medicaid: one provider expressed a desire that the Medicaid coding process for the DPP program be simplified. Two of the providers we spoke with noted that they don't currently coordinate with participants' PCPs beyond occasional referrals that come directly from them, with one interviewee in particular identifying the lack of coordination with PCPs as a major hurdle to effective service delivery and retention; they expressed optimism that establishing a data sharing agreement with PCPs could be accomplished using the release forms that participants already sign when enrolling in their DPP program.

Compensation is an issue for most of the providers we spoke with. One interviewee reported that their organization is not compensated for their outreach activities even though outreach makes up a large part of their workload. One provider described how their comprehensive intake process, one-on-one sessions with participants, and incentives for reaching milestones have played a major role in helping them reach "full plus" recognition but are not reimbursable. Other providers expressed concerns about low compensation from Medicaid for DPP services overall,

with one provider noting that compensation for their DPP services covers the cost of providing the services but yields little profit. Another interviewee's organization contracts with only one of Maryland's 9 MCOs because the rates that the others offer for DPP services are too low.

Other suggestions that interviewees shared for improving the program include the following: offering training to providers to help them understand the DPP and encouraging them to refer patients who are prediabetic to DPP providers; providing people who have prediabetes (and thus qualify for the program) with comprehensive educational materials and information on locating a DPP provider in their health plan's network; convening a task force where providers could meet with MCOs to discuss how to improve coordination of DPP service delivery; implementing supports for an umbrella hub organization in Maryland, an arrangement wherein an organization with full or preliminary recognition shares infrastructure costs and best practices with a group of organizations and wherein the CDC performs a single evaluation of aggregated data from these organizations to determine their recognition status (CDC, 2021a); and Medicare recognition of virtual DPP services as a valid treatment modality.

### **Increased Community Services (ICS)**

The ICS program provides cost-effective HCBS to certain adults with physical disabilities as an alternative to institutional care in a nursing facility (NF). The goal of the program is to provide quality services for individuals aged 18 and over in the community, ensure the safety and wellbeing of its participants, and increase opportunities for self-advocacy and self-reliance. Identical to MDH's Community Options §1915(c) waiver in all aspects except financial eligibility, the ICS program was initially approved as part of the HealthChoice demonstration in 2009. The 2016 waiver renewal expanded the program from 30 to 100 potential participants. The 2021 waiver renewal allows the program to continue to enroll up to 100 potential participants. The number of participants in the ICS program decreased from 30 in CY 2017 to 28 in December 2021.

Data from *LTSSMaryland* were used to identify enrollees who were eligible for the ICS program. During the evaluation period, 119 long-stay NF residents were eligible to transition from a NF to a community setting under the ICS program. Nineteen of these participants (16%) successfully transitioned under the ICS program.

### **Family Planning Program**

The 2016 HealthChoice waiver allows MDH to provide a limited benefit package of family planning services to eligible participants through the end of 2021. As of January 2022, family planning services were no longer covered through the §1115 waiver. The program covers medical services related to family planning, including office and clinic visits, physical examinations, certain laboratory services, treatments for sexually transmitted infections, family planning supplies, permanent sterilization and reproductive health counseling, education, and referrals.

In CY 2017, women younger than 51 years—regardless of postpartum status—who were not otherwise eligible for Medicaid, CHIP, or Medicare and who had a family income at or below 200% of the FPL were eligible for the Family Planning program. MDH expanded eligibility under its Family Planning program to lift the age limit, open coverage to include men, and cover services for postpartum individuals effective July 1, 2018. Specifically, the §1115 waiver allowed women to receive full Medicaid benefits for two months postpartum. As of April 2022, MDH has expanded postpartum care services to 12 months regardless of any changes in income or household size through a state plan amendment.<sup>80</sup> This aligns with Maryland’s SIHS priority to improve maternal and child health. Those who no longer qualify for Medicaid pregnancy benefits after the end of the postpartum period because they exceed income limits will be automatically enrolled in the Family Planning program for 12 months. After 12 months, these women can re-apply to continue their enrollment.

Table 103 shows that Family Planning program enrollment increased by 24.5% from CY 2017 to CY 2019, followed by a 15.5% decrease from CY 2019 to CY 2021. The initial increase in enrollment from CY 2018 to CY 2019 may be attributed to expanded eligibility in July 2018.

**Table 103. Number and Percentage of Family Planning Participants (Any Period of Enrollment) Who Received a Corresponding Service, CY 2017–CY 2021**

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Number of Participants</b>	13,154	13,680	16,375	14,748	13,838
<b>Number with at Least 1 Service</b>	2,271	1,901	2,034	1,634	1,156
<b>Percentage with at Least 1 Service</b>	17.3%	13.9%	12.4%	11.1%	8.4%

The percentage of participants enrolled in the Family Planning program for 12 months with at least one service decreased from 13.7% in CY 2017 to 8.0% in CY 2021, despite a slight increase to 10.5% in CY 2020 (Table 104). The number of participants with 12 months of enrollment in the program also decreased between CY 2017 and CY 2019, but increased substantially in CY 2020 and CY 2021, for an overall increase of 76.9% over the evaluation period.

**Table 104. Number and Percentage of Family Planning Participants (12-Month Enrollment) Who Received a Corresponding Service, CY 2017–CY 2021**

	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
<b>Number of Participants</b>	6,314	5,965	5,962	10,331	11,171
<b>Number with at Least 1 Service</b>	862	654	507	1,083	897
<b>Percentage with at Least 1 Service</b>	13.7%	11.0%	8.5%	10.5%	8.0%

While the number of women enrolled in the Family Planning program for any period of enrollment decreased from CY 2019 to CY 2021, the number of women enrolled continuously increased dramatically, most likely due to continuous Medicaid eligibility required under MOE. Women who lose Medicaid coverage after their postpartum period are automatically enrolled in the Family Planning program, and their coverage auto-renews annually (previously coverage was

<sup>80</sup> <https://health.maryland.gov/newsroom/Pages/Maryland-Department-of-Health-announces-expanded-Medicaid-coverage-for-new-mothers.aspx>

limited up to five years). However, some women may be unaware that they are enrolled in the program because no action is required on their part. Consequently, they may not seek services or know they are eligible to receive them.

### **Family Planning Program Participation and Use of Highly Effective Contraceptives**

Table 105 presents the logistic regression results for estimating the odds of a HealthChoice participant to utilize highly effective contraceptives based on their participation in the family planning program during the prior year (the year before the measurement period).<sup>81</sup> The U.S. Department of Health and Human Services Office of Population Affairs (OPA) defines highly effective contraception as female sterilization, hormonal implants, or intrauterine devices or systems (IUD/IUS). The cohort is women between the ages of 15 and 44 that were enrolled in the family planning program for at least 10 months during the calendar year to align with the inclusion criteria from the OPA. In addition to program participation, the regression controlled for demographic characteristics (race/ethnicity and sex), comorbidity levels,<sup>82</sup> last coverage group, and region of residence.

HealthChoice enrollees who participated in the family planning program the previous year had an increased likelihood of using highly effective contraceptives by 60.7% ( $p < 0.001$ ) in CY 2017. In CY 2019 through CY 2021, while the point estimates suggest a positive correlation, the model results do not have a statistically significant relationship. Compared to women aged 15 to 24, women ages 25 to 34 had a higher likelihood of using highly effective contraceptives, and women ages 35 to 44 had lower odds across the evaluation period. Hispanic women and Other races were more likely to use highly effective contraceptives than White women throughout the evaluation period. The model suggests that Black women were slightly less likely than White women to use highly effective contraceptives from CY 2018 to CY 2021. There was no statistically significant difference between Asian and White women.

Those with moderate, high, and very high comorbidities were all significantly more likely to utilize highly effective contraceptives than those with low comorbidities. In particular, participants with high comorbidity scores had between 2.8 and 6.7 times the likelihood of utilizing highly effective contraceptives ( $p < 0.001$ ). Residents of Baltimore Suburban, Eastern Shore, Southern Maryland, and Western Maryland regions all had between 7.2% and 40.2% higher odds of utilizing highly effective contraception compared to Washington Suburban residents ( $p < 0.001$ ).

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<sup>81</sup> Please see Appendix E for the confidence intervals (CI).

<sup>82</sup> A person's comorbidity level is estimated based on the Johns Hopkins ACG methodology. For this analysis, Hilltop assigned individuals to one of five comorbidity categories (Low, Moderate, High, Very High, Other) based on their claim records in the measurement years (CY 2017 to CY 2021).

**Table 105. Associations between Utilization of Highly Effective Contraception and Participation in the Family Planning Program during the Prior Year, among Female HealthChoice Participants Aged 15–44 Years, CY 2017–CY 2021**

Effect	Use of Highly Effective Contraceptive Care				
	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
	OR	OR	OR	OR	OR
<b>Family Program Participation (1 year Lag)</b>	1.607 ***	2.388 **	1.569	1.17	1.507
<b>Age Group</b>					
25 to 35	1.103 ***	1.096 ***	1.169 ***	1.233 ***	1.246 ***
36 to 45	0.625 ***	0.620 ***	0.725 ***	0.773 ***	0.856 ***
<b>Last Coverage Category†</b>					
Disabled	0.449 ***	0.500 ***	0.483 ***	0.476 ***	0.553 ***
Families & Children	0.832 ***	0.839 ***	0.750 ***	0.943	0.895 *
MCHP	0.433 ***	0.504 ***	0.379 ***	0.512 ***	0.506 ***
<b>Region†</b>					
Baltimore Suburban	1.237 ***	1.196 ***	1.125 ***	1.074 **	1.04
Eastern Shore	1.341 ***	1.405 ***	1.274 ***	1.106 **	1.061
Southern Maryland	1.196 ***	1.213 ***	1.153 **	1.186 **	1.219 ***
Western Maryland	1.335 ***	1.274 ***	1.166 ***	1.225 ***	1.127 **
<b>Race†</b>					
Asian	0.968	1.036 ***	0.914	0.954	0.962
Black	1.000	0.911 ***	0.876 ***	0.891 ***	0.854 ***
Hispanic	1.482 ***	1.384 ***	1.323 ***	1.360 ***	1.303 ***
Other	1.262 ***	1.236 ***	1.187 ***	1.270 ***	1.276 ***
<b>Comorbidity Score†</b>					
Moderate	2.230 ***	2.127 ***	1.674 ***	2.155 ***	2.253 ***
High	6.079 ***	5.916 ***	2.799 ***	6.620 ***	6.187 ***
Very High	2.768 ***	2.675 ***	1.742 ***	2.893 ***	3.050 ***

\*\*\* p<.001, \*\*p<.01, \*01, \*p<.05

†, Reference Groups: 15 to 24 Years, Washington Suburbs, White, Low

### Collaborative Care

MDH received approval to implement a CoCM pilot in April 2020, and coverage for collaborative care services began in July 2020. The CoCM pilot program integrates physical and behavioral health services in primary care settings to address the mental health and/or SUD needs of Maryland HealthChoice participants who have not previously received effective treatment. Participants receive services from an enhanced care team consisting of a treating practitioner, a behavioral health case manager, and a psychiatric consultant at one of three pilot sites operated

by the Privia Medical Group, one of which is located in a rural area (Maryland Department of Health, 2022a). A variety of services can be provided by this care team. However, the treating practitioner only bills using select current procedural terminology (CPT) codes and is reimbursed through an FFS payment arrangement.

Hilltop’s analysis includes Medicaid participants enrolled in FFS who were non-dually eligible for Medicare with a behavioral health diagnosis and did not receive services through the ASO. Enrollees were identified if they had a claim for behavioral health services but did not receive services through the ASO for the same conditions (i.e., depression, SUD, mental health, co-occurring, or any behavioral health). Hilltop receives files containing information on billing and the services provided to participants. However, these services are recorded as categorical interventions such as “Chart Review,” “Psychiatric Consultation Review,” and “Brief Check In,” so it is not always clear whether treatment or other clinical services were provided during any given intervention. Therefore, for the purposes of this evaluation, participants are considered to have had at least one clinical contact in a month if there is a record of their provider billing for services in that month since providers are only expected to bill if treatment is provided.

Table 106 shows the number of CoCM participants who received at least one clinical contact each month from April 2020 to June 2022 and the percentage of “Active” participants who received a clinical contact at the end of the last month of an FY quarter.<sup>83</sup> Overall, the number of participants who received a clinical contact increased over the evaluation period: from 14 in April 2020 to 114 in June 2022. Additionally, nearly all active participants received at least one clinical contact in the months for which active participant data were available.

**Table 106. Number of CoCM Pilot Program Participants Who Received at Least One Clinical Contact by Month, April 2020–June 2022**

Month & Year	Participants Who Received a Clinical Contact	Active Participants as of the End of the Month*
April 2020	14	
May 2020	33	
June 2020	50	47
July 2020	50	
August 2020	62	
September 2020	68	65
October 2020	58	
November 2020	57	
December 2020	70	67
January 2021	77	
February 2021	73	
March 2021	84	78
April 2021	75	

<sup>83</sup> Because of the structure of the files, participant status in the CoCM pilot program (“Active,” “Completed,” “Pending,” or “Not Enrolled”) is only available as of the end of the last month of each FY quarter.



Month & Year	Participants Who Received a Clinical Contact	Active Participants as of the End of the Month*
May 2021	75	
June 2021	78	79
July 2021	80	
August 2021	86	
September 2021	84	89
October 2021	80	
November 2021	94	
December 2021	83	89
January 2022	81	
February 2022	86	
March 2022	94	92
April 2022	104	
May 2022	113	
June 2022	114	118

\*Participant status only available as of the end of each FY quarter.

One method of tracking the treatment progress of participants in the CoCM Pilot Program is by tracking changes in their scores over time on the Patient Health Questionnaire-9 (PHQ-9) screening for depression (Kroenke, et al., 2001). Scores on the PHQ-9 can range from 0 to 27, with scores of 10 and above indicating moderate to severe depression and scores below 10 indicating mild to minimal depression. Table 107 shows the number and percentage of unique (i.e., unduplicated) participants with at least one clinical contact who received at least one PHQ-9 screening for depression by FY quarter. With the exception of the first two quarters, more than 90% of unique participants with a clinical contact had a PHQ-9 screening in each FY quarter.

**Table 107. Unique and Total CoCM Participants Who Received at Least One PHQ-9 Screening and at Least One Clinical Contact by Quarter, Q4 FY 2020–Q4 FY 2022**

Quarter and FY	Unique Participants Who Received at Least One PHQ-9 Screening	Unique Participants Who Received at Least One Clinical Contact	Percent Unique*
Q4 FY 2020	36	59	61.0%
Q1 FY 2021	53	92	57.6%
Q2 FY 2021	88	95	92.6%
Q3 FY 2021	100	104	96.2%
Q4 FY 2021	94	101	93.1%
Q1 FY 2022	107	112	95.5%
Q2 FY 2022	113	115	98.3%
Q3 FY 2022	119	126	94.4%
Q4 FY 2022	141	145	97.2%

\*Denominator is unique participants who received at least one clinical contact.



Table 108 presents the number of CoCM participants who received at least one PHQ-9 screening, were enrolled for at least 70 days in the pilot program and had either 1) a 50% reduction from their first recorded screening score to their last recorded score or 2) a drop from their first recorded screening greater than or equal to 10 to less than 10 on their last recorded screening. Of the 264 participants with a recorded screening and who were enrolled for 70 days or more, 40.9% (n = 108) were reported to have a substantial decrease in their screening scores.

**Table 108. Number and Percentage of CoCM Participants Enrolled for at Least 70 Days Who Had Large Recorded Decreases in PHQ-9 Screening Scores, Q4 FY 2020–Q4 FY 2022**

Measure	Number	Percentage*
Participants Who Received At Least One PHQ-9 Screening, <i>Were Enrolled for At Least 70 Days, and Had Either a 50% Reduction from First Recorded to Last Recorded Screening, or a Drop from First Recorded Screening to a Score of Less Than 10</i>	108	40.9%
Participants Who Received At Least One PHQ-9 Screening <i>and Were Enrolled for At Least 70 Days</i>	264	100%

\*Denominator is the number of participants who received at least one screening and were enrolled for at least 70 days.

Table 109 shows the number of participants who received at least one PHQ-9 screening, as well as the number and percentage of these participants whose last recorded screening score was less than 5. As mentioned above, a PHQ-9 score below 5 suggests minimal depression. Approximately 25% (n = 102) of the 411 CoCM participants who received at least one screening had a score below 5 for their last recorded PHQ-9 score.

**Table 109. Number and Percentage of CoCM Participants Who Received at Least One PHQ-9 Screening and Whose Last Recorded PHQ-9 Score Was Below 5, Q4 FY 2020–Q4 FY 2022**

Measure	Number	Percentage*
Total Number of Participants Who Received at Least One PHQ-9 Screening and Whose Last Recorded PHQ-9 Score was Below 5	102	24.8%
Total Number of Participants Who Received at Least One PHQ-9 Screening	411	100%

\*Denominator is number of participants who received at least one screening.

Data on participants with a claim for specialty behavioral health services paid by the ASO within 30 days of discharge from the CoCM pilot program between April 2020 to June 2022 are presented in Tables 110 and 111. A participant was considered discharged based on the discharge date provided in the CoCM files, though these files do not describe the reason for discharge. Of the 325 participants who were discharged from the CoCM program, 70 (21.5%) had at least one subsequent claim for specialty behavioral health services (Table 110). The majority (64.3%) had five or fewer claims.

**Table 110. Number of Participants with at Least One Claim for Specialty Behavioral Health Services within 30 Days of Discharge from the CoCM Pilot Program, April 2020–June 2022**

Number of Claims for Specialty Services	Number of Participants	Percentage of Discharged Participants with a Claim	Percentage of All Discharged Participants
1	18	25.7%	5.5%
2	*	*	*
3	*	*	*
4	*	*	*
5	*	*	*
6 to 10	16	22.9%	4.9%
More than 10	*	*	*
<b>Total</b>	<b>70</b>	<b>100%</b>	<b>21.5%</b>
<b>Total Discharged Participants</b>	<b>325</b>		

\*Cell values of 10 or less have been suppressed.

Table 111 shows the provider specialty type that was recorded on each of the 436 total identified claims. The provider types with the highest percentage of submitted claims were “Outpatient Mental Health Clinic” (n = 116, 26.6%), “Substance Use Disorder Program” (n = 97, 22.6%), and “Clinic, Drug” (n = 90, 20.6%). There were fewer claims with provider types associated with more intensive forms of treatment, such as “Acute Hospitals” and “IMD Residential SUD Adult” (n = 32, 7.3%). While it is not possible to know what services were provided and the reason, the fact that the former three provider types combined equaled 69.8% of all claims suggests most treatment received soon after discharge from the CoCM was in an outpatient, non-emergent setting.

**Table 111. Provider Type Listed on Each Claim by CoCM Participants within 30 Days of Discharge from the CoCM Pilot Program, April 2020–June 2022**

Provider Type	Claim Count	Percentage of Total
Acute Hospitals	*	*
Certified Professional Counselor LPCP, LCMFT, LCADC, or LCPAT	*	*
Clinic, Drug	90	20.6%
IMD Residential SUD Adult	32	7.3%
Laboratories	26	6.0%
Mental Health Case Management Provider	*	*
Nurse Practitioners (CRNP)	39	8.9%
Outpatient Mental Health Clinic	116	26.6%
Physician	*	*
Physician Assistant	*	*
Psychiatric Rehab Services Facility	*	*
Psychologist	*	*
Social Worker (LCSW-C)	*	*
Special Other Chronic Hospital	*	*
Substance Use Disorder Program	97	22.2%
<b>Total</b>	<b>436</b>	<b>100%</b>

\*Cell values of 10 or less have been suppressed

## Section VII Conclusion

Resources generated through managed care efficiencies allowed MDH to establish innovative programs to improve the health status of the HealthChoice population. The year 2017 saw the beginning of three initiatives. Residential Treatment for Individuals with SUD was made possible through a §1115 waiver of Medicaid's limitations for coverage of care in IMDs and is intended to improve outcomes for those with SUD. SUD-related ED utilization improved after IMD treatment for an SUD most calendar years, while results for the changes in IOP visits and MAT visits after IMD treatment were mixed. The HVS pilot program is serving high-risk pregnant women and children up to age two; preliminary results show that the majority of mothers had at least one ambulatory care visit and all children had at least one well-care visit within the first 15 months. Findings from an interview with one of the pilot's lead entities offer qualitative data on the program's success and attribute it largely to the program's ease of implementation, collaboration between county-level public entities, and flexibility in meeting clients' individual needs. The ACIS Pilot program serves individuals with complex health care needs who are at risk of institutionalization and/or homelessness. Most participants in the ACIS program were homeless at the time of enrollment (approximately 80%), but 77% of participants achieved stable housing during their ACIS enrollment. The percentage of participants with at least one ED visit decreased by 11.0 percentage points from the pre-ACIS period to the post-ACIS period, while the proportion with at least one avoidable ED visit decreased by 7.0 percentage points.

An expansion of dental services was created for two groups: former foster care participants receiving dental coverage up to age 26, and a pilot program offering dental coverage to adults who are dually eligible for both Medicare and Medicaid began in 2019. After dental coverage was expanded to former foster care participants in CY 2017, the percentage of former foster care participants who had at least one ED visit with a dental diagnosis declined from 3.5% in CY 2016 to 1.1% in CY 2021. During the second full year of the adult dental program in CY 2021, 10.9% of the participants had at least one dental visit, a 2.7 percentage point increase from CY 2020. Access to the National DPP lifestyle change program was expanded to all eligible HealthChoice participants as of September 1, 2019, to reduce the risk of type 2 diabetes and improve their health. Regression analyses indicate that participants in the DPP are significantly less likely to develop diabetes and experience far fewer inpatient admissions than other HealthChoice members, and in a series of structured interviews DPP providers reported the program's success in improving outcomes for a number of participant health metrics.

MDH monitors several ongoing programs, including the ICS program for disabled adults, whose enrollment decreased from 30 in CY 2017 to 28 in December 2021. In the long-running Family Planning program, eligibility was expanded by removing the age limit and opening coverage to men as well. As of 2021, more than 13,800 participants (with any period of enrollment) were enrolled in the program, and 8.4% received a family planning service. The CoCM pilot identified 418 eligible participants, and 129 participants (31.0%) completed treatment.

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## Appendix A. Definitions and Specifications

**Table A1. Coverage Category Inclusion Criteria**

Coverage Category	Inclusion Criteria
<b>Disabled</b>	Coverage Group = A04, H01, H98, H99, L01, L98, L99, S01, S02, S03, S04, S05, S06, S07, S08, S10, S13, S14, S16, S98, S99, T01, T02, T03, T04, T05, T99
<b>MCHP</b>	Coverage Group = D02, D04, P13, P14
	OR
	Coverage Group = F05, P06, P07 AND Coverage Type = "S"
<b>ACA Expansion</b>	Coverage Group = A01, A02, A03
<b>Families &amp; Children</b>	All other Coverage Groups/Coverage Types

**Table A2. Medicaid Coverage Group Descriptions**

Coverage Group	Description
<b>A01</b>	Childless Adults < 65, 138% FPL, former PAC
<b>A02</b>	Childless Adults < 65, 138% FPL, inc disabled
<b>A03</b>	Parents and Caretaker Relative 124%-138% FPL
<b>A04</b>	Disabled Adults, no Medicare 77% FPL
<b>C13</b>	Presumptive Eligibility
<b>D01</b>	Employer Sponsored Insurance (ESI), 200%-250% FPL
<b>D02</b>	MCHP Premium, 212%-264% FPL
<b>D03</b>	Employer Sponsored Insurance (ESI), 250%-300% FPL
<b>D04</b>	MCHP Premium, 265%-322% FPL
<b>E01</b>	IV-E Adoption & Foster Care
<b>E02</b>	FAC Foster Care
<b>E03</b>	State-Funded Foster Care
<b>E04</b>	State-Funded Subsidized Adoption
<b>E05</b>	Former Foster Care up to 26 years old
<b>F01</b>	TCA Recipients
<b>F02</b>	Post-TCA: Earnings Extension
<b>F03</b>	Post-TCA: Support Extension
<b>F04</b>	FAC Non-MA Requirement
<b>F05</b>	Parents/Primary Caretakers and Children <123% FPL
<b>F98</b>	Children 19 and 20 123% FPL
<b>F99</b>	FAC - Med Needy Spenddown
<b>G01</b>	Refugee Cash Assistance
<b>G02</b>	Post RCA: Earnings Extension
<b>G98</b>	Refugee Med Needy Non-Spenddown
<b>G99</b>	Refugee Med Needy Spenddown



Coverage Group	Description
H01	HCW Waiver
H98	HCW Waiver Med Needy
H99	HCW Waiver Spenddown
L01	SSI Recipient in LTC
L98	ABD Long Term Care
L99	ABD Long Term Care Spenddown
P01	GPA to Pregnant Women (ended 7/97)
P02	Pregnant Women up to 189% FPL
P03	Newborns
P04	Med Needy Newborns (ended 6/30/98)
P05	Newborns of PWC Moms (ended 6/30/98)
P06	Newborns of Elig Mothers and their < 1
P07	Children 1-19, 1-6 143% FPL, 6-19 138% FPL
P08	Child Under 19, up to 100% FPL
P09	Maryland Kids Count (ended 6/30/98)
P10	Family Planning Program
P11	Pregnant Women 190% - 264% of FPL
P12	Newborns of P11 Mothers
P13	Child Under 19, up to 189% FPL
P14	Title XXI MCHP. under 19, 190-211% FPL
S01	Public Assistance to Adults (PAA)
S02	SSI Recipients
S03	Qualified Medicare Beneficiary (QMB)
S04	Pickle Amendment
S05	Section 5103
S06	Qualified Disabled Working Individuals
S07	SLMB group I
S08	SLMB/MPAP
S10	QMB and MPAP
S11	TEMHA/MPAP
S12	Family Planning Program/MPAP
S13	ACE or EID
S14	SLMB group II
S15	SLMB group III
S16	Increased Community Services Program (ICS) formerly MPDP
S17	MPDP/SLMB I
S18	MPDP/SLMB II
S98	ABD - Med Needy
S99	ABD – Spenddown
T01	TCA Adult or Child In LTC

Coverage Group	Description
T02	Family LTC Med Needy
T03	Medicaid Child Under 1 in LTC
T04	Medicaid Child Under 6 in LTC
T05	Medicaid Child Under 19 in LTC
T99	Family LTC Med Needy Spenddown
W01	Women's Breast & CC
X01	State-Funded Aliens
X02	Non-MAGI Undocumented or Ineligible Aliens, Emergency Medical Services
X03	MAGI Undocumented or Ineligible Aliens, Emergency Medical Services

**Table A3. Medicaid Coverage Type Descriptions**

Coverage Type	Description
A	Aged
B	Blind
C	Complimentary Coverage
D	Disabled
E	FC and SA
F	Family
G	Refugee
H	HCB Waiver
M	Medicaid Only
N	Not in CARES
P	Pregnant
R	Regular
T	Family LTC
U	Unemployed
X	Miscellaneous

## Appendix B. A Qualitative Study of the Implementation of Maryland’s Assistance in Community Integration Services Pilot Program

From The Johns Hopkins University:<sup>84</sup>

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Interviews were conducted to investigate the implementation of Maryland’s Assistance in Community Integration Services (ACIS). A diverse group of stakeholders were recruited including individuals employed by lead entities (LEs), participating entities (PEs), state and local government officials, and case managers from local hospitals. Lead entities administer the program at the local level whereas PEs directly deliver ACIS case management services. JHU recruited study participants via snowball sampling and performed participant interviews using a structured interview guide. JHU recorded all interviews, transcribed them, and analyzed with NVivo software.

### Results

From February 2022 to May 2022, JHU conducted 23 interviews, which included stakeholders from Baltimore City (n=8), Cecil and Montgomery Counties (n=5), Prince George’s County (n=5), and Maryland state staff (n=5). Approximately half (n=12) of those interviewed were from PEs. Four key themes emerged during the interview process, as shown in Table 1:

**Table 1. Key Themes from Stakeholder Interviews**

Theme	Subtheme
<b>1. Finding housing for ACIS clients remains challenging.</b>	a. Client circumstances and housing market conditions created barriers to finding homes.
	b. Novel solutions for housing included landlord risk mitigation and the investment in affordable and accessible housing.
<b>2. Working across silos was a key benefit of the ACIS program.</b>	a. Existing resources and infrastructure were supported by ACIS.
	b. Stakeholder collaboration increased, and care coordination improved through regular meetings.
<b>3. There is a need to improve communication.</b>	a. Follow-up after referrals were made from the ACIS program were suboptimal.
	b. Communication with clients, especially during the COVID-19 pandemic, proved to be challenging.
<b>4. Stakeholders called for better data collection.</b>	a. Service providers were often not familiar with the intricacies of Medicaid billing; documenting services was made more difficult by the systems that were employed.
	b. In one jurisdiction, hospitals sought data on whether the program that they helped support was reducing costs.

<sup>84</sup> All researchers were affiliated with Johns Hopkins University at the time of the study.

**Theme #1: Finding housing for ACIS clients remains challenging.**

ACIS is fundamentally structured to help individuals who are unhoused or are at imminent risk of becoming unhoused find housing. Stakeholders recognized several key barriers to helping clients. The first barrier included participants' backgrounds. Because homelessness or risk of homelessness is a criterion for the program, most individuals have a limited rental history. This population is also more likely to suffer from comorbid substance use and mental health disorders, incarceration, and other issues that make obtaining and maintaining housing difficult. These factors subsequently cast a stigma over this population and serve as barriers for securing housing. As one stakeholder said: "Even if the housing is available, these clients come in with a lot of evictions in their past. Maybe they had...bad credit...some of them just apply and apply and apply. One time it took us a year to find a unit for one of our participants..."

Stakeholders also identified the tight housing market with high rents as a barrier in assisting ACIS clients in finding housing. Even in instances where participants had housing vouchers to help cover the costs of housing, often it was difficult to find an affordable unit. To help overcome this barrier, jurisdictions used strategies such as relationship building with landlords and developing risk mitigation funds to cover property damage. A stakeholder described, "...if a client, ... breaks something, we will fix it. So, the cost is not on the landlord."

**Theme #2: ACIS leveraged existing resources to work across silos.**

The ACIS program functions by bridging silos and bringing together stakeholders from the health services field and the housing field at both the local and the state levels to provide services for this vulnerable population and assist in optimal care coordination. To help overcome the siloing that occurs in these jurisdictions, each LE drew upon local resources – including organizations specializing in housing, health, and community outreach. The local ACIS programs also benefited from established infrastructure, including permanent housing support services, which some LEs used to further support ACIS participants.

One universal approach seen among the LEs were engagement strategies that included monthly interdisciplinary meetings. These meetings led to improved care coordination and were highly regarded by interviewees. One interviewee noted: "The stakeholders are very talented and [make up an] instrumentally competent community of committed individuals and it takes an immense amount of cross-disciplinary expertise, an immense amount of prior personal experience as well as professional experience to commit the energy [and] the focus, that it takes to effectively provide integrated health and housing services for the most vulnerable."

**Theme #3: Improving communication was viewed as critical.**

Challenges involving communication both with clients and within the ACIS program was another key theme identified. ACIS service providers noted the difficulty in maintaining contact with this vulnerable population due to their chronic health conditions and unstable housing histories. These problems were only exacerbated by the COVID-19 pandemic and LEs developed unique strategies to maintain communication with clients. One interviewee said, "So, if you have a

relationship with a service coordinator, a new one comes, they may be resistant to meeting with folks [and] the face-to-face clearly went down during COVID.”

Further, the inconsistent communication between the ACIS LEs and direct service providers was also cited as a recurring challenge. Direct service providers frequently acknowledged a lack of follow-up after a client was referred to the ACIS program. One direct service provider noted: “...my staff will refer patients to the program, but then we don't necessarily get any feedback, regarding what the outcomes have been. So, Mr. Jones, for example, if we identified Mr. Jones in the emergency department and refer him to the program, we have no idea if Mr. Jones has housing [or] if he's more stable.” This barrier reportedly led some direct service providers to stop referring clients to the ACIS all together.

**Theme #4: Collecting data was seen as a key challenge in program implementation.**

The fourth theme that emerged involved challenges in documenting delivered services to receive reimbursement. By way of background, at the beginning of the ACIS pilot program, Maryland state entities attempted to gain access to Maryland’s Homeless Management Information System (HMIS). Local jurisdictions across the United States who receive federal funding for housing are required to implement an HMIS. The system requires providers to document the delivery of services, including housing and tenancy-case management services. The state entities were unable to gain access to Maryland’s HMIS system (which warehouses all of Maryland’s local jurisdiction’s HMIS data) and had to develop an alternative method for data collection documenting the delivery of ACIS services.

An Excel template was created to standardize the data collection across the LEs, as the data collected is used for both quarterly billing and program reviews and evaluations. How LEs populated the Excel template varied across LE. Some LEs had their PEs fill out the template and then that LE would concatenate the data, while other LEs filled out the template using their HMIS system which documented the ACIS services delivered by PEs. Once complete, each LE would submit the Excel template to a state entity who would ensure that an ACIS participant was Medicaid eligible at the time of ACIS service delivery and count the number of ACIS services provided to a participant to determine if the minimum per member per month threshold was met for the LE to receive payment for a participant in a given month.

A considerable proportion of PEs were not familiar with documenting services delivered to ACIS participants and ensuring the participant had Medicaid eligibility. This led to some PEs providing services that they may have not received reimbursement for providing. Despite multiple attempts at training both LE and PE staff regarding using the electronic verification system (EVS) to ensure a participant’s Medicaid eligibility and the use of the Excel template, high staffing turnover and limited experience with spreadsheets led some PEs to no longer participate with the ACIS program. As one interviewee stated, “One of the challenges that our [PEs] complain about is the data and how much we must collect and how it is collected. If there was a way that all jurisdictions collected data the same way, in the same system or platform, it would be a lot easier.”

Finally, data collection and distribution of data supporting the continued funding of the ACIS was a theme that emerged, particularly from hospitals in certain counties that are financially supporting the ACIS program. Some hospital administrators noted concern that local governments may unnecessarily be relying on hospitals to fund something that, they felt, should be funded primarily through the government. As one hospital administrator stated, “Even if hospitals are investing in housing, but the government is not making an equal increase in housing, then we’re never going to move the needle on these big social determinants of health.”

## **Discussion**

The results of the interviews with key stakeholders highlights strategies that are contributing to the ongoing success of the program including: leveraging existing community resources and improved multi-disciplinary coordination across these resources. Interviews also revealed barriers to the implementation and maintenance of the ACIS including the tight housing market and difficulties with communication and data collection. The current research further reinforces the work by Thompson et al., showing that many of the challenges that existed during the early implementation of housing-focused programs persist in longer-term follow-up, hampering program efficiency and sustainability and provides a more granular reflection of current operations in four different jurisdictions within Maryland.<sup>85</sup>

The findings should be interpreted cautiously considering the study’s limitations. The study was unable to interview ACIS participants whose opinions would shed light on what aspects of the program worked and what did not for them. Similarly, the interviews did not include landlords in the low-income housing market which is an important viewpoint to capture for a holistic view. Lastly, stakeholders were speaking from their professional capacity and may be subject to recall and social desirability bias.

The ACIS program has been successfully implemented across four jurisdictions within Maryland that are each unique in client needs and factors that affect the functioning of ACIS. Despite this, common strategies-including fostering continued collaboration through multi-disciplinary meetings and focusing on appropriate data collection are viable strategies to further streamline and ensure sustainability of the ACIS program. Moving forward, questions regarding future funding and the amount of support from private institutions such as hospitals, still exist. Efforts to improve the functioning of the program include improving communication, transparency, and streamlining the data collection process or simplifying the reimbursement process through Medicaid.

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<sup>85</sup> Thomason, F. J., Farnham, J., Tiderington, E., Gusmano, M. K., & Cantor, J. C. (2021). Medicaid waivers and tenancy supports for individuals experience homelessness: Implementation challenges in four states. *Millbank Quarterly*, 99(3), 648-692.

## Appendix C. HVS Provider Interview Questions

HVS Questions (Note: All questions should be viewed in retrospect of the pilot, not the current FFS benefit)

1. How are you involved (or what's your role) with the HVS program?
2. In what ways, if any, do you feel the HVS program has been successful? If you feel it has been successful, what have been the key contributing factors to that success?
3. What challenges were more easily met? What challenges have been hardest to overcome?
4. Do you do any outreach to HealthChoice members? How do you target your services to members? Is there a particular group you target?
  - a. By referral?
  - b. By location?
  - c. By demographics?
  - d. By family/child history or degree of risk?
5. Please describe the processes involved in coordinating, supervising, and documenting the delivery of HVS services.
6. How do parents and caregivers interact with the program?
7. Please describe a typical visit. Characteristics of interest include:
  - a. Location
  - b. Timing
  - c. Duration
  - d. Structure
  - e. Content
  - f. Qualifications and training of the home visitor
8. What services are most needed by the parents and caregivers that the program targets?
  - a. Which of these services does the program provide or connect them to? How?
9. How do you judge the success of the program? What measures do you use?
  - a. Child health indicators?
  - b. Parent/caregiver somatic (non-behavioral health) indicators?
  - c. Parent/caregiver behavioral health indicators?
  - d. Parent/caregiver-provided qualitative feedback?
  - e. Parent/caregiver program completion/administrative measures?
10. By those measures, how successful has your program been?
11. Given your experience with the HVS pilot, what changes would you recommend to help secure better and/or more equitable outcomes for HealthChoice members?

## Appendix D. DPP Provider Interview Questions

1. Please describe the DPP services that your business provides.
2. In your view, what are the key factors in the success of getting the DPP to this point? In what ways has DPP been successful?
3. What challenges were more easily met? What challenges have been hardest to overcome?
4. Do you do any outreach to HealthChoice members? How do you target your services to members? Is there a particular group you target?
  - a. By location?
  - b. By demographics?
  - c. By degree of risk?
5. How do you judge the success of the program? What measures do you use? For example:
  - a. Participant health indicators?
  - b. Participant-provided qualitative feedback?
  - c. Participant program completion/administrative measures?
6. By those measures, how successful has your program been?
7. How do you collaborate with participants' primary care team?
8. What changes would you recommend to the DPP to secure better and/or more equitable outcomes for HealthChoice members?



### Appendix E. Highly Effective Contraception and Participation in the Family Planning Program

Effect	Use of Highly Effective Contraceptive Care									
	CY 2017		CY 2018		CY 2019		CY 2020		CY 2021	
	95% CI		95% CI		95% CI		95% CI		95% CI	
<b>Family Program Participation (1 year Lag)</b>	1.393	1.855	1.349	4.225	0.840	2.931	0.630	2.170	0.852	2.668
<b>Age Group</b>										
<i>24 to 35</i>	1.058	1.150	1.049	1.146	1.119	1.221	1.178	1.291	1.192	1.302
<i>36 to 45</i>	0.593	0.660	0.586	0.656	0.687	0.764	0.732	0.816	0.812	0.901
<b>Last Coverage Category†</b>										
<i>Disabled</i>	0.396	0.510	0.439	0.570	0.422	0.553	0.406	0.558	0.477	0.641
<i>Families &amp; Children</i>	0.771	0.899	0.773	0.910	0.684	0.822	0.847	1.050	0.810	0.988
<i>MCHP</i>	0.375	0.499	0.439	0.579	0.326	0.441	0.434	0.603	0.436	0.587
<b>Region†</b>										
<i>Baltimore Suburban</i>	1.178	1.300	1.136	1.260	1.071	1.182	1.021	1.128	0.992	1.090
<i>Eastern Shore</i>	1.251	1.439	1.307	1.511	1.186	1.368	1.027	1.191	0.988	1.139
<i>Southern Maryland</i>	1.094	1.308	1.105	1.331	1.055	1.261	1.084	1.297	1.120	1.325
<i>Western Maryland</i>	1.239	1.439	1.178	1.377	1.080	1.258	1.136	1.321	1.047	1.213
<b>Race†</b>										
<i>Asian</i>	0.867	1.081	0.928	1.158	0.820	1.019	0.854	1.065	0.869	1.065
<i>Black</i>	0.957	1.045	0.870	0.954	0.837	0.916	0.850	0.935	0.816	0.895
<i>Hispanic</i>	1.371	1.602	1.276	1.501	1.224	1.430	1.256	1.473	1.209	1.405
<i>Other</i>	1.174	1.357	1.149	1.329	1.108	1.271	1.188	1.356	1.200	1.357
<b>Comorbidity Score†</b>										
<i>Moderate</i>	2.100	2.367	1.994	2.267	1.591	1.761	2.029	2.289	2.128	2.387
<i>High</i>	5.730	6.448	5.553	6.303	2.653	2.953	6.242	7.021	5.846	6.547
<i>Very High</i>	2.478	3.090	2.386	2.999	1.561	1.944	2.582	3.240	2.752	3.381



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