IssueBrief

MACPAC

October 2021 Advising Congress on Medicaid and CHIP Policy

An Updated Look at Rates of Churn and Continuous Coverage in Medicaid and CHIP

The fact that many Medicaid and State Children's Health Insurance Program (CHIP) beneficiaries disenroll and subsequently re-enroll in the program within a short period of time (a phenomenon often referred to as churn) has been a topic of particular concern for policymakers. Although some beneficiaries may experience temporary income fluctuations that make them ineligible for a short period of time, churn may also be an indicator of administrative barriers that disrupt coverage for beneficiaries who continue to meet income and other eligibility requirements. Such disruptions in coverage result in unnecessary administrative costs for states and delays in care for beneficiaries, which may increase health costs in the long run (Sugar et al. 2021).

This brief summarizes MACPAC's analyses of rates of churn and continuous coverage for Medicaid and CHIP beneficiaries enrolled in 2018 using enrollment data from the Transformed Medicaid Statistical Information System (T-MSIS). In addition, the brief examines the extent to which rates of churn and continuous coverage are associated with the following state policies:

- 12-month continuous eligibility for children;
- mid-year data checks for changes in circumstances; and
- automated renewals using available information from other sources.

Overall, we found that about 8 percent of full-benefit Medicaid and CHIP beneficiaries disenrolled and re-enrolled within a year, which is higher than MACPAC's previous estimates but similar to other recent studies (MACPAC 2017, Sommers et al. 2016). We also found substantial state variation in rates of churn and average lengths of coverage that appears to be explained in part by state policy differences. On average, beneficiaries in states with 12-month continuous eligibility and states that do not conduct mid-year data checks for changes in circumstances were more likely to be enrolled in coverage for at least 12 months and were less likely to experience churn. In addition, states that made greater use of automated renewals had fewer beneficiaries disenroll and re-enroll within a year, on average. These findings suggest that greater use of these policies may help reduce churn and increase rates of continuous coverage.

We also found that Medicaid and CHIP beneficiaries were enrolled for an average of 11.6 months over a 12-month enrollment span, which is substantially higher than previous estimates (Ku et al. 2015). The longer lengths of coverage observed in our study may be due in part to the Patient Protection and Affordable Care Act (ACA, P.L. 111-148 as amended), which limited the frequency of renewals to no more than once every 12 months for many eligibility groups. However, differences in study methodology also help explain our

results. Compared to many previous studies that were limited to using one year of enrollment data, our analysis combined multiple years of data to better measure enrollment spans that overlapped calendar years. Overall, the finding that average lengths of coverage are longer than previously reported suggests that the costs of expanding continuous eligibility policies may be lower than previously estimated.

Background

Federal statute and regulations define a common approach across states for individuals to apply for, enroll in, and renew eligibility for Medicaid and CHIP. However, states retain some flexibility in how they design their applications and conduct eligibility verifications, and the processes they use to streamline enrollment and renewal (MACPAC 2017a).

Since 1997, states have had the option to allow 12-month continuous eligibility for children enrolled in Medicaid and CHIP.[1] Under this policy, children remain eligible for coverage even if their family income increases during the year. However, they can still lose coverage if they age out, move out of state, voluntarily withdraw, or do not make premium payments. As of January 2020, 23 states had implemented 12-month continuous eligibility in Medicaid and 25 states did so in separate CHIP (Brooks et al. 2020).

In 2010, the ACA made significant changes designed to simplify and streamline Medicaid and CHIP enrollment and renewal, especially for beneficiaries whose income is determined based on modified adjusted gross income (MAGI) (i.e. those under age 65 who are not eligible for Medicaid on the basis of a disability). Among the changes intended to reduce churn was the creation of a federal standard that states cannot renew coverage for beneficiaries enrolled in MAGI eligibility groups more than once every 12 months. Moreover, when they do so, states must use electronic data sources where possible to confirm ongoing eligibility before sending renewal paperwork.

The requirement to conduct renewals for MAGI eligibility groups no more than once every 12 months is different from 12-month continuous eligibility because states may still redetermine eligibility in the event of a mid-year change in circumstances. Although beneficiaries have a responsibility to report changes in circumstances that may affect their eligibility, few do so in practice. As of January 2020, 30 states proactively conducted data matches with quarterly wage data and other sources to identify potential changes in circumstances (Brooks et al. 2020).[2] Beneficiaries are notified of the potential change and can be disenrolled if they do not provide additional income verification in the specified time frame. Unlike annual renewals, for which beneficiaries are required to have up to 30 days to respond (42 CFR §435.916), states are only required to provide a minimum of 10 days' notice for beneficiaries to respond to potential changes in circumstances (42 CFR §431.211).

At annual renewals for MAGI eligibility groups, states are required to first attempt to confirm ongoing eligibility based on information from other available data sources (a process referred to as an administrative or ex parte renewal). These data sources may include quarterly wage data and information from other public programs, such as the Supplemental Nutrition Assistance Program (SNAP). If the state

cannot renew eligibility using available information, the state must provide individuals covered under MAGI eligibility groups with a prepopulated renewal form to complete. States have the option of using a similar process for beneficiaries enrolled in non-MAGI eligibility groups but they are not required to do so.

The extent to which states are using data sources at renewal has been uneven. As of January 2020, the share of automated renewals ranged from less than 25 percent in 11 states to more than 75 percent in 9 states (Brooks et al. 2020). In interviews with state officials and stakeholders in six states in 2018, MACPAC found that many states were struggling to balance the efficiencies gained through connections with electronic data sources with the continued need to provide in-person assistance (MACPAC 2018).

Findings

To better understand rates of churn and continuous coverage, MACPAC contracted with Mathematica to examine T-MSIS enrollment data for 2017–2019, the most recent years publicly available. We identified 42 states and the District of Columbia with useable data for this analysis. (Additional information about our methods and inclusion criteria is described in Appendix A.)

We used the federally assigned, unique beneficiary identifiers in T-MSIS to combine multiple years of data in order to provide a more accurate picture of enrollment spans than possible with just a single year of data. We focused our analyses on beneficiaries enrolled in 2018 and looked back to 2017 in order to measure whether they had at least 12 months of coverage in a single enrollment span. In addition, we looked forward to 2019 to identify whether those who disenrolled in 2018 subsequently re-enrolled within 12 months, which is how we defined churn.

For this analysis, we excluded beneficiaries who were enrolled in multiple states during the study period because 12-month continuous eligibility policies do not apply in these cases. Overall, about 4 percent of beneficiaries were enrolled in multiple states in 2018 and about 6 percent were enrolled in multiple states during the 2017–2019 time period.

Below, we summarize findings about rates of churn and continuous coverage overall and how they relate to state eligibility and enrollment policies. In the following section, we discuss how these results compare to previous research.

Rates of churn and continuous coverage

Overall, 8 percent of full-benefit Medicaid and CHIP beneficiaries enrolled in 2018 disenrolled and re-enrolled within 12 months (Table 1). Rates of churn were highest for children enrolled in separate CHIP (16 percent) and adults enrolled in Medicaid MAGI eligibility groups (9 percent).[3] Rates of churn were lowest for beneficiaries eligible for Medicaid on the basis of a disability and for those age 65 and older (3 percent).

TABLE 1. Rates of Disenrollment and Re-enrollment in Medicaid and CHIP, 2018

Eligibility group	Number of beneficiaries ever enrolled in 2018 included in analysis	Beneficiaries disenrolled in 2018		Beneficiaries disenrolled in 2018 who re-enrolled within 12 months	
		Number	Share of all beneficiaries	Number	Share of all beneficiaries
Total	**72,151,065**	**15,072,817**	**21%**	**5,565,440**	**8%**
Children	**34,988,539**	**6,538,623**	**19%**	**2,882,277**	**8%**
Medicaid, MAGI	30,728,826	5,434,257	18%	2,375,676	8%
Medicaid, children with disabilities	1,276,388	92,255	7%	39,835	3%
Separate CHIP	2,983,325	1,012,111	34%	466,766	16%
Adults	**37,162,526**	**8,534,194**	**23%**	**2,683,163**	**7%**
MAGI	26,115,314	7,212,546	28%	2,340,104	9%
Adults with disabilities	5,845,017	542,739	9%	179,699	3%
Age 65 and older	5,202,195	778,909	15%	163,360	3%

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. Children covered by Medicaid in a MAGI eligibility group include those enrolled in Medicaid expansion CHIP. Analysis excludes partial benefit enrollees and those eligible in a medically needy eligibility category. Analysis excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: Mathematica, 2021, analysis for MACPAC of T-MSIS data.

Overall, 6 percent of beneficiaries in our study sample were enrolled for fewer than 12 months (Table 2). These beneficiaries accounted for about one quarter of all Medicaid and CHIP beneficiaries who disenrolled in 2018, since most beneficiaries who disenrolled had an enrollment span of at least 12 months, after counting months of enrollment in 2017. Both groups of beneficiaries had similar rates of churn (i.e., they were about as likely to re-enroll within 12 months).

Similar to what we observed with rates of churn, children enrolled in separate CHIP and adults enrolled in Medicaid MAGI eligibility groups were more likely to be enrolled for fewer than 12 months than other eligibility groups (Table 2). In contrast, adults and children eligible for Medicaid on the basis of a disability had the longest average length of coverage (11.9 months).

TABLE 2. Rates of 12-Month Continuous Coverage in Medicaid and CHIP, 2018

Eligibility group	Total number of beneficiaries ever enrolled in 2018 included in analysis	Beneficiaries with fewer than 12 months of continuous coverage		Mean length of first span of coverage (capped at 12 months)
		Number	Share of all beneficiaries	
Total	**72,151,065**	**4,405,463**	**6%**	**11.6**
Children	**34,988,539**	**1,589,662**	**5%**	**11.7**
Medicaid, MAGI	30,728,826	1,222,305	4%	11.8
Medicaid, with disabilities	1,276,388	21,973	2%	11.9
Separate CHIP	2,983,325	345,384	12%	11.3
Adults	**37,162,526**	**2,815,801**	**8%**	**11.6**
MAGI	26,115,314	2,476,231	9%	11.4
Adults with disabilities	5,845,017	135,316	2%	11.9
Age 65 and older	5,202,195	204,254	4%	11.8

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. Children covered by Medicaid in a MAGI eligibility group include those enrolled in Medicaid expansion CHIP. Analysis excludes partial benefit enrollees and those eligible in a medically needy eligibility category. Analysis excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: Mathematica, 2021, analysis for MACPAC of T-MSIS data

On average, beneficiaries with fewer than 12 months of coverage had enrollment spans of about 6 months. As a result, the average length of coverage for beneficiaries in our study sample (11.6 months) is only 3 percent less than a full year, rather than 6 percent (the total share of beneficiaries with fewer than 12 months of coverage).

For the 26 states in our analysis with reliable race and ethnicity data, we also examined racial and ethnic disparities in rates of churn and continuous coverage. Overall, 9.4 percent of non-Hispanic, Black beneficiaries and 8.4 percent of Hispanic beneficiaries disenrolled and re-enrolled within 12 months, which was higher than the rate for non-Hispanic, white beneficiaries (8.0 percent). However, non-Hispanic, white beneficiaries were slightly more likely be enrolled for fewer than 12 months (6.5 percent of beneficiaries) than non-Hispanic Black (5.3 percent) and Hispanic beneficiaries (5.3 percent).

The national statistics mask the wide variation in the rates of churn and continuous coverage across states. For example, the share of enrollees who disenrolled and re-enrolled within 12 months varied from 2 percent or less in two states (Hawaii and Arizona) to 12 percent or more in five states (Massachusetts, New Hampshire, Pennsylvania, Texas, and Wisconsin). Similarly, the share of beneficiaries enrolled fewer

than 12 months ranged from 2 percent or less in five states (Arizona, Louisiana, New Mexico, North Carolina, and South Carolina) and the District of Columbia to 12 percent or more in three states (New Hampshire, North Dakota, and Pennsylvania). Below we examine the extent to which state policies are associated with some of these state-level differences.

Potential effects of 12-month continuous coverage

States with 12-month continuous coverage policies still had some children with enrollment spans of less than 12 months. Although our analyses excluded individuals who moved out of state, we were not able to exclude beneficiaries with other valid reasons for disenrolling, such as aging out of the program or not making required premium payments. Also, we were unable to exclude individuals who were presumptively eligible, who are not subject to 12-month continuous coverage policies.

On average, states with 12-month continuous eligibility in Medicaid had about one-third fewer children covered by Medicaid who were enrolled for fewer than 12 months as a share of all beneficiaries in 2018 than states that did not have continuous eligibility policies (Table 3). States with 12-month continuous eligibility in separate CHIP also had about one-quarter fewer children enrolled for fewer than 12 months, on average. In addition, 12-month continuous eligibility was associated with fewer children disenrolling and re-enrolling in coverage within 12 months.

TABLE 3. Average Rates of Continuous Coverage for Children in States with and without 12-Month Continuous Eligibility, 2018

	States without 12-month continuous eligibility (Medicaid n=19, CHIP n=10)	States with 12-month continuous eligibility (Medicaid n=24, CHIP n=21)
Children covered by Medicaid		
Average share of beneficiaries with fewer than 12 months of coverage	4.1%	2.8%
Average length of first span of coverage (capped at 12 months)	11.78	11.84
Average share of beneficiaries who disenroll and re-enroll within 12 months	8.5%	6.0%
Separate CHIP		
Average share of beneficiaries with fewer than 12 months of coverage	9.7%	7.4%
Average length of first span of coverage (capped at 12 months)	11.42	11.58
Average share of beneficiaries who disenroll and re-enroll within 12 months	14.7%	12.7%

Notes: Children covered by Medicaid include children covered by Medicaid in a MAGI eligibility group, children enrolled in Medicaid expansion CHIP, and children eligible for Medicaid on the basis of a disability. Number of states includes the District of Columbia. Analysis excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: MACPAC, 2021, analysis of Mathematica 2021 and Brooks et al. 2018.

Potential effects of data checks for changes in circumstances

On average, states with mid-year data checks for changes in circumstances had a greater share of beneficiaries with fewer than 12 months of coverage in 2018 (Table 4). We observed an even larger difference for adults enrolled in Medicaid MAGI eligibility groups, who are more likely to be affected by this policy than other eligibility groups. States with mid-year data checks for changes in circumstances also had higher rates of beneficiaries who disenrolled and re-enrolled within 12 months.

TABLE 4. Average Rates of Continuous Coverage in States with and without Data Checks for Changes in Circumstances, 2018

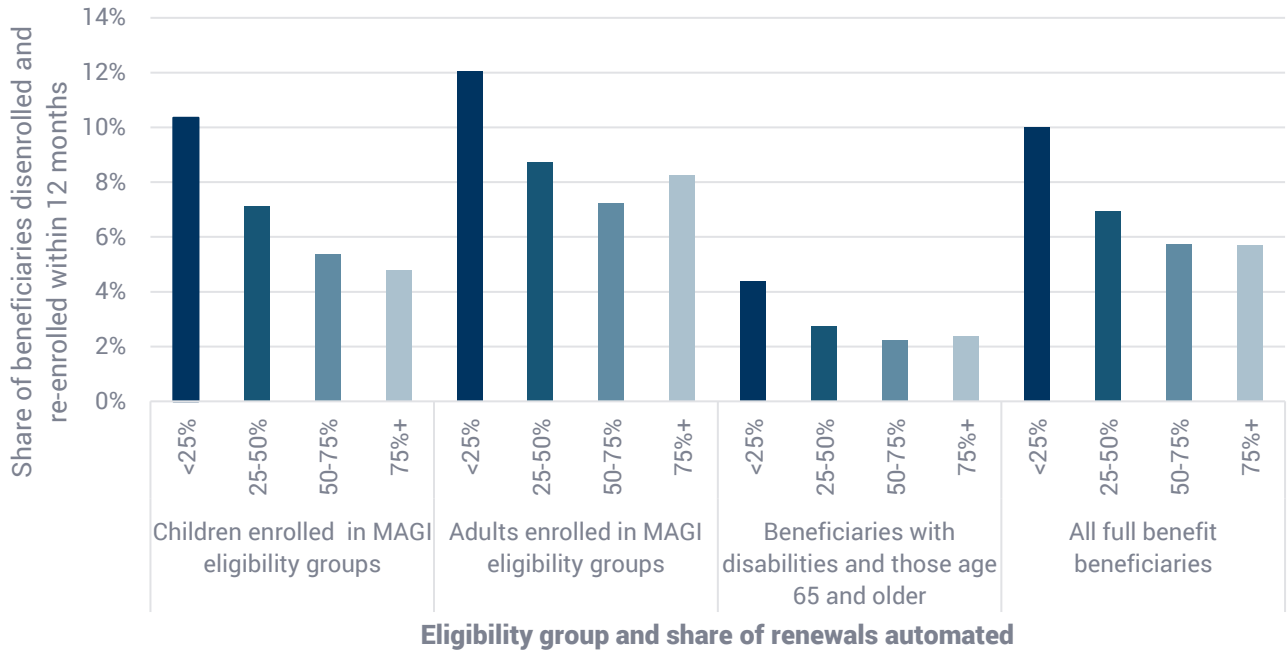
	States without data checks for changes in circumstances (n=21)	States with data checks for changes in circumstances (n=22)
All full-benefit Medicaid and CHIP beneficiaries		
Average share of beneficiaries with fewer than 12 months of coverage	4.8%	6.8%
Average length of first span of coverage (capped at 12 months)	11.73	11.62
Average share of beneficiaries who disenroll and re-enroll within 12 months	6.3%	8.6%
Adults enrolled in Medicaid MAGI eligibility groups		
Average share of beneficiaries with fewer than 12 months of coverage	8.6%	14.5%
Average length of first span of coverage (capped at 12 months)	11.52	11.24
Average share of beneficiaries who disenroll and re-enroll within 12 months	7.7%	10.9%

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. Number of states includes the District of Columbia. Analysis excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: MACPAC, 2021, analysis of Mathematica 2021 and Brooks et al. 2018.

Potential effects of automated renewal

Increased use of automated renewals was associated with a decrease in the average share of beneficiaries who disenroll and re-enroll within 12 months (Figure 1). The differences in churn between states that highly automated renewals and those that did not were largest among children and adults enrolled in MAGI eligibility groups. The differences were smaller for beneficiaries eligible for Medicaid on the basis of a disability and those age 65 years and older, who are often subject to asset tests and other non-MAGI eligibility requirements that may be more difficult to automate. We observed the largest decrease in churn between states with less than 25 percent of renewals automated and states with more than 25 percent of renewals automated. The marginal effect appears to be smaller as the share of automated renewals increases.

FIGURE 1. Average Share of Medicaid Beneficiaries Disenrolled and Re-Enrolled within 12 Months, by Eligibility Group and Share of Renewals Automated, 2018



Notes: MAGI is modified adjusted gross income, a standardized method of counting income used for beneficiaries under age 65 who are not eligible on the basis of a disability. Children covered by Medicaid in a MAGI eligibility group include those enrolled in Medicaid expansion CHIP. In 2018, 14 states in our study reported automating less than 25 percent of renewals, 7 states reported automating 25-50 percent of renewals, 12 states reported automating 50-75 percent of renewals, and 7 states reported automating more than 75 percent of renewals. Three states (Hawaii, North Dakota, and Texas) did not report the share of renewals automated and are excluded from this figure. Analysis also excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: MACPAC, 2021, analysis of Mathematica 2021 and Brooks et al. 2018.

We also examined the use of other methods to use electronic data sources to help ease the renewal process and found similar trends. For example, the 14 states in our study that updated pre-populated renewal forms with more recent data had a 1 percentage point lower average rate of beneficiaries disenrolling and re-enrolling within one year. In addition, the 10 states in our study that proactively updated addresses with more recent data had a 2 percentage point lower rate of churn, on average.

Discussion

This study is the first to our knowledge using T-MSIS data to understand rates of churn and continuous coverage after the implementation of the ACA. Below, we discuss how these results compare to previous research and some limitations of this analysis.

Rates of churn

Overall, the rates of coverage disruptions that we observed in our study (21 percent of all beneficiaries enrolled in 2018) were higher than MACPAC's previous estimates using survey data but were similar to some other prior research from the post-ACA period. Using the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC), MACPAC had previously estimated that only 6.6 percent of adults and 4.4 percent of children lost coverage in 2014 (MACPAC 2017b). Some of this discrepancy may be due to recall error from survey respondents, which has previously been documented in the CPS (Pascale et al. 2015). In comparison, a previous study of coverage disruption in Kentucky, Tennessee, and Texas in 2015 found that 25 percent of adults enrolled in Medicaid experienced coverage disruptions during the year, which is more similar to what we found in our study (Sommers et al. 2016).

There is less prior research on the share of enrollees who disenroll and re-enroll within 12 months, but some states have reported administrative data that is similar to what we found. For example, in California, approximately 7 percent of all beneficiaries re-enrolled in Medicaid after a coverage disruption of 12 months or less in 2019, which is similar to the 5 percent rate of churn that we found for California specifically in 2018 (CA DHCS 2021).

One limitation of this analysis is that we do not know whether beneficiaries experiencing churn transitioned to other sources of coverage or became uninsured. This issue is particularly important for interpreting the high rates of churn that we observed for children enrolled in separate CHIP. However, in our analysis, we were unable to identify if children enrolled in separate CHIP lost coverage due to an increase in household income, or if they became eligible for full Medicaid coverage because of a decrease in household income.

Rates of continuous coverage

The average length of coverage that we found in our study (11.6 months) was greater than previously published estimates using data from before the implementation of the ACA. For example, one commonly cited study using FY 2012 enrollment data found that Medicaid beneficiaries had about 10 months of coverage on average (Ku et al. 2015).

Many previous studies of average lengths of coverage for Medicaid and CHIP beneficiaries have not been able to use multiple years of data to measure enrollment spans for beneficiaries whose coverage spreads across calendar years. To understand the effects of this methodology change, we also calculated average enrollment spans for the beneficiaries in our sample using only 2018 data (Table 5). Using one year of data, we found that the average enrollment span for Medicaid and CHIP enrollees was about 10 months. The average length of coverage was also about 10 months when we limited the analysis to beneficiaries newly enrolled in January 2018 (a method that has also been used in the literature to try and mitigate the limitations of not using multi-year data).

TABLE 5. Comparison of Average Lengths of Coverage under Various Methods, 2018

Eligibility group	Mean length of first span of coverage (capped at 12 months)		
	Multi-year method for all beneficiaries enrolled in 2018	2018 data only for all beneficiaries enrolled in 2018	2018 data only for beneficiaries newly enrolled in January 2018
Total	**11.6**	**10.1**	**10.3**
Children	**11.7**	**10.2**	**10.6**
Medicaid, MAGI	11.8	10.3	10.7
Medicaid, children with disabilities	11.9	11.3	10.7
Separate CHIP	11.3	9.1	9.9
Adults	**11.6**	**9.9**	**9.9**
MAGI	11.4	9.5	9.9
Adults with disabilities	11.9	11.2	10.1
Age 65 and older	11.8	10.7	9.9

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. Children covered by Medicaid in a MAGI eligibility group include those enrolled in Medicaid expansion CHIP. The multi-year method includes enrollment data from 2017 and 2019 to measure enrollment spans that spread across calendar years. Analysis excludes partial benefit enrollees and those eligible in a medically needy eligibility category. Analysis excludes Florida, Kentucky, Mississippi, Nebraska, Oklahoma, Oregon, Utah, and Wyoming because of incomplete or unreliable Transformed Medicaid Statistical Information System (T-MSIS) data.
Source: Mathematica, 2021, analysis for MACPAC of T-MSIS data.

Potential effects of state policies

It is important to note that the associations that we observed between state policy options and rates of continuous coverage and churn do not necessarily imply causation. It is possible that there are other factors that we did not examine that also explain the state variation, such as Medicaid and CHIP income eligibility levels and the use of premiums. We were not able to examine these issues since we did not have reliable data on family income for the beneficiaries included in our study, which often affects the amount of premium charged.

However, our results are consistent with prior research. For example, a recent study using the 2016 through 2019 National Survey on Children's Health found that 12-month continuous eligibility policies were associated with reduced gaps in insurance coverage, particularly gaps due to application problems, even after controlling for a variety of other policy variables and child characteristics (Ku and Brantley 2021).

Endnotes

[1] Prior to 1997, states could effectively provide 12-month continuous eligibility by disregarding income changes under Section 1902(r)(2) of the Social Security Act.

[2] As of March 2021, five states discontinued the use of periodic data checks during the COVID public health emergency (Sugar et al. 2021)

[3] For children enrolled in separate CHIP, it is possible that some of the churn that we observe includes children who transition from separate CHIP to Medicaid coverage.

References

Brooks, T., L. Roygardner, S. Artiga, et al. 2020. *Medicaid and CHIP eligibility, enrollment, and cost sharing policies as of January 2020: Findings from a 50-state survey.* Washington, DC: Kaiser Family Foundation. https://www.kff.org/coronavirus-covid-19/report/medicaid-and-chip-eligibility-enrollment-and-cost-sharing-policies-as-of-january-2020-findings-from-a-50-state-survey/.

Brooks, T., K. Wagnerman, S. Artiga, et al. 2018. *Medicaid and CHIP eligibility, enrollment, renewal, and cost sharing policies as of January 2018: Findings from a 50-states survey.* Washington, DC: Kaiser Family Foundation. https://www.kff.org/report-section/medicaid-and-chip-eligibility-enrollment-renewal-and-cost-sharing-policies-as-of-january-2018-findings-from-a-50-state-survey-premiums-and-cost-sharing/.

California Department of Health Care Services (CA DHCS). 2021. Medi-Cal enrollment update. Sacremento, CA:CA DHCS. https://www.dhcs.ca.gov/dataandstats/Documents/Medi-Cal-Enrollment-Data-April-2021.pdf.

Ku, L. and E. Brantley. 2021. Continuous eligibility for Medicaid associated with improved child health outcomes. *Medical Care Research and Review.* https://journals.sagepub.com/doi/10.1177/10775587211021172.

Pascale, J., M. Roemer, and D. Resnick. 2009. Medicaid underreporting in the CPS: Results from a record check study. *Public opinion quarterly*. 73(3):497-520. https://academic.oup.com/poq/article/73/3/497/1926817.

Mathematica. 2021. Analysis for MACPAC of the Transformed Medicaid Statistical Information System (T-MSIS).

Medicaid and CHIP Payment and Access Commission (MACPAC). 2018. *Eligibility, enrollment, and renewal: Case study findings.* November 2018. Washington, DC: MACPAC. https://www.macpac.gov/publication/eligibility-enrollment-and-renewal-case-study-findings/.

Medicaid and CHIP Payment and Access Commission (MACPAC). 2017a. Federal requirements and state options: Enrollment and renewal procedures. July 2017. Washington, DC: MACPAC. https://www.macpac.gov/publication/federal-requirements-and-state-options-enrollment-and-renewal-procedures/.

Medicaid and CHIP Payment and Access Commission (MACPAC). 2017b. Medicaid enrollment and renewal processes. September 2017. Washington, DC: MACPAC. https://www.macpac.gov/publication/medicaid-enrollment-and-renewal-processes/.

Sommers, B, R. Gourevitch, B. Maylone, et al. 2016. Insurance churning rates for low-income adults under health reform: lower than expected but still harmful for many. *Health Affairs*. 35, no.10: 1816-1824. https://www.healthaffairs.org/doi/10.1377/hlthaff.2016.0455.

Sugar, S., C. Peters, N. De Lew, and B. Sommers. 2021. *Medicaid churning and continuity of care: Evidence and policy considerations before and after the COVID-19 pandemic.* April 12, 2021. Washington, DC: U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation. https://aspe.hhs.gov/reports/medicaid-churning-continuity-care.

Appendix A: Methodology and Data Limitations

MACPAC used data from the Transformed Medicaid Statistical Information System (T-MSIS) to analyze enrollment, disenrollment, and churn and their association to state policies. Below we describe the data used in our analysis, our inclusion and exclusion criteria for which states were included in our analyses, and the limitations of the data.

Data source

We used the 2017, 2018, and 2019 TAF Research Identifiable Files (RIF) for this analysis. For 2017 and 2018, we used final versions of the data, which include at least 12 months of run-out. For 2019, a final version does not yet exist, so we used a preliminary version, which includes at least six months of run-out.

The T-MSIS source eligibility data are converted into a research-ready Demographic and Eligibility (DE) TAF, which summarizes the monthly data submissions into one annual beneficiary record to track enrollment and changes in enrollment status over each year. Additionally, a federally-assigned unique beneficiary identifier (BENE ID) was included in the file, which allows for enrollment tracking across states, years, and distinct enrollment periods.

State inclusion criteria

Data quality thresholds were established to remove states from the analysis that have a large enough amount of missing or inaccurate data that they could potentially produce inaccurate and misleading continuous enrollment and churn metrics. These thresholds were based on those used in the T-MSIS data quality (DQ) atlas that the Centers for Medicare & Medicaid Services (CMS) developed. Overall, 42 states and the District of Columbia were included in all analyses and 26 states were included in the race and ethnicity analyses.

State exclusions for enrollment and churn analyses. Eight states were removed from the enrollment and churn analyses because of incomplete data (Table A-1). In three states (Utah, Nebraska, and Mississippi), total Medicaid and CHIP enrollment appeared to be underreported by more than 10 percent based on an external benchmark. In one state (Oregon), more than 10 percent of beneficiaries were missing an eligibility group code. Finally, in five states (Florida, Kentucky, Oklahoma, Utah, and Wyoming), we observed an unusual number of enrollment spans per year, a potential indicator of inaccurate reporting of enrollment start and end dates. Overall, the 42 states and the District of Columbia included in this analysis represent 88.7 percent of Medicaid enrollment nationally in 2018. Additionally, 32 of the included states had children enrolled in separate CHIP and were included in the separate CHIP analyses. This accounts for 85 percent of children enrolled in separate CHIP enrollment in 2018.

TABLE A-1. States Excluded from the Enrollment and Churn Analyses

Data quality measure	States excluded
Total Medicaid and CHIP enrollment	• Utah, Nebraska, and Mississippi under-reported enrollment by greater than 10 percent.
Eligibility group code	• Oregon was missing the eligibility group code for 12 percent of eligibility records.
Number of enrollment spans	• Oklahoma reported 5 percent of beneficiaries with three or more enrollment spans in 2018 and 2019. • Utah reported 28 percent of beneficiaries with one enrollment span in 2018. • Wyoming, Kentucky, and Florida reported greater than 99.5 percent of its beneficiaries with only one enrollment span in 2017 or 2018.

State exclusions for race and ethnicity analysis. An additional 17 states and the District of Columbia were removed from the race and ethnicity enrollment analysis (Table A-2). Using criteria similar to what has been used on CMS's DQ Atlas, we excluded states if more than 20 percent of records had missing race and ethnicity information or if the distribution of race and ethnicity groups varied from the American Community Survey (ACS) by more than 15 percent for any group. Overall, the 26 states included in the final race and ethnicity analysis represent 65 percent of Medicaid and CHIP enrollment nationally in 2018.

TABLE A-2. States Excluded from the Race and Ethnicity Analysis

Level of data quality concern	States excluded
Medium concern in DQ Atlas	Colorado and Idaho
High concern in DQ Atlas	Arizona, Arkansas, Connecticut, District of Columbia, Hawaii, Iowa, Kansas, Louisiana, Massachusetts, Missouri, New York, Oregon, South Carolina, Utah, West Virginia, and Wyoming
Unusable in DQ Atlas	Mississippi, Nebraska, Rhode Island, and Tennessee

Beneficiary exclusion criteria

For states with complete data, we limited our analyses to full-benefit beneficiaries with eligibility group codes who were not enrolled in multiple states. Of the 85 million unique records in T-MSIS for the states that met our inclusion criteria, 72 million were included in the final study.

Missing eligibility group codes. Beneficiaries were only included in the final analyses if they had an eligibility group assigned during all months of enrollment in 2018. Overall, 796,731 beneficiaries were excluded for missing eligibility group codes.

Beneficiaries enrolled in more than one state. For this analysis, we excluded beneficiaries who were enrolled in multiple states during the study period because 12-month continuous eligibility policies do not apply in these cases. Overall, a total of 4.2 million beneficiaries were excluded based on this criteria.

Excluded eligibility groups. We limited our analyses to full-benefit Medicaid and CHIP beneficiaries. As a result, we excluded 2.8 million beneficiaries enrolled in MSPs, 1.7 million beneficiaries enrolled in emergency Medicaid, 2.6 million people enrolled in pregnancy-only benefit, and 591 thousand people in medically needy eligibility groups. We also excluded pregnant women enrolled in CHIP and children under age 1 enrolled in separate CHIP (which may reflect pregnant women covered under the unborn child option).[1]

Calculating length of enrollment spans

We used the federally-assigned BENE ID, the unique beneficiary identifier in T-MSIS, to combine multiple years of data for this analysis because it can be used to identify unique beneficiaries and track their enrollment over time and across states. Using the BENE ID provides a more accurate picture of enrollment spans over time and across states than if we only used the state specific Medicaid Statistical Information System (MSIS) ID. However, BENE IDs cannot always be linked to MSIS IDs, so BENE IDs were used for all beneficiaries where it is available.

We focused our analyses on beneficiaries enrolled in 2018. To identify the length of enrollment spans for enrollees, we looked back to 2017 to measure whether beneficiaries had at least 12 months of coverage and forward to 2019, to identify whether beneficiaries who disenrolled in 2018 later re-enrolled with 12 months.

The start and end dates of enrollment were used to calculate the exact date range for each enrollment span. To calculate the number of months that a beneficiary is enrolled, the enrollment span was counted in days and divided by 30.4 to convert the enrollment span to a month equivalent.

Endnotes

[1] MACPAC uses the term pregnant women as this is the term used in the statute and regulations. However, the term birthing people is being used increasingly, as it is more inclusive and recognizes that not all individuals who become pregnant and give birth identify as women.