Effects of Churn on Potentially Preventable Hospital Use

Many Medicaid and State Children's Health Insurance Program (CHIP) beneficiaries lose coverage and subsequently re-enroll in the program within a short period of time, a phenomenon often referred to as churn. For example, about a third of Medicaid and CHIP beneficiaries who disenrolled in 2018 re-enrolled within a year (MACPAC 2021). More information about rates of churn and state policies that may affect churn rates are described in MACPAC's issue brief *An Updated Look at Rates of Churn and Continuous Coverage in Medicaid and CHIP*.

Temporary or long-term gaps in coverage can hinder beneficiaries from accessing preventive care, other needed care and treatment, and prescription drugs that are necessary for managing and treating their health conditions (Sommers et al. 2016, Banerjee et al. 2010). Ambulatory care-sensitive conditions (ACSCs), such as heart disease, respiratory diseases, and diabetes, are less likely to result in inpatient admissions when these conditions are managed and treated in outpatient and primary care settings, and hospitalizations for these ACSCs are a measure of access to primary care (McDermott and Jiang 2020; Chapel et al. 2017).[1]

Although there is considerable research linking increased hospital use for ACSCs to lack of access to primary care, there is relatively little research on how a lack of access to primary care resulting from gaps in Medicaid coverage can affect ACSCs. The most similar study used data from 1998 through 2002 from a single state (Bindman 2008). Researchers found that Medicaid beneficiaries with interrupted coverage had a substantial increase in hospitalizations for ACSCs three months after re-enrolling. Over a five-year period, individuals with interrupted coverage continued to have worse health outcomes.

This issue brief summarizes MACPAC's research on the effects of churn on health service use among Medicaid beneficiaries using 2017-2019 national data from the Transformed Medicaid Statistical Information System (T-MSIS). Specifically, we examined whether rates in emergency department (ED) visits and hospitalizations related to four ACSCs changed for adult beneficiaries after experiencing a gap in coverage.

Overall, our findings are consistent with similar research. We found that the rates of ED visits and hospitalizations related to these four ACSCs more than doubled in the first month after churning when compared to the baseline rate (established during the six months before an episode of churn). Additionally, three months after churning, the rates of ED visits and hospitalizations related to the four ACSCs continued to remain higher than the baseline rates. We also found that the increase in rates of hospitalizations varied by length of coverage gap and by racial and ethnic group. For example,

beneficiaries with longer coverage gaps had the largest percent increases in hospitalizations related to the four ACSCs, compared to their baseline rates.

These findings suggest that policies to reduce churn and reduce the length of gaps in coverage may help reduce potentially preventable hospitalizations, improve health outcomes, and potentially result in cost savings from avoidable hospitalizations.

Methods and Limitations

MACPAC worked with Mathematica to examine data from the 2017-2019 T-MSIS analytic files (TAF) research identifiable files (RIF) and determine which states had data of sufficient quality to be included in the analysis. The TAF RIF inclusion criteria for states were established using the Data Quality (DQ) Atlas quality metrics and use the same inclusion metrics as those used in MACPAC's 2021 issue brief on churn and continuous coverage in Medicaid and CHIP (CMS 2021, MACPAC 2021).[2,3] Overall, 42 states and the District of Columbia had useable T-MSIS data for this analysis and 26 states were included in the race and ethnicity analyses.[4]

We defined our study population as adult beneficiaries who had a minimum of six months of continuous coverage prior to disenrollment, disenrolled on or after July 1, 2017, then re-enrolled in the same state's Medicaid program within 12 months but no later than September 31, 2019. A total of 2.7 million adults were included in the final study population.[5]

Using these data, we calculated rates of inpatient admissions and ED visits for four ACSCs that are part of the adult core set quality measures in Medicaid:[6]

- short-term complications related to diabetes among beneficiaries 18-64 years (PQI 01);
- heart failure among beneficiaries 18-64 years (PQI 08);
- asthma among beneficiaries 18-39 years (PQI 15), and;
- chronic obstructive pulmonary disease (COPD) or asthma among beneficiaries 40-64 years (PQI 05).

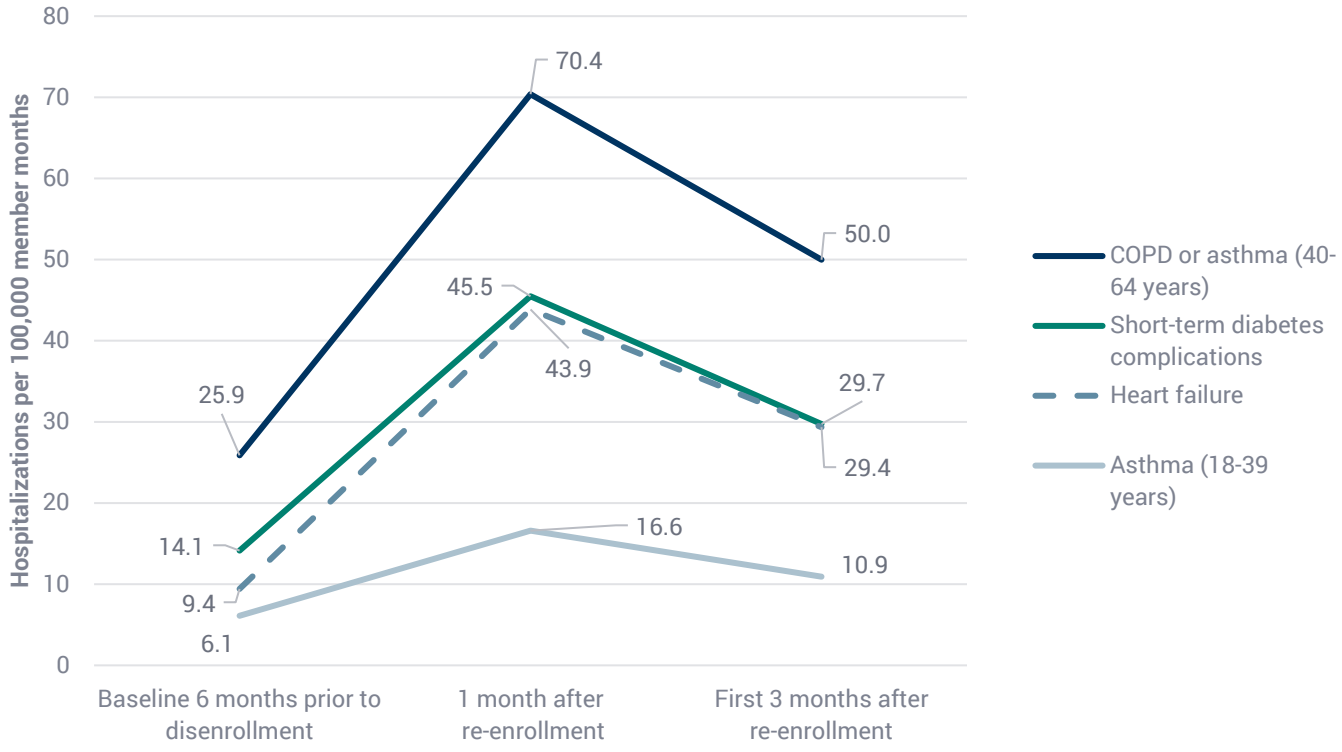
These measures have long been studied as prevention quality indicators (PQIs) by the Agency for Healthcare Research and Quality (AHRQ). Mathematica had previously developed technical specifications for using TAF data to measure these four PQIs.

Although these selected quality measures have been shown to be important indicators of health, our analyses were also limited in that we only measured short-term health outcomes related to a subset of ACSCs. There are other short and long-term health outcomes that may also be affected by coverage disruptions. Further, in our analyses we could not measure the health experience of people who lose coverage and do not return to Medicaid and compare their health outcomes to those who churn back to Medicaid.

Findings

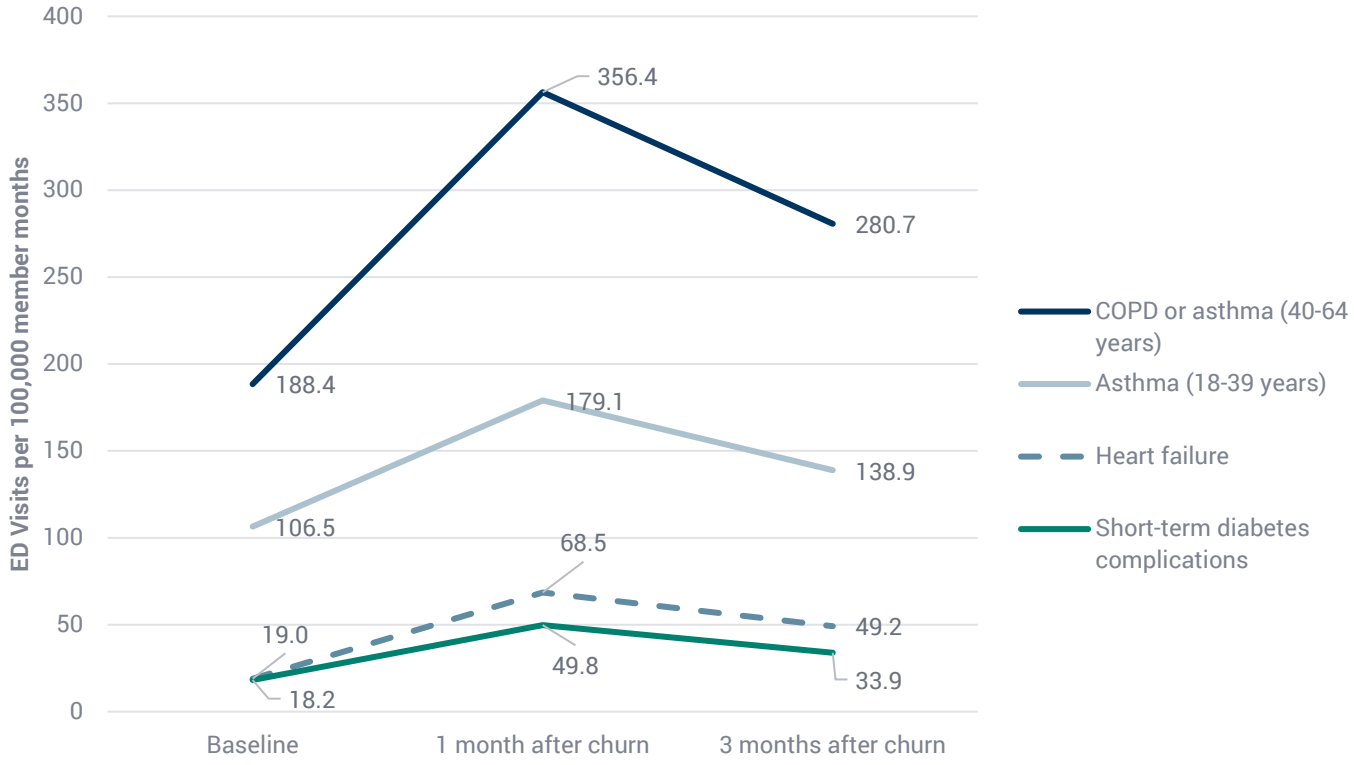
After an episode of churn, Medicaid beneficiaries were more than twice as likely to be hospitalized for all four ACSCs that we studied, compared to their baseline rate for these measures six months before losing coverage (Figure 1). We observed a similar increase in the rates of ED visits for these conditions (Figure 2). Hospitalization and ED rates were higher in the first month after re-enrollment than they were in the first three months after re-enrollment, suggesting that a hospitalization or an ED visit may have been the reason for re-enrollment for some beneficiaries.[7]

FIGURE 1. Rate of Inpatient Admissions for Selected Ambulatory Care Sensitive Conditions Before and After a Gap in Medicaid Coverage, 2017-2019



Notes: COPD is chronic obstructive pulmonary disease. Analyses limited to adults age 18 to 64. The analysis excludes nine states (Alabama, Florida, Kentucky, Minnesota, New Jersey, Oklahoma, Pennsylvania, Rhode Island, and Tennessee) due to concerns with data quality in 2017-2019. In three states (Arkansas, Maryland, and Wisconsin) 2017 data are excluded due to data quality concerns.
Source: Mathematica, 2022, analysis for MACPAC of T-MSIS data.

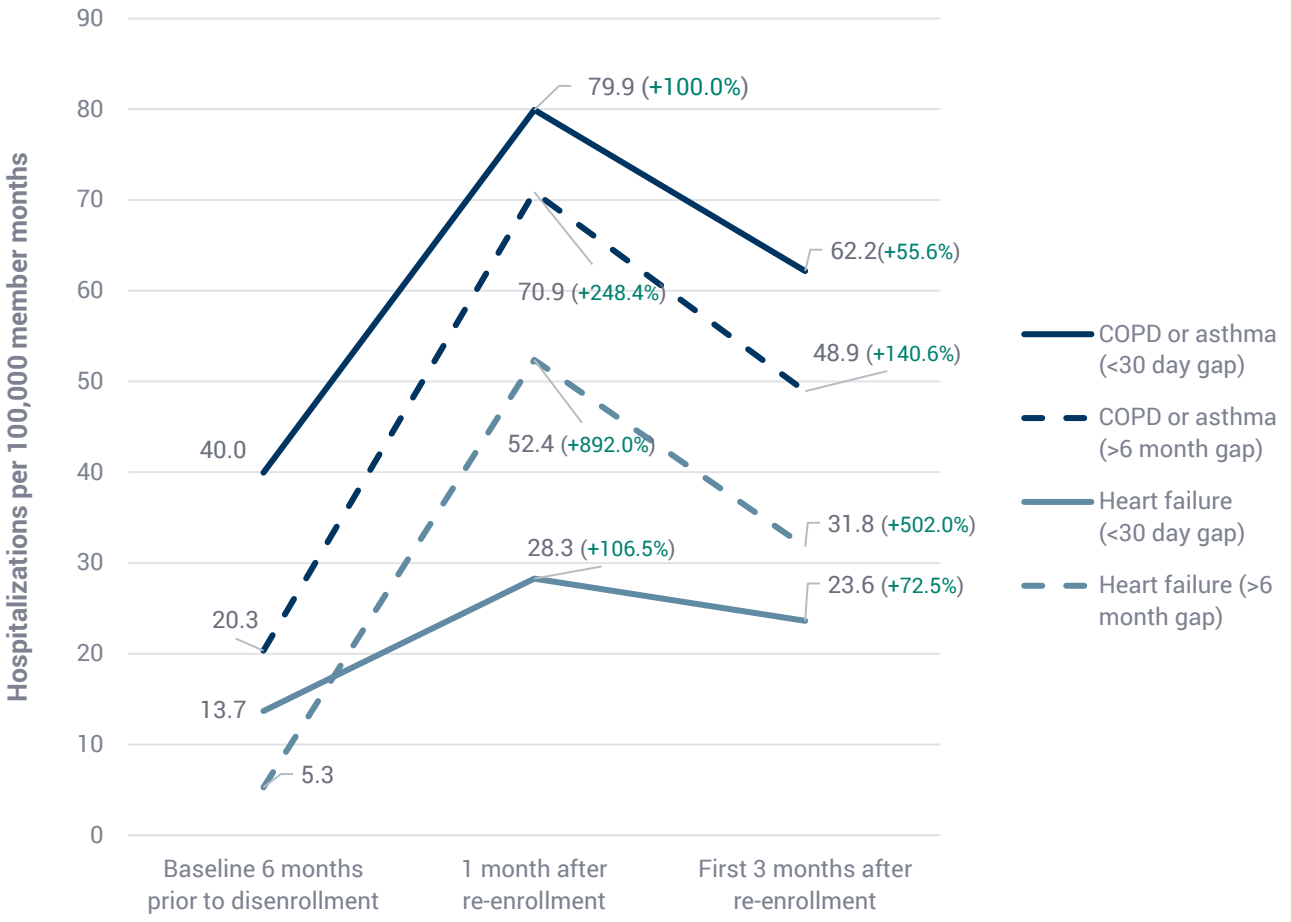
FIGURE 2. Rate of Emergency Department Visits for Selected Ambulatory Care Sensitive Conditions Before and After a Gap in Medicaid Coverage, 2017-2019



Notes: COPD is chronic obstructive pulmonary disease. Analyses limited to adults age 18 to 64. The analysis excludes nine states (Alabama, Florida, Kentucky, Minnesota, New Jersey, Oklahoma, Pennsylvania, Rhode Island, and Tennessee) due to concerns with data quality in 2017-2019. In three states (Arkansas, Maryland, and Wisconsin) 2017 data are excluded due to data quality concerns.
Source: Mathematica, 2022, analysis for MACPAC of T-MSIS data.

Beneficiaries with a longer gap in coverage experienced a larger increase in rates of inpatient admissions related to ACSCs than beneficiaries with short gaps in coverage (Appendix A). For example, beneficiaries with a gap in coverage of more than six months were almost twice as likely to be hospitalized for heart failure after a churn event as beneficiaries with a gap in coverage of less than one month (a rate of 52.4 visits per 100,000 member months compared to a rate of 28.4), even though beneficiaries with a gap in coverage of over 6 months had a lower baseline rate of hospitalization than those with a gap of less than one month (a rate of 5.3 visits per 100,000 member months compared to a rate of 13.7) (Figure 3). To a lesser extent, a similar trend in hospitalizations was observed for hospitalizations related to COPD or asthma. The rate of hospitalizations related to COPD or asthma for beneficiaries with a gap in coverage of more than 6 months was almost as high as the rate for beneficiaries with a gap in coverage of less than one month (70.9 visits per 100,000 member months compared to 79.9) despite having a baseline rate that was only half that of those with a coverage gap of less than one month (20.3 visits per 100,000 member months compared to 40.0).

FIGURE 3. Rate of Inpatient Admissions for Selected Ambulatory Care Sensitive Conditions by Length in Coverage Gap in Medicaid Coverage, 2017-2019



Notes: Hospitalization rates are displayed for each point, and the percent change from the baseline rate are displayed in parentheses. COPD is chronic obstructive pulmonary disease and includes those with asthma who were age 40-64. The analysis excludes nine states (Alabama, Florida, Kentucky, Minnesota, New Jersey, Oklahoma, Pennsylvania, Rhode Island, and Tennessee) due to concerns with data quality in 2017-2019. In three states (Arkansas, Maryland, and Wisconsin) 2017 data are excluded due to data quality concerns.
Source: Mathematica, 2022, analysis for MACPAC of T-MSIS data.

We also observed differences in the percent change in inpatient admissions by race and ethnicity, but these differences were not consistent for all measures (Appendix A). In some cases, non-white beneficiaries experienced a larger increase in rates of hospitalizations related to ACSCs compared to white beneficiaries. For example, Hispanic, Black, non-Hispanic, and Asian, non-Hispanic beneficiaries had greater percent increase in rates of hospitalization related to short-term diabetes complications (316.1

percent, 204.8 percent, and 281.8 percent, respectively) compared to white, non-Hispanic (184.5 percent) beneficiaries.

We also observed that rates of increase in hospitalizations were not consistently higher for non-white racial and ethnic groups. For example, while the rate of increase in hospitalizations related to short-term diabetes and asthma was greatest for Black and Hispanic beneficiaries, the rate of increase in hospitalizations related to COPD or asthma was lower for Black, non-Hispanic beneficiaries than white, non-Hispanic beneficiaries. The rate of increase in hospitalizations related to heart failure was lower for Black, non-Hispanic than white, non-Hispanic and Hispanic beneficiaries. Some of the differences we observed may be attributable to differences in baseline hospitalization rates by race and ethnicity. For example, Black, non-Hispanic beneficiaries had the highest rate of hospitalization for heart failure at baseline (rate of 11.5 visits per 100,000 member months), which may explain why the percent increase in this hospitalization rate after an episode of churn was lower than for white, non-Hispanic beneficiaries who had a lower baseline rate (rate of 7.5).

Our analyses demonstrate that the magnitude and absolute change in the rates of ED visits and hospitalizations for Medicaid beneficiaries after churning can vary by health condition, length of the coverage gap, and by racial and ethnic group. We found that overall, Medicaid beneficiaries who experience either a short or long-term gap in coverage are at a greater risk for needing emergency care or being hospitalized for conditions related to ACSCs. Policies that reduce churn and promote continuity of coverage may contribute to reducing the need for emergency care and hospitalizations by increasing access to primary care services.

Endnotes

[1] Ambulatory care-sensitive conditions are conditions that if managed appropriately with timely and effective preventive care, can reduce hospitalizations and the onset of more serious health conditions.

[2] The Data Quality (DQ) Atlas is a tool developed to assess the quality and usability of the T-MSIS analytical files (TAF). The tool provides state-level quality information by topic.

[3] In addition to the exclusion criteria used in MACPAC's 2021 issue brief, states were excluded if: 1) 10 percent or greater of inpatient (IP) and other types (OT) of claims in the IP and OT TAF files did not link to an eligibility record in the month of service; 2) states submitted less than 50 percent of the national median for the IP claim header volume or for the OT claim header or line volume; and 3) states reported greater than 50 percent of IP claims or OT hospital/physician/clinic service claims with a missing or invalid primary diagnosis code. Additionally, beneficiaries in states were excluded from the analysis if they were enrolled in comprehensive managed care (CMC) plans that are identified as submitting less than 1 encounter per 1,000 member-months in the IP or OT file during the year for any of the three years covered by this study.

[4] 2017 data from Wisconsin, Maryland, and Arkansas due to data quality concerns.

[5] Beneficiaries were also excluded if they were over age 65 or under age 18, or enrolled in a comprehensive managed care (CMC) plan that was under-reporting encounter data for all months of enrollment. Additionally, unlike with our prior analyses, we excluded patients dually eligible for Medicare and Medicaid because hospitalizations for these patients are covered by Medicare.

[6] The Child and Adult Core Sets facilitate standardized reporting by states on a uniform set of performance measures and encourage states to use results to drive quality improvement (CMS 2019). The Adult Core Set includes measures related to primary and preventive care, maternal and perinatal health, care of acute and chronic conditions, behavioral health care, and patients' experience of care.

[7] In order to facilitate Medicaid enrollment for patients who are hospitalized, the ACA allowed all hospitals the option to make presumptive eligibility determinations for patients likely to qualify for Medicaid based on their modified adjusted gross income (MAGI).

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Appendix A: Rates of Inpatient Admissions and Emergency Department Visits for Selected Ambulatory Care Sensitive Conditions

TABLE A-1: Rate of Inpatient Admissions for Selected Ambulatory Care Sensitive Conditions by Length in Coverage Gap in Medicaid Coverage, 2017-2019

Measures for all adult beneficiaries	Number of beneficiaries with qualifying churn event	Baseline rate per 100,000 member-months	Rate per 100,000 member-months in first month after churning	Percent change 1 month after churning	Rate per 100,000 member-months in 3 months after churning	Percent change 3 months after churning
Asthma (18-40 years)						
Coverage gap of less than 30 days	227,068	9.0	24.2	168.3%	13.8	52.8%
Coverage gap of 31-60 days	317,008	7.2	14.5	101.5	10.4	44.5
Coverage gap of 61-90 days	299,097	5.7	16.1	179.6	11.9	107.8
Coverage gap of 91-182 days	573,577	6.1	16.9	177.1	11.1	81.9
Coverage gap of 183-365 days	450,364	4.1	14.4	248.2	9.0	116.1
COPD or asthma (40-64 years)						
Coverage gap of less than 30 days	108,847	40.0	79.9	100.0	62.2	55.6
Coverage gap of 31-60 days	140,838	29.8	58.2	95.2	44.3	48.4
Coverage gap of 61-90 days	123,656	26.3	65.5	149.2	48.0	82.6
Coverage gap of 91-182 days	233,210	20.9	75.5	260.4	49.6	136.9
Coverage gap of 183-365 days	177,790	20.3	70.9	248.4	48.9	140.6
Short-term diabetes complications (18-64 years)						
Coverage gap of less than 30 days	335,915	24.6	56.6	129.8	39.5	60.5
Coverage gap of 31-60 days	457,846	21.3	50.2	135.9	34.0	59.7
Coverage gap of 61-90 days	422,753	14.6	50.4	244.5	32.5	122.1

Measures for all adult beneficiaries	Number of beneficiaries with qualifying churn event	Baseline rate per 100,000 member-months	Rate per 100,000 member-months in first month after churning	Percent change 1 month after churning	Rate per 100,000 member-months in 3 months after churning	Percent change 3 months after churning
Coverage gap of 91-182 days	806,787	10.6	42.8	305.1	27.0	155.6
Coverage gap of 183-365 days	628,154	7.6	36.3	376.7	23.1	203.8
Heart failure (18-64 years)						
Coverage gap of less than 30 days	335,915	13.7	28.3	106.5	23.6	72.5
Coverage gap of 31-60 days	457,846	13.9	38.9	180.3	28.7	106.8
Coverage gap of 61-90 days	422,753	10.6	42.8	302.2	29.3	175.6
Coverage gap of 91-182 days	806,787	7.7	47.1	512.9	30.2	293.5
Coverage gap of 183-365 days	628,154	5.3	52.4	892.0	31.8	502.0

Notes: COPD is chronic obstructive pulmonary disease. ACSCs are ambulatory care sensitive conditions. Analyses limited to adults age 18 to 64. The analysis excludes nine states (Alabama, Florida, Kentucky, Minnesota, New Jersey, Oklahoma, Pennsylvania, Rhode Island, and Tennessee) due to concerns with data quality in 2017-2019. In three states (Arkansas, Maryland, and Wisconsin) 2017 data are excluded due to data quality concerns.
Source: Mathematica, 2022, analysis for MACPAC of T-MSIS data.

TABLE A-2: Rate of Inpatient Admissions for Selected Ambulatory Care Sensitive Conditions by Race and Ethnicity in Medicaid Coverage, 2017-2019

Measures for MAGI adult beneficiaries	Baseline rate per 100,000 member-months	Rate per 100,000 member-months in first month after churning	Percent change 1 month after churning	Rate per 100,000 member-months in first 3 months after churning	Percent change 3 months after churning
COPD or asthma (40-64 years)					
White, non-Hispanic	24.2	74.2	207.0%	49.3	103.7%
Black, non-Hispanic	26.2	75.7	189.1	57.6	120.0
Hispanic	7.6	22.1	192.3	12.4	64.1
Short-term diabetes complications					
White, non-Hispanic	16.5	46.8	184.5	32.9	100.0
Black, non-Hispanic	14.3	43.5	204.8	31.7	122.6
Hispanic	9.4	38.9	316.1	22.3	138.7
American Indian and Alaska Native, non-Hispanic	21.0	60.8	190.3	39.2	87.1
Heart failure (18-64 years)					
White, non-Hispanic	7.5	45.1	505.3	27.5	269.3
Black, non-Hispanic	11.5	57.9	404.0	36.1	214.0
Hispanic	4.0	30.5	657.5	20.3	405.0
Asian, non-Hispanic	7.3	34.2	369.6	22.2	204.3
American Indian and Alaska Native, non-Hispanic	10.8	48.7	350.0	41.9	287.5
Asthma (18-40 years)					
White, non-Hispanic	4.5	11.6	159.8	7.1	58.8
Black, non-Hispanic	6.3	21.4	239.8	12.6	100.0
Hispanic	3.1	9.0	187.0	6.7	113.0

Notes: MAGI is modified adjusted gross income, a standardized method of counting income used for beneficiaries under age 65 who are not eligible for Medicaid on the basis of a disability. ACSCs are ambulatory care sensitive conditions. COPD is chronic obstructive pulmonary disease. Analyses limited to adults age 18 to 64. The analysis includes 26 states with reliable race and ethnicity data, and the tables include the race and ethnicity categories with reliable estimates.
Source: Mathematica, 2022, analysis for MACPAC of T-MSIS data.