Healthcare Quality and Access for Children and Youth in Foster Care by Delivery System: Final Report

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September 2025

KNG HEALTH CONSULTING LLC

Acknowledgements

About KNG Health Consulting, LLC

KNG Health Consulting, LLC, is a health economics and policy consulting company assisting clients across all sectors of the health care industry. The company's work focuses on two main practice areas: Healthcare Reform and Payment Innovation (HRPI); and Evaluation and Health Economics (EHE). In the HRPI practice, KNG Health's experts work with our clients to estimate the effects of a wide range of health care reform and payment innovation policies, ranging from modeling innovative state and federal proposals to reduce health insurance premiums to facilitating learning systems for providers on alternative payment models. In the EHE practice, KNG Health's experts conduct studies on the efficiency, effectiveness, and value of medical interventions using big and small data, applying careful research designs, and translating findings into actionable results.

KNG Health is a small, woman- and minority-owned business located in the Washington, DC metropolitan area.

Study Contributors

Several KNG Health staff contributed to the development of this report, including Robert C. Saunders (Project Director), Emily Burgen, Kaylee Scarim, Katie Fujimori, and Lane Koenig. We would also like to acknowledge Bennett Datu of X06 Consulting for his programming assistance and guidance on the measure specifications.

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Executive Summary

Under Title IV-E of the Social Security Act, all children and youth who are eligible for foster care assistance are categorically eligible for Medicaid, which serves as their primary insurer and provides access to critical services including preventive care, behavioral health, and developmental supports.[1] Over time, state Medicaid programs have transitioned from traditional fee-for-service (FFS) models to Medicaid managed care (MMC). While prior research has demonstrated the benefits of MMC—particularly as delivered through comprehensive, risk-based managed care organizations (MCOs)—to the broader Medicaid population, limited research has evaluated how different Medicaid delivery models serve children and youth in foster care (CYFC).

This report addresses that gap by comparing quality of care and use of services for CYFC enrolled in three types of Medicaid delivery systems: (1) FFS, (2) general MCOs, and (3) specialized MCOs that exclusively serve the CYFC population. Using 2021–2022 Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF), the study analyzed performance across 15 process measures of quality of care and 6 utilization measures for over 530,000 CYFC in 40 states and the District of Columbia.

Key findings from the report include:

1. **Managed care outperformed FFS across the quality measures**
   CYFC enrolled in managed care plans—both general and specialized—had higher rates of well-child visits (e.g., 26.2% for FFS v. 44.6% in specialized and 42.0% in general MCOs), preventive dental care (38.6% for FFS v. 44.6% for specialized and 53.3% for general MCOs), follow-up after mental health hospitalizations (e.g., 38.2% for 30-day follow-up in FFS v. 47.8% for specialized and 43.3% for general MCOs), and asthma treatment (21.6% for FFS v. 52.7% for specialized and 53.0% for general MCOs) than those in FFS.

2. **Specialized managed care plans delivered the highest performance related to mental health needs**
   Specialized MCOs outperformed general MCO plans, with statistically significant differences ranging from 4 to 19 percentage points, across multiple mental health domains including follow-up care for a mental health-related ED visit (e.g., 47.9% receiving a visit post-discharge within 7 days in specialized MCOs v. 31.1% in general MCOs), initiation of treatment for attention deficit/hyperactivity disorder (61.7% for specialized MCOs v. 56.1% for general MCOs), and first-line psychosocial care for youth prescribed antipsychotic medications. (65.5% for specialized MCOs v. 56.2% for general MCOs).

3. **CYFC in managed care had more complex needs**
   Despite serving youth with higher rates of chronic health conditions (e.g., 43% in specialized and general MCOs v. 39% in FFS) and mental health conditions (e.g., 26.7% in specialized MCOs v. 29.3% in general MCOs v. 25.4% in FFS), managed care plans, particularly specialized MCOs, consistently achieved better performance than FFS on process measures of quality. This underscores the potential of targeted, coordinated delivery models to improve care for populations with more intensive support needs.

[1] 45 CFR Part 1356

CYFC historically have had unique health challenges that require coordinated, trauma-informed, and flexible care. This study finds that risk-based MCOs, especially specialized plans designed for CYFC, provide better quality of care than FFS models. These findings point to the potential benefits to CYFC of expanded access to specialized managed care, including improved quality of care for these youth. Additional research will be needed to assess whether these effects translate into improvements in clinical outcomes.

Overview

CYFC experience a well-documented range of physical and behavioral health concerns.[2] These include lack of routine well-child visits, immunizations, vision and hearing screenings, and dental services; poorer outcomes, including weight-related issues; missed developmental milestones; high rates of chronic health and behavioral health conditions; and increased risk of traumatic events and engaging in high-risk behaviors.[3] This multiplicity of challenges adds to the importance of monitoring the access to care and well-being of CYFC.

Although Medicaid coverage varies across states, foster care is one of the mandatory eligibility categories for all states. Over time, the Medicaid program has transitioned from an entirely FFS system to one that is predominantly managed care, with upwards of 75 percent of Medicaid beneficiaries in 2022 served through comprehensive risk-based systems.[4] MMC may offer better coordination of care within the healthcare system and with social service programs intended to improve the health and well-being of Medicaid beneficiaries. For example, managed care plans can embed child welfare case workers within their care teams, enabling shared care planning and real-time updates on placement changes, service needs, and treatment goals.

Throughout the transition to MMC, research has documented improvements for Medicaid beneficiaries, relative to FFS, in the cost, utilization, and quality of care.[5] However, little is known about differences in the quality of care for CYFC in FFS and managed care delivery systems. Advances in measuring quality, newly available research data for Medicaid beneficiaries, and the development of specialized managed care models present an opportunity to further understand the value of managed care for state Medicaid programs.

The purpose of this analysis was to assess differences in quality and utilization of care for CYFC delivered through risk-based MCOs and Medicaid FFS. The analysis also assessed whether “specialized” MCOs, which exclusively enroll or customize delivery to CYFC, performed better than FFS or general MCOs.

KNG Health conducted literature reviews on the performance of Medicaid delivery systems for CYFC and generated new summary information on access and quality of care through an analysis of TAF enrollment and claims/encounter data. Although the literature is well-developed with respect to managed care broadly and MMC generally, the most recent comprehensive review was in 2020, and little attention has

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[2] Deutsch, S. A., & Fortin, K. (2015). Physical Health Problems and Barriers to Optimal Health Care Among Children in Foster Care. *Current problems in pediatric and adolescent health care*, *45*(10), 286–291. https://doi.org/10.1016/j.cppeds.2015.08.002.

[3] Deutsch, S. A., & Fortin, K. (2015); Engler, A. D., Sarpong, K. O., Van Horne, B. S., Greeley, C. S., & Keefe, R. J. (2022). A Systematic Review of Mental Health Disorders of Children in Foster Care. *Trauma, violence & abuse*, *23*(1), 255–264. https://doi.org/10.1177/1524838020941197.

[4] *Total Medicaid MCO enrollment: KFF State Health Facts*. KFF. (2025, August 1). ww.kff.org/medicaid/state-indicator/total-medicaid-mco-enrollment.

[5] Franco Montoya, D., Chehal, P. K., & Adams, E. K. (2020). Medicaid managed care's effects on costs, access, and quality: An update. *Annual review of public health*, *41*, 537–549. https://doi.org/10.1146/annurev-publhealth-040119-094345; Glied, S. (2000). Chapter 13 Managed care. *Handbook of Health Economics, 1*, 707-753; Gold, M., & Mittler, J. (2000). "Second-generation" Medicaid managed care: can it deliver? *Health care financing review*, *22*(2), 29–47.

been paid to measures for CYFC. Appendix A and Exhibit 9 summarize this targeted review. The TAF data, updated through 2022, provide an opportunity to assess quality of care using the existing federally-required quality measures but targeted for the CYFC population.

Background

In 2021, over 600,000 children and youth were served in the foster care system in the United States, according to the Adoption and Foster Care Analysis and Reporting System (AFCARS).[6] While the national foster care population has declined in recent years, the trend is not uniform across states. Over the past decade, 21 states and the District of Columbia (DC) experienced a reduction in their foster care populations, while 29 states reported increases.[7]

CYFC often enter the system with unmet and complex health needs. A 2023 ASPE brief revealed that over 40 percent of children involved with the child welfare system had at least one behavioral health condition, such as anxiety, depression, and post-traumatic stress disorder (PTSD).[8] These children utilized substantially more behavioral health services than their peers who were not involved with the child welfare system, with outpatient mental health services and psychotropic medications being particularly common.[9]

Medicaid serves as the primary health insurer for CYFC, covering over 99 percent of this population.[10] It provides comprehensive services, including preventive care, mental health services, and support for developmental needs. Medicaid also plays a crucial role in facilitating coordination between the healthcare and child welfare systems. For example, Medicaid agencies can develop shared data systems that allow child welfare and healthcare providers to track placement changes, treatment plans, and service needs in real time.[11]

States utilize three primary Medicaid delivery systems to serve CYFC:[12]

- **FFS:** Traditional financing model where healthcare providers are reimbursed for each service directly from the state. Some states continue to use FFS for CYFC, either exclusively or as an alternative to MMC, while other states use FFS in combination with Primary Care Case Management (PCCM). In a PCCM program, Medicaid beneficiaries are enrolled in FFS but are assigned or choose a primary care

[6] KIDS COUNT Data Center. (2025 August). *Children in foster care in United States*. The Annie E. Casey Foundation. http://bit.ly/4kurWbG.
[7] KIDS COUNT Data Center, 2025.
[8] Radel L, Lieff S, Couzens C, Ali MM, and West K. (2023). Behavioral Health Diagnoses and Treatment Services for Children and Youth Involved with the Child Welfare System: BRIEF. Office of the Assistant Secretary for Planning and Evaluation (ASPE).
[9] Lieff, S., Couzens, C., Radel, L., Ali, M. M., & West, K. (2024). Behavioral Health Treatment by Service Type and Race and Ethnicity for Children and Youth Involved with the Child Welfare System: BRIEF. Office of the Assistant Secretary for Planning and Evaluation (ASPE).
[10] Libby, A. M., Kelleher, K. J., Landsverk, J., Leslie, L. K., O'Connell, J., Rolls, J. A., & Wood, P. A. (2006). "Child welfare systems policies and practices affecting Medicaid health insurance for children: A national study." *Journal of Social Services Research, 33:39-49.*
[11] 45 CFR 1355.52(e)(2)(iii))
[12] Thompson, V. (2022). How State Medicaid Programs Serve Children and Youth in Foster Care. National Academy for State Health Policy. https://nashp.org/how-state-medicaid-programs-serve-children-and-youth-in-foster-care/.

provider (PCP) who serves as their medical home and is responsible for providing basic care and coordinating referrals to specialty services.[13]

- **General MCO:** CYFC are enrolled in plans from the same MCOs that states are already contracting with for other Medicaid beneficiaries. MCOs are typically responsible for providing a defined set of benefits in exchange for a capitated per-member, per-month (PMPM) payment from the state. CYFC in this model receive care through existing networks of primary and specialty providers that contract with the MCO.
- **Specialized MCO:** In this model, a single MCO is solely responsible for coordinating tailored services for the CYFC population. These plans may be statewide or regional and offer enhanced care coordination, trauma-informed services, and integration with child welfare systems.

States choose the Medicaid delivery system for CYFC, and they also have the option either to mandate or allow voluntary MMC enrollment. Among states with voluntary MMC enrollment, enrollment decisions are often made by the state on behalf of the CYFC, as their legal guardian.

Over time, the tools to assess performance of MMC systems have evolved. Use of HEDIS® measures[14] in managed care accreditation and their subsequent incorporation as a pillar within the Medicaid Adult and Child Core Set measure reporting program have created a standardized set of measures covering all Medicaid and Children's Health Insurance Program (CHIP) beneficiaries.[15] HEDIS® measures, however, have not been calculated under FFS models due to the lack of quality standards under these programs. Additionally, expanded claims and encounter-based data systems—first in the Medicaid Analytic eXtract (MAX)[16] and now in the TAF—have enhanced the capacity to assess delivery system performance for Medicaid beneficiaries.[17] Improved data availability has afforded the opportunity to focus on patterns of care and needs within Medicaid populations with specialized healthcare requirements.

The Centers for Medicare & Medicaid Services (CMS) has previously acknowledged the need for more data-driven evaluations of the different delivery systems for CYFC.[18] The recent improvements in data availability provide an unprecedented opportunity to address this knowledge gap. Therefore, this study aims to examine the variation in access and quality of care among CYFC based on enrollment in either FFS, general MCO, or specialized MCO.

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[13] CYFC enrolled in the PCCM model were excluded from this study.
[14] *HEDIS*. NCQA. (2025, March 13). https://www.ncqa.org/hedis/.
[15] *Child and adult health care quality measures*. Medicaid. (2025, August 1). https://www.medicaid.gov/medicaid/quality-of-care/quality-of-care-performance-measurement/index.html.
[16] *Medicaid analytic extract (MAX) general information*. Medicaid. (2025, August 1). https://www.medicaid.gov/medicaid/data-systems/macbis/medicaid-chip-research-files/medicaid-analytic-extract-max-general-information
[17] *Transformed Medicaid Statistical Information System (T-MSIS)*. Medicaid. (2025, August 1). https://www.medicaid.gov/medicaid/data-systems/macbis/transformed-medicaid-statistical-information-system-t-msis
[18] *Improving timely health care for children and youth in Foster Care*. Medicaid. (2025, August 1). https://www.medicaid.gov/medicaid/quality-of-care/improvement-initiatives/foster-care-learning-collaborative/index.html.

Methods

This analysis sought to assess whether the assigned delivery system (FFS, general MCO, or specialized MCO) for CYFC was associated with differences in quality of care and use of healthcare services. The TAF Research Identifiable Files (RIF) used for this project were accessed through an Innovator Data Use Agreement (DUA) with CMS and processed within the CMS Virtual Research Data Center (VRDC).

Data Source

Administrative data from 2021-2022 found on enrollment and claims in the TAF were used to identify CYFC and construct quality and utilization measures. The analysis used the Demographics and Eligibility (DE) files plus the four types of claims files: inpatient (IP), long-term care (LT), other services (OT), and pharmacy (RX).

Study Sample

The study sample was built first by identifying the population of CYFC, and then by limiting the sample to states with valid data and that delivered services through an MCO or FFS system. Children were identified as CYFC for this study if they had 12 months of continuous enrollment in foster care in 2022 with full or comprehensive Medicaid benefits and were 18 years old or younger as of December 31.[19] Ordinarily, a long continuous enrollment requirement would substantially reduce sample size due to known instability of Medicaid coverage.[20] However, due to the Family First Coronavirus Response Act (FFCRA) states were required to pause annual eligibility redeterminations until March 31, 2023, which limited disenrollment. CYFC were excluded from the sample if they were dually eligible for Medicare at any point within the year, because Medicare-financed services were not available for the measure calculations, or if certain key data fields were missing (e.g., patient identifiers, birth date) that would prevent proper classification of youth.

Youth in the sample were required to be enrolled for 10 or more months in MMC or 10 or more months in FFS and have continuous enrollment in only one state. This helped to ensure contrast between the MMC and FFS population and avoid concerns about mixed exposure to service delivery arrangements.

Youth from six states that operated through non-MCO managed care systems (e.g., primary care case management),[21] and one state that had managed care status that could not be accurately coded were

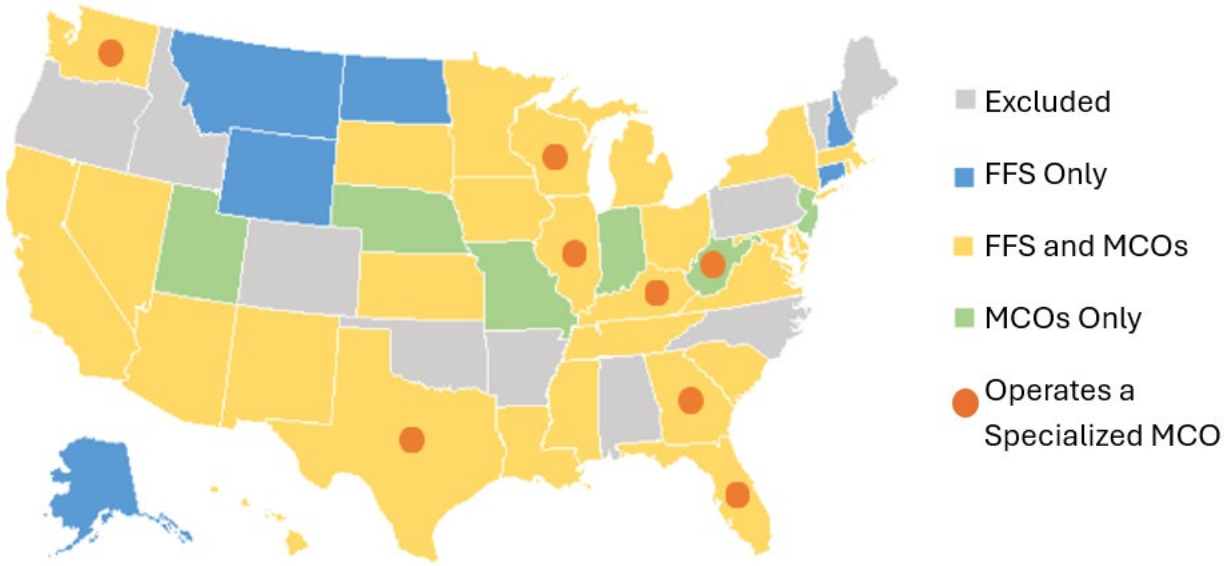
[19] Based on the continuous enrollment criterion, this means no youth less than 1 year of age were included.
[20] Nelson, D. B., Goldman, A. L., Zhang, F., & Yu, H. (2023). Continuous Medicaid coverage during the COVID-19 public health emergency reduced churning, but did not eliminate it. *Health affairs scholar*, *1*(5), qxad055. https://doi.org/10.1093/haschl/qxad055]; Sugar, S., Peters, C., De Lew, N., & Sommers, B.D. (2021). Medicaid Churning and Continuity of Care: Evidence and Policy Considerations Before and After the COVID-19 Pandemic: BRIEF. Office of the Assistant Secretary for Planning and Evaluation (ASPE).
[21] Alabama, Arkansas, Colorado, Idaho, Maine, and North Carolina (Thompson, 2023).

also excluded.[22] Connecticut was assigned as FFS, overriding the TAF data categorization.[23] Youth from Oklahoma, Oregon, and Pennsylvania were excluded due to known data completeness issues in the TAF.[24] As a result, the study sample of CYFC covered 40 states and the District of Columbia.

Service Delivery System

CYFC with MMC were subdivided into two groups based on the type of MCO that covered the child's services. Within the MMC portion of the sample, CYFC from eight states that offered "specialized" MCOs[25] were classified as part of either a specialized or a general MCO plan according to the plan identifier recorded in the enrollment file. CYFC were assigned to the specialized MCO group if they spent six or more months of a year in a specialized MCO. (See Appendix B for the full list of states contributing cases per system.) **Exhibit 1** displays which states had members enrolled in FFS only, FFS and MMC, MMC only, or were excluded from the study.

Exhibit 1: States Contributing Cases to the Study per Service Delivery System



Note. See Appendix B, Exhibit 10. FFS = Fee-for-Service. MCO = Managed Care Organization.

[22] Various sources count Vermont as operating a managed care system (e.g., https://www.medicaid.gov/sites/default/files/2023-07/vt-2021-mmcdcs.pdf), but the TAF data do not include any indication of managed care participation for the Medicaid beneficiaries.
[23] Connecticut operates as FFS Medicaid system (e.g., https://www.managedhealthcareexecutive.com/view/connecticut-bucks-the-medicaid-managed-care-trend), but the TAF recorded all enrollees as having managed care coverage, through a prepaid transportation plan.
[24] Radel et al., 2023.
[25] Florida, Georgia, Illinois, Kentucky, Texas, Washington, West Virginia, and Wisconsin.

Measures

This report presents findings on a set of 21 quality of care process measures (15) and utilization measures (6) to compare performance by service delivery system (**Exhibit 2**). These measures were selected and adapted due to their suitability for calculation with claims and enrollment data, their relevance in federal and state monitoring of Medicaid and CHIP performance, and their timeliness for performance reporting. (See Appendix C: Reported Measures for the list of measures with their descriptions and adaptations applied to the measure specifications.)

Exhibit 2: Quality and Utilization Measures Used to Compare MMC and FFS Performance for CYFC

Quality Measures – Primary & Medical Care (7 metrics)	Quality Measures – Behavioral Health Care (8 metrics)	Utilization Measures (6 metrics)

• Well-Child Visits (WCV) for Children and Adolescents (% Receiving at least 1 WCV)
• WCV for Younger Children (12-30 months; 2 metrics)
  ○ % receiving at least 1 WCV
  ○ Average number of visits
• Prenatal Care and Postpartum Care (PPC) (2 metrics)
• Oral Evaluation, Dental Services (OEV) (% Receiving at least 1 oral evaluation visit)
• Asthma Medication Ratio (AMR)
	• Follow-Up After Hospitalization for Mental Health (FUH): 7-day rate
	• FUH: 30-day rate
	• Follow-Up After Emergency Department Visit for Mental Health (FUM): 7-day rate
	• FUM: 30-day rate
	• Follow-Up After Emergency Department Visit for Substance Use (FUA): 7-day rate
	• Follow-Up Care for Children Prescribed Attention-Deficit/Hyperactivity Disorder (ADHD) Medication – Initiation Rate (ADD)
	• Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)
		• Inpatient Utilization: Access (% with any visits within the year)
		• Inpatient Utilization: Length of Stay
		• Residential Utilization: Access (% with any visits within the year)
		• Residential Utilization: Length of Stay
		• Emergency Department (ED) Utilization Percentage (% with any visits within the year)
		• All cause Readmission (observed percentage of unplanned readmissions within 30-days)

Note: Full measure descriptions and adjustments to the measures from Core Set specifications, where applicable, are included in Appendix C: Reported Measures.

Analytic Approach

This analysis sought to understand the differences in quality and utilization of care across CYFC using TAF data and a selection of measures drawn from the Medicaid Child Core Set and the literature. To understand demographic differences in the study population, CYFC were summarized by age, sex, and

race. Age groups were calculated based on age at the end of the year (2022) and were grouped into: <3, 3-5, 6-11, and 12-18. Sex follows the enrollment file and was recorded as Male or Female. Race also followed the enrollment file, which combines race and ethnicity into a single variable. The variable was grouped as Hispanic origin, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian American or Pacific Islander, Other, and Missing.[26]

To describe the health needs of the study sample, prevalence of chronic conditions was measured using the Pediatric Medical Complexity Algorithm (PMCA). The PMCA groups cases into three categories: Complex Chronic, Non-Complex Chronic, and Non-Chronic. The PMCA has been validated for use with patients at children's hospitals and in analyses of CYFC in Medicaid.[27]

Diagnostic algorithms from the Chronic Conditions Warehouse (CCW)[28] were used as a starting point to categorize any mental health,[29] substance use,[30] developmental disorders and disabilities,[31] and tobacco use disorders among sample members. Additional details on the prevalence of specific conditions were included for asthma (because of the connection to the asthma medication ratio measure) and specific mental health conditions:

- Attention Deficit and Hyperactivity Disorder
- Anxiety Disorder
- Bipolar Disorder
- Conduct Disorder
- Depressive Disorder
- Personality Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Schizophrenia and Other Psychotic Disorder

[26] To avoid small numbers in reporting, the "Other" category includes values coded directly in the TAF as "Other" plus youth coded in the TAF as Native American and Alaskan Native category.
[27] Simon, T. D., Haaland, W., Hawley, K., Lambka, K., & Mangione-Smith, R. (2018). Development and Validation of the Pediatric Medical Complexity Algorithm (PMCA) Version 3.0. *Academic pediatrics, 18*(5), 577–580. https://doi.org/10.1016/j.acap.2018.02.010; Kaferly, J., Orsi-Hunt, R., Hosokawa, P., Sevick, C., Creel, L. M., Mathieu, S., & Mark Gritz, R. (2024). Health Differs by Foster Care Eligibility: A Nine-Year Retrospective Observational Study Among Medicaid-Enrolled Children. *Academic pediatrics, 24*(7), 1092–1100. https://doi.org/10.1016/j.acap.2023.12.006. We used the more restrictive definition that required two or more claims endorsing a condition for inclusion.
[28] *Condition categories*. Chronic Conditions Data Warehouse. (2025, August 1). https://www2.ccwdata.org/web/guest/condition-categories. Note: We modified the algorithm to use only one year of claims data instead of two and only used the diagnostic criteria rather than procedure-based identification of conditions. This mainly affected certain substance use conditions.
[29] Any mental health disorder is categorized if any of the separate conditions below were listed: ADHD, anxiety disorder, bipolar disorder, conduct disorder, depressive disorder, personality disorder, PTSD, or schizophrenia and other psychotic disorders.
[30] Any substance use disorder is categorized by the separate identification of alcohol or drug use disorders.
[31] Any developmental disorder is categorized by the separate identification of autism spectrum disorders, intellectual disabilities and related conditions, learning disabilities, or other developmental delays.

The analysis presents relative frequencies of the demographic and health-related needs measured for the CYFC study population by managed care status (specialized MCO, general MCO, and FFS). Between-group differences were tested using the Pearson chi-squared test. In addition, Pearson residuals (standardized differences between observed and expected cell counts) were used to identify differences between groups. Differences between the specialized MCO and general MCO groups were also tested. Unadjusted rates for the quality and utilization measures identified above are also presented.[32]

Findings

The study population in 2022 included 530,465 CYFC from 40 states and DC. MCOs served 88.8 percent of the study sample.[33] Of those served by MCOs, 57.7 percent (n=306,194) were served across 34 states[34] and DC through general MCOs, while another 31.1 percent (n=165,060) of CYFC in 8 states were served through specialized MCOs (**Exhibit 1**).[35] The remaining 11.2 percent (n=59,211) of CYFC were served through FFS in 34 states and DC.[36]

Characteristics of CYFC Study Sample

Across all three groups, slightly more than half of youth were male, with no differences by delivery system. Across the three delivery systems, most CYFC in the study sample were aged 12-18. Specialized MCOs were more likely to include younger children than both general MCOs and FFS: 25.9 percent of youth in specialized MCOs were ages 5 or younger, compared to 15.4 percent and 14.7 percent of youth in general MCOs and FFS, respectively (**Exhibit 3**).

[32] The adjusted estimates were nearly identical across measures, so for simplicity we are reporting only the unadjusted performance rates. Adjustment factors included age, race, sex, and PMCA chronic condition categories. This partly reflects the limited number of attributes being adjusted for and, for the quality measures, the already narrowly defined eligible populations.

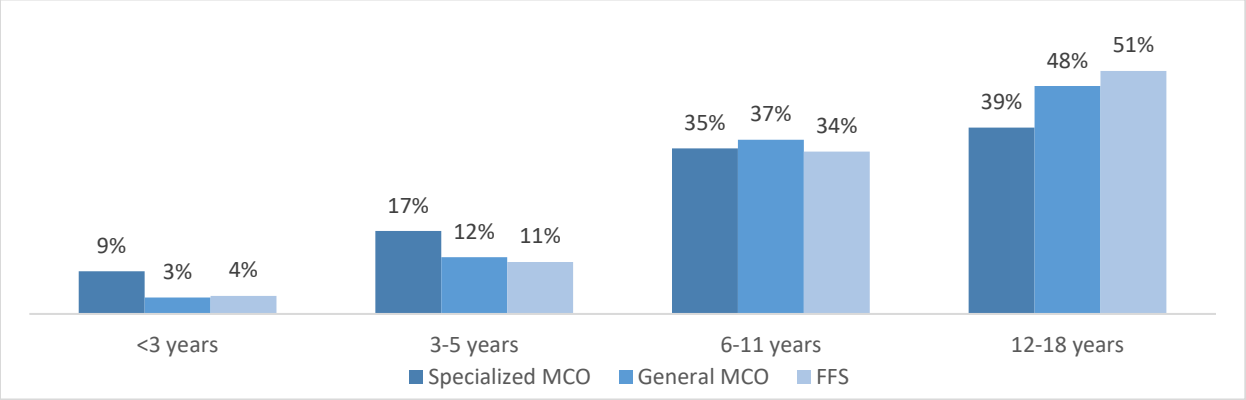
[33] The following states were excluded: Alabama, Arkansas, Colorado, Idaho, Maine, North Carolina, Oklahoma, Oregon, Pennsylvania, and Vermont.

[34] Arizona, California, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, and Wisconsin.

[35] Florida, Georgia, Illinois, Kentucky, Texas, Washington, West Virginia, and Wisconsin.

[36] Alaska, Arizona, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nevada, New Hampshire, New Mexico, New York, North Dakota, Ohio, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, Wisconsin, and Wyoming.

Exhibit 3: Age Groups of CYFC, by Delivery System

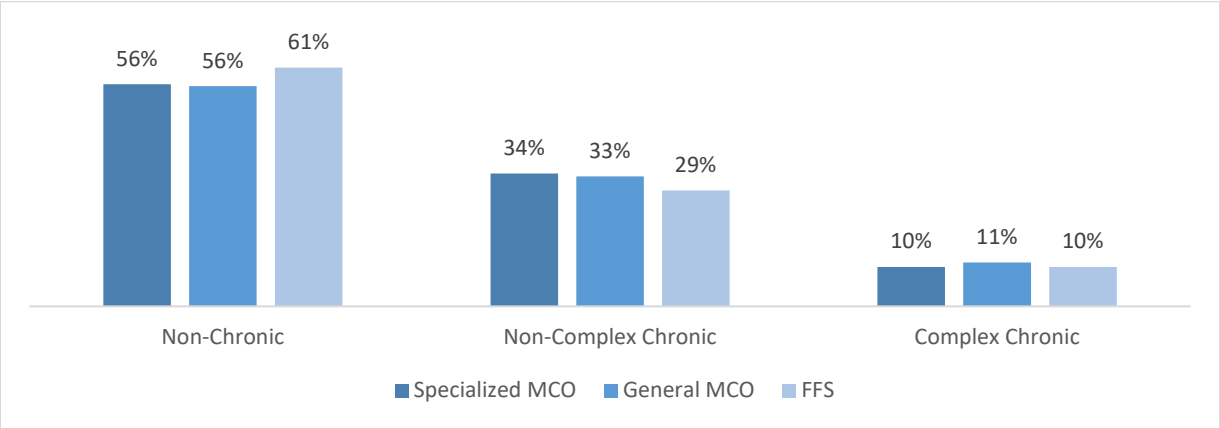


Source. KNG Health analysis of 2021 and 2022 TAF data.
Note. See Appendix D, Exhibit 12 for full demographic results. MCO = Managed Care Organization.

The distribution of the study sample by race/ethnicity varied across the delivery systems. A greater proportion of CYFC in managed care plans, whether specialized or general MCOs, were Black, Non-Hispanic and White, Non-Hispanic as compared to FFS; whereas CYFC in FFS were slightly more likely to be Hispanic and far more likely to have Other race recorded (11.5 percent) than specialized MCO (0.8 percent) or general MCO (1.7 percent) enrollees (Appendix D, Exhibit 12). In contrast, CYFC served through managed care plans were more likely to have missing race information: 14.1 percent of enrollees in specialized MCOs and 13.2 percent in general MCOs had missing race, compared to only 7.6 percent among FFS enrollees.

In terms of health status, about 39 percent of CYFC in FFS arrangements had a chronic or complex medical condition, compared with 44 percent in general MCOs and 44 percent in specialized MCOs (**Exhibit 4**).

Exhibit 4: Rates of Chronic Conditions, by Delivery System



Source. KNG Health analysis of 2022 TAF data.
Note. See Appendix D, Exhibit 13 for full results. MCO = Managed Care Organization. FFS = fee-for-service.

The prevalence of specific conditions was determined to assess potential case mix differences across delivery systems. (Appendix D, Exhibit 14)

- Asthma rates were comparable across delivery systems (FFS, 2.1 percent; general MCO, 2.6 percent; specialized MCO, 2.7 percent).
- Rates of any developmental disorders, driven primarily by the presence of learning disabilities, were very similar across delivery systems (FFS, 11.6 percent; general MCO, 11.0 percent; specialized MCO, 11.4 percent).
- Prevalence of any substance use disorders was relatively rare, with slightly higher prevalence in FFS. Less than 0.5 percent of any CYFC youth had any tobacco use disorder.

CYFC served in general MCOs had the highest rates of any mental health diagnoses (29.3 percent) compared to specialized MCO (26.7 percent) and FFS (25.4 percent). ADHD and anxiety disorders were the most common mental health conditions occurring in CYFC across all three delivery systems. (Appendix D, Exhibit 14)

- Nearly one in five CYFC in general MCOs were diagnosed with ADHD (19.3 percent), compared to 17.4 percent of those in specialized MCOs and 14.6 percent in FFS.
- Rates of anxiety disorders were similar between FFS (13.0 percent) and general MCOs (12.9 percent), and slightly lower for specialized MCOs (11.4 percent).
- CYFC in specialized MCOs had the highest rates of conduct disorder (7.0 percent), depressive disorder (6.6 percent), and bipolar disorder (6.2 percent) diagnoses. These were the third, fourth, and fifth most common mental health conditions for CYFC within this system. In contrast, the third most prevalent mental health condition within general MCOs (6.5 percent) and FFS (6.7 percent) was PTSD.
- Combined, personality disorders and schizophrenia and other psychotic disorders were prevalent in less than 1.5 percent of the CYFC in all three delivery systems.

Comparison of Quality of Care by Delivery System

Medical and Preventive Healthcare (Appendix D, Exhibit 15)

Across the preventive and well-child-related quality process measures, both specialized and general MCOs outperformed the FFS system (**Exhibit 5**).

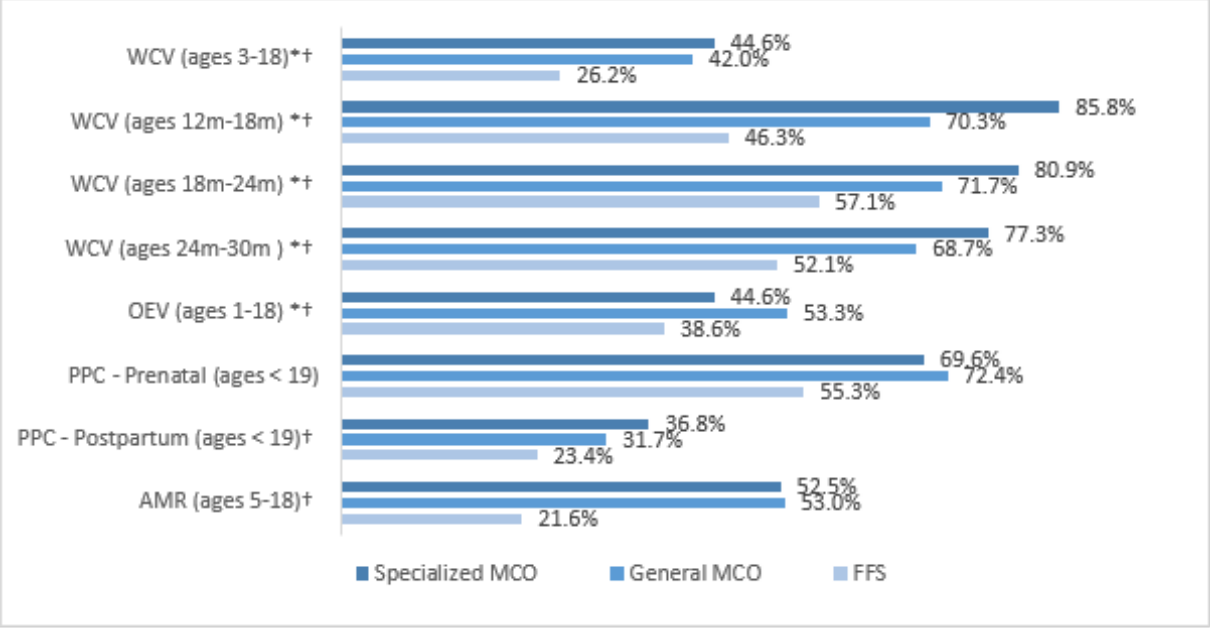
Well-Child Visits (WCV)

- CYFC served in FFS systems had the lowest rates of WCV (26.2 percent) among youth ages 3-18 and youth 12-30 months of age (46.3 percent for 12-18 months, 57.1 percent for 18-24 months, 52.1 for 24-30 months).
- Comparing the two types of MCOs, CYFC served through specialized MCOs tended to have higher rates of WCV than CYFC served in general MCOs among children ages 3-18 years (44.6 percent vs. 42.0 percent) and 12 to 30 months of age (80.5 percent vs. 70.2 percent).
- The average number of WCV for younger children was also greater for CYFC served in specialized MCOs.

Specialized Care

- CYFC served by FFS systems were also less likely to have annual dental visits (38.6 percent vs. 53.3 percent and 44.6 percent for general and specialized MCOs).
- Although live births were relatively rare in this sample, adolescents who gave birth in FFS were less likely to receive recommended prenatal (55.3 percent) or postpartum care (23.4 percent) than adolescents served in both types of MCOs.
- In addition, both types of MCOs substantially outperformed FFS in terms of asthma treatment. Whereas just over one in five children (21.6 percent) receiving asthma medications in FFS had more than 50 percent of their total asthma prescriptions for controller medications, over half of children served in MCOs of either type (52.5 percent for specialized MCO and 53.0 percent for general MCO) had ratios of controller medications to total asthma medications of 50 percent or greater (**Exhibit 5**).

Exhibit 5: Medical and Preventive Care Quality Measure Rates, by Delivery System



Source. KNG Health analysis of 2021 and 2022 TAF data.

Note. See Appendix C: Reported Measures for measure information and Appendix D, Exhibit 15 for full results. MCO = Managed Care Organization. FFS = fee-for-service. WCV = Well-Child Visits. OEV = Oral Evaluation, Dental Services. PPC = Prenatal Care and Postpartum Care. AMR = Asthma Medication Ratio.

* p-value <0.05 is for an F-test of significant differences in performance rate by specialized MCO vs. general MCO only.

† p-value <0.05 is for an F-test of significant differences in performance rate by specialized MCO, general MCO, and FFS.

Behavioral Healthcare (Appendix D, Exhibit 16)

Both specialized and general MCOs collectively outperformed FFS on most measures of behavioral health-related care (**Exhibit 6**).

Follow-Up Care

- CYFC aged 6-17 years who were hospitalized or seen in the ED for a mental health concern were less likely to receive a follow-up visit within 7 or 30 days after discharge if served by FFS than youth in specialized MCOs.
- About 21 percent of children in FFS were seen within 7 days of an inpatient discharge for mental health compared to about 25 percent in both types of managed care.
- At 30 days, FFS had the lowest rates of post-hospital follow-up (38.2 percent) compared to general MCOs (43.3 percent) and specialized MCOs (47.8 percent).
- Follow-up after discharge from the ED for a mental health diagnosis was substantially higher among youth served in specialized MCOs than FFS at both 7 and 30 days (47.9 percent vs 37.3 percent for 7-day follow-up; and 69.0 percent vs 52.9 percent for 30-day follow-up).
- CYFC served in FFS systems had higher rates of post-ED follow-up for mental health at 7 days (37.3 percent) and 30 days (52.9 percent) than CYFC served in general MCOs (31.1 percent and 49.5 percent, respectively).

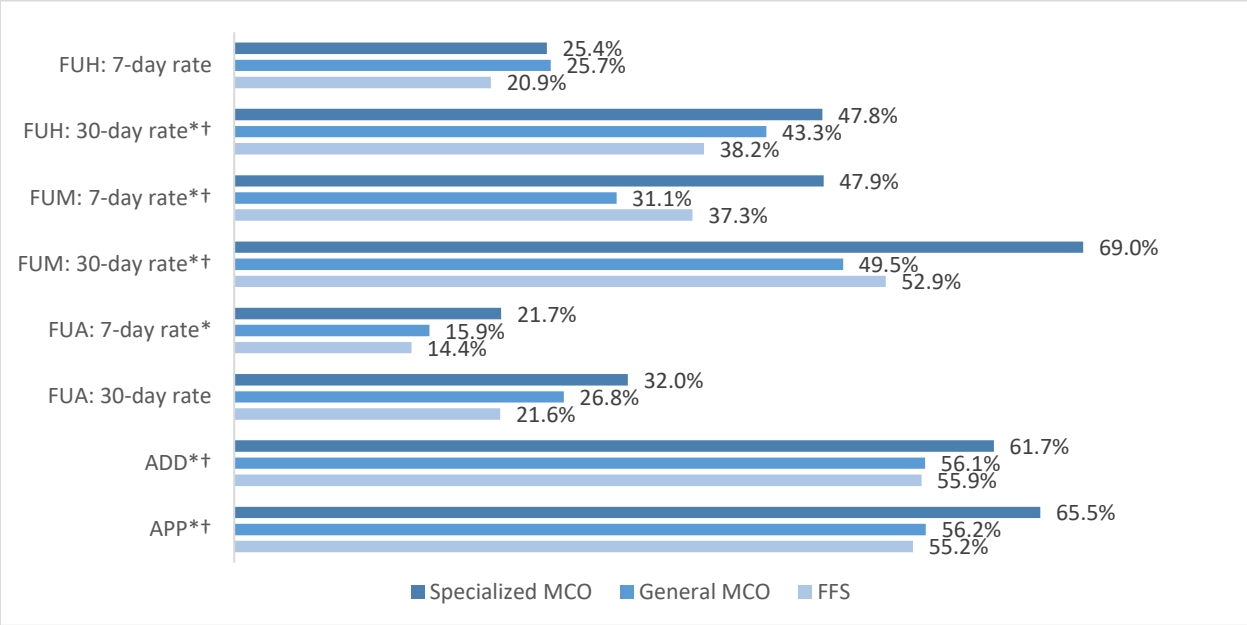
Substance Use

- ED visits for substance use disorders were rare among children aged 13-17, and post-discharge follow-up rates were lower across all systems than for ED visits for mental health conditions. However, both types of MCOs outperformed FFS, and specialized MCOs outperformed general MCOs.

Medication-related

- CYFC aged 6-12 in FFS who were newly prescribed stimulant medications for ADHD were less likely to have received a follow-up visit with a practitioner within 30 days of the prescription (55.9 percent) than CYFC served in general MCOs (56.1 percent) and specialized MCOs (61.7 percent).
- Among youth prescribed antipsychotic medications, CYFC served through specialized MCOs received first-line psychosocial treatments such as mental health counseling 10 percentage points more frequently than those served through general MCOs or FFS (65.5 percent specialized MCOs vs. 56.2 percent general MCOs vs. 55.2 percent FFS).

Exhibit 6: Behavioral Health Quality Measure Rates, by Delivery System



Source. KNG Health analysis of 2021 and 2022 TAF data.
Note. See Appendix C: Reported Measures for measure information and Appendix D, Exhibit 16 for full results. MCO = Managed Care Organization. FFS = fee-for-service. FUH = Follow-Up After Hospitalization. FUM = Follow-Up After Emergency Department Visit for Mental Health. FUA = Follow-Up After Emergency Department Visit for Substance Use. ADD = Follow-Up Care for Children Prescribed Attention-Deficit/Hyperactivity Disorder (ADHD) Medication. APP = Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics.
* p-value <0.05 is for an F-test of significant differences in performance rate by specialized MCO vs. general MCO.
† p-value <0.05 is for an F-test of significant differences in performance rate by specialized MCO, general MCO, and FFS.

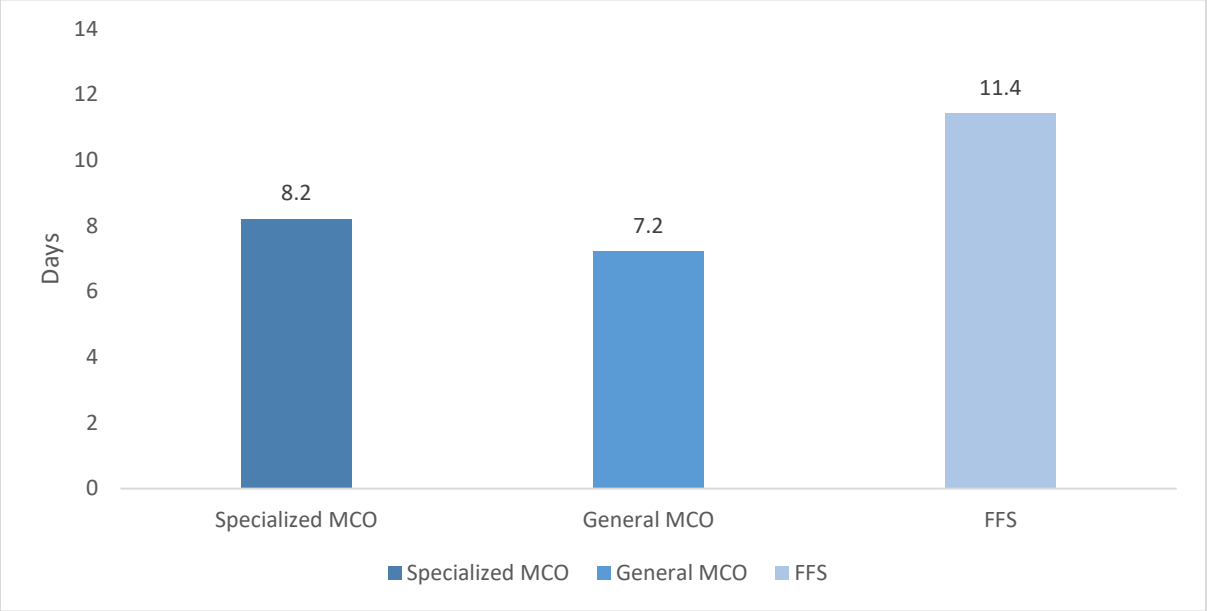
Comparison of Healthcare Utilization by Delivery System (Appendix D, Exhibits 17 and 18)

Inpatient Services

- Youth served through specialized MCOs were less likely to use inpatient services for physical health problems[37] (0.58 percent of the study sample) compared to general MCO and FFS enrollees (both at 0.65 percent).
- FFS enrollees who used inpatient services had longer lengths of stay (11.4 days) than general MCO (7.2 days) and specialized MCO (8.2 days) enrollees (**Exhibit 7**).

[37] The inpatient utilization measure is limited to medical and surgical hospital stays. Primary behavioral health conditions and hospitalizations to psychiatric facilities were excluded.

Exhibit 7: Average Inpatient Length of Stay, by Delivery System



Source. KNG Health analysis of 2022 TAF data.
Note. See Appendix D, Exhibit 17 for full results. MCO = Managed Care Organization. FFS = fee-for-service.
* p-value is <0.05 in length stay by specialized MCO vs. general MCO only.
† p-value is <0.05 in length of stay by specialized MCO, general MCO, and FFS.

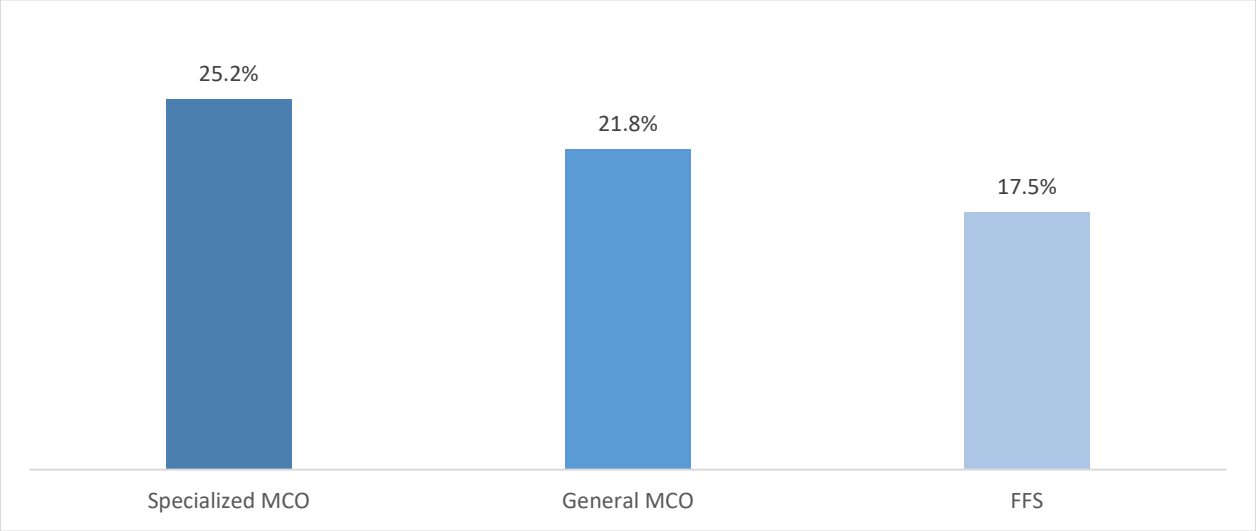
ED Utilization

- **Exhibit 8** presents CYFC ED utilization patterns illustrating that youth in FFS were least likely to have at least on ED visit (17.5 percent) compared to general MCO (21.8 percent) and specialized MCOs (25.2 percent) enrollees.
- The average number of ED visits was similar across all three systems, at 3.0, 3.1, and 3.4 visits per ED user for FFS, general MCO and specialized MCO enrollees, respectively.

Residential Stays

- An even smaller share of CYFC had behavioral health-related residential stays (FFS, 0.12 percent; general MCOs, 0.15 percent; and specialized MCOs, 0.12 percent).
- Youth in FFS systems had shorter lengths of stay in residential settings (84.5 days) compared to specialized MCOs (99.3 days). General MCOs had much shorter lengths of stay (25.2 days), driven by the fact that nearly 90 percent of all residential stays were 30 days or less.

Exhibit 8: Proportion of CYFC with at Least One Emergency Department Visit, by Delivery System



Note. See Appendix D, Exhibit 17 for full results. MCO = Managed Care Organization. FFS = fee-for-service.
* p-value is <0.05 in length stay by specialized MCO vs. general MCO only.
† p-value is <0.05 in length of stay by specialized MCO, general MCO, and FFS.

Discussion

The analyses in this report have demonstrated an association between performance on medical and preventative quality measures for CYFC and delivery system, with consistently higher performance for MMC relative to FFS and meaningful performance differences favoring coverage in specialized MCOs. Specialized MCOs are designed to identify and serve the unique needs of CYFC relative to general MCOs that serve a mix of Medicaid beneficiaries that includes CYFC. Specialized MCOs outperformed general MCOs on both WCVs and the majority of the included behavioral health measures. These results are consistent with findings in the literature that MCOs, through their coordination of services such as post-discharge planning, result in better continuity of care.

The specialized MCOs' rates highlight the potential advantages of providing structured and dedicated care for CYFC. State Medicaid agencies can use MCO contracts to advance key goals for CYFC, such as reducing out-of-state placements, improving care continuity, and strengthening coordination between child welfare and healthcare systems. These goals can be supported through contractual requirements—for example, mandating 24/7 care team availability, monitoring psychotropic prescribing, or delivering wraparound services like crisis intervention or caregiver respite. States can also partner with MCOs to pilot innovations, such as accelerating comprehensive intake exams for newly placed youth, or identify improvement opportunities such as surveying caregivers to understand needs for system improvement.[38]

[38] Ruiz, S., Zickafoose, J., Armistead, L., Baker, S., Smith Hughes, L., & Minnick, C. (2023, August 31). *State spotlights in improving timely health care for children and youth in foster care*. Centers for Medicare & Medicaid Services

Both specialized and general MCOs were less likely to rely on inpatient services, as measured by the proportion of youth with at least one inpatient visit, the inpatient length of stay among CYFC with any inpatient visits, and the likelihood of an unplanned readmission within 30 days of discharge. The finding that inpatient care is equally available but less frequently used is consistent with the broader literature on MMC systems. The substantial variation in residential treatment stays observed between delivery systems may reflect a combination of state policy design, benefit limitations, and managed care oversight structures. In general, the high proportion of short-term stays for MCOs, for example, may be driven in part by state-imposed utilization limits. Several states limit Medicaid reimbursement for residential treatment to 15 calendar days per month under managed care, regardless of medical need.[39] Additionally, the regulation and oversight of residential treatment settings vary widely between states, including differences in licensure, staffing requirements, and definitions of medical necessity, which may influence both admission and discharge practices.[40] Further research is needed to understand how these policy and programmatic factors interact to shape access, appropriateness, and outcomes for residential treatment among CYFC.

Conversely, CYFC enrolled in MCOs utilized ED services at a higher rate than CYFC in FFS. These observations seem to contradict the findings of better quality of care in general and specialized MCOs. Higher rates of ED use for MCOs could reflect case mix differences in underlying clinical conditions between the populations served. For example, in the case of ED utilization, rates of CYFC with Complex Chronic Conditions and Non-complex Chronic Conditions differ between groups. A potential positive interpretation is that CYFC with emergency needs are more likely to be triaged to the ED by the MCO than those in FFS. The higher levels of performance for MMC on both quality measures were observed despite having served youth with higher rates of both complex and non-complex chronic conditions, particularly mental health conditions.

Limitations

This analysis has several limitations. First, it is a cross-sectional analysis and measures performance for only 2022 (plus 2021 for the lookback period). Patterns of care observed in this timeframe may reflect changes in health services delivery unique to the immediate post-pandemic period. However, COVID-19 and the post-pandemic period would have affected both FFS and MMC. Second, the study sample was limited to CYFC continuously enrolled for an entire year. Enrollment in Medicaid has been known to have challenges with continuity (and foster care beneficiaries may be more prone to disruptions), but policies implemented during the pandemic improved enrollment continuity in 2022. As a result of these limitations, the study findings might not generalize to other time periods. Third, use of MMC is

(CMS) Foster Care Learning Collaborative. https://www.medicaid.gov/medicaid/quality-of-care/downloads/CMSAGStateSpotlights-FC.pdf.

[39] *Medicaid Behavioral Health Services: Inpatient Psychiatric Hospital: KFF State Health Facts*. KFF. (2025, August 9). https://www.kff.org/medicaid/state-indicator/medicaid-benefits-inpatient-psychiatric-hospital/.

[40] O'Brien, P. L., Stewart, M. T., White, M. C., Shields, M. C., Mulvaney-Day, N., & U.S. Department of Health & Human Services, Office of the Assistant Secretary for Planning and Evaluation. (2021). State residential treatment for behavioral health conditions: An overview of publicly-funded programs and key considerations for federal policymakers. https://aspe.hhs.gov/reports/state-residential-treatment-behavioral-health-conditions#execsum.

widespread and varies across states. In addition, only eight states offered specialized MCOs. Therefore, the differences observed in this study may reflect state-specific factors. Finally, the analysis was limited to selected process measures that could be reliably calculated from claims data. While the measures used cover an important set of medical and behavioral health services, they do not address a variety of other important health metrics such as immunizations or conditions that might require laboratory data or testing results or capture outcomes. On the plus side, process measures require no or less risk adjustment relative to outcomes measures. In addition, measures that cover individuals' experiences of care were not included.

Conclusion

CYFC have complex needs that require and benefit from coordination of service delivery. MCOs are well-suited to provide such coordination to successfully serve CYFC. This analysis demonstrates that CYFC received better quality care in MMC plans, and especially in specialized plans designed for their unique needs and experiences, compared to FFS. Across a wide range of process measures of quality and utilization measures, children in specialized MCO plans received more consistent preventive care and better follow-up after behavioral health encounters. These improvements occurred despite specialized plans serving youth with greater chronic health and behavioral health diagnoses, pointing to the potential value of targeted coordination and system accountability.

Overall, general and specialized MCO plans outperformed FFS and yet, access to these plans remains limited. For example, in many states, CYFC only experience fragmented FFS systems or may optionally choose to not receive Medicaid through MMC. As Medicaid agencies evaluate delivery system options for CYFC, expanding access to or developing specialized managed care models may represent a promising approach to improving health and well-being and enhanced outcomes. Continued investment in data, quality measures, and cross-system collaboration will be critical to ensure that delivery models evolve in ways that are responsive to the complex medical and social needs of CYFC.

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Appendix A: Literature Review for Medicaid Managed Care for Children and Youth in Foster Care

Methods

We reviewed the literature to assess the question: What is known about the impact of MMC on use and quality of care for CYFC? We focused on articles since 2010 to cover the most recent time frame and focus on CYFC. A 2020 literature review article covered articles on MMC more broadly that were published from 2011-2019, including analyses of data from as far back as the 1990s.

We searched PubMed in September 2024 to identify articles describing treatment provided to youth in the United States published in English from January 2010 or later. We started from articles identified using the terms “Medicaid managed care” or “MMC” and limited to articles that contained the terms: “patient”, “impact”, “outcome*”, “difference”, “effect”, or “causal”.

The search was further refined to focus on articles that mentioned key types of outcomes: “clinical”, “cost”, “use”, “quality”, “experience”, “satisfaction”, or “utilization”. Finally, the set was limited to articles that included the terms “foster” and “children”. We then reviewed titles and abstracts for candidate articles. Exhibit 9 summarizes the final set of articles identified by type of service use and outcome.

The articles identified generally focused on measures related to use of antipsychotic medications, access to primary care, and post-discharge outcomes. These studies found that youth in MMC, particularly CYFC, were more likely to have favorable outcomes than youth served through FFS or other Medicaid-enrolled youth.

Exhibit 9: Selected Articles Focused on Quality and Utilization by CYFC, 2010-2024

Types of Service	Outcomes	Article	States/Years	Population	Data Source	Notes
ED utilization	Access to primary care; access to preventive care (HEDIS® well child visit measure); ED visits as a proportion of ambulatory visits ≥ 33%	Bright et al., 2018	Florida (FFS) 2006-2010 and Texas (specialized MCO)	0-18 y.o.	State Medicaid claims and enrollment	• Increased access to primary care in MMC • Increased well-child access in MMC • ED reliance decreased in FFS relative to MMC
Primary care	Timely first well-child visit	Day 2016	Michigan 2009-2012 in foster care	10-20 y.o. (new enrollment in Medicaid study year and enrollment for at least 30 days)	Linked State Medicaid claims & child welfare data	Entry during the MMC period resulted in • Greater rate of timely well-child visits • Reduced time to first visit
Post-discharge mortality	Mortality post-7 days of discharge from a psychiatric hospitalization	Fontanella 2020	33 states (2009-2013)	10-18 y.o.	MAX claims	• Youth receiving post-discharge follow-up within 7 days were less likely to die by suicide • Youth in foster care and who had MMC coverage were more likely to receive post-discharge follow-up
Outpatient	Percentage of youth with any OP utilization in a month	Palmer 2017	Kentucky	Age not specified; foster care youth with 12 months of continuous enrollment	State Medicaid claims and enrollment	• 51% reduction (4 percentage point) in probability of OP utilization in MMC relative to FFS

Types of Service	Outcomes	Article	States/Years	Population	Data Source	Notes
Use of antipsychotics	Multiple measures (below for details)	Crystal et al., 2021	Texas, Ohio, Washinton, Wisconsin (2021)	Varies per measure between 1-17, 6-17, and all ages	Medicaid claims data (below for details)	• Overall MMC improved quality of care relative to usual care
	Use of any antipsychotic; use of antipsychotics for 90+ days	Crystal et al., 2021	Texas 2006-2007, 2009-2010	6-17 y.o.	State Medicaid claims data	Evaluated specialized MMC for CYFC vs. adopted children in FFS: • No difference in "any use" among youth with an indicated condition • Reduction in use among CYFC among youth with externalizing disorders (e.g. ADHD, conduct) • Decreased likelihood of extended AP use (>90 days) in specialized MCO
	Metabolic monitoring among youth with antipsychotic prescriptions	Crystal et al., 2021	Texas (2006-2007, 2009-2010) Texas and Ohio (2010-2013; 204-2017)	6-17 y.o.	State Medicaid claims data	• Increased metabolic monitoring in MMC, but low performance rates overall (<50% receiving) • Improvement in Texas (specialized MMC) relative to trends in comparison state (Ohio)
	Use of multiple concurrent antipsychotics	Crystal et al., 2021	Ohio (pilot counties vs. rest of state) 2010-2018	1-17 y.o. and 6-17 y.o.	State Medicaid claims data	• Secular trends of reduced concurrent AP use across FFS and MMC, and CYFC vs. other Medicaid

Types of Service	Outcomes	Article	States/Years	Population	Data Source	Notes
	Metabolic monitoring	Crystal et al., 2021	Wisconsin (Care4Kids counties vs. rest of state) 2009-2017	Wisconsin: all ages, 6 Care4Kids participating counties vs. rest of state	State Medicaid claims data	• Increased metabolic monitoring following implementation of Care4Kids relative to rest of state
	Any antipsychotic use	Crystal et al., 2021	Washington 2008-2012; synthetic control group for Washington (based on patterns in 19 other states)	Washington: 1-17 y.o.	MAX claims	• Use of antipsychotics declined for all Medicaid youth in the program relative to the synthetic control • Decline in AP use was faster among CYFC but converged with non-CYFC over time
Use of antipsychotics	Polypharmacy: Antipsychotic in combination with stimulants	Saloner 2014	35 states, 82 counties; 2004, 2006, 2008 integrated vs. carve out vs. FFS	3-18 y.o. (10m+ in foster care)	MAX claims	• FFS CYFC more likely to get AP when on stimulant than carve out or integrated plans • CYFC were less likely to receive concurrent medications than SSI-youth

Appendix B: States Contributing Cases per Service Delivery System

Exhibit 10: States Contributing Cases per Service Delivery System

Specialized MCO (n=8)	General MCO (n=34)		Fee-for-Service (n=35)	
• Florida	• Arizona	• Mississippi	• Alaska	• Mississippi
• Georgia	• California	• Missouri	• Arizona*	• Montana
• Illinois	• Delaware	• Nebraska	• California	• Nevada*
• Kentucky	• District of Columbia*	• Nevada*	• Connecticut	• New Hampshire*
• Texas	• Florida	• New Hampshire	• Delaware*	• New Mexico
• Washington	• Georgia*	• New Jersey	• District of Columbia*	• New York
• West Virginia	• Hawaii	• New Mexico	• Florida*	• North Dakota
• Wisconsin	• Indiana	• New York	• Georgia	• Ohio*
	• Illinois	• Ohio	• Hawaii*	• Rhode Island
	• Iowa	• Rhode Island	• Illinois	• South Carolina*
	• Kansas	• South Carolina	• Iowa*	• South Dakota
	• Kentucky	• Tennessee	• Kansas*	• Tennessee*
	• Louisiana	• Texas	• Kentucky*	• Texas
	• Maryland	• Utah	• Louisiana*	• Virginia*
	• Massachusetts	• Virginia	• Maryland*	• Washington
	• Michigan	• West Virginia*	• Massachusetts*	• Wisconsin
	• Minnesota	• Wisconsin*	• Michigan*	• Wyoming
			• Minnesota	

*: State contributed less than 500 CYFC to the analysis of this service system.

Appendix C: Reported Measures

The analysis relied primarily upon measures from the Medicaid Child Core Set. This had the benefit of familiarity and meaningfulness to Medicaid policymakers, health plans, and providers. They also align with many of the measures used in reports in the literature (see Appendix A: Literature Review for Medicaid Managed Care for Children and Youth in Foster Care). The final set of measures was modified to account for additional factors.

- **Usability**. We selected measures that would be relevant to the population of interest (i.e., CYFC), but that also were widely used within Medicaid programs.
- **Data source feasibility.** Measures that depended heavily on chart reviews, EMRs or registries were not feasible because the team only had access to claims and enrollment data. Even where claims-based versions of those measures existed, performance benchmarks were skewed to reflect the additional numerator events obtained from supplemental data sources (e.g., a disease registry). Survey measures, such as CAHPS survey measures in the Core Set, also were not feasible because they were not available for the CYFC population.
- **Specification feasibility**. We selected measures that had existing measure specifications and value sets. This enhanced the reliability of the calculations and benchmarking to external sources.
- **Limited to aggregate performance**. With a few exceptions (e.g., WCVs), where the measure included performance for some age breakdowns (e.g., ages 5-11 and 12-18), the analysis only calculated the aggregate performance rate (e.g., ages 5-18).
- **Supplemented with access-based utilization measures**. The MMC literature has routinely monitored utilization metrics. We developed specifications for inpatient, residential, and emergency department use in the style of the Core Set that leveraged the Core Set value set directories.

Exhibit 11 lists the full set of measures included in the analysis with notes about modifications to the specifications.

Exhibit 11: Quality and Utilization Measures Reported for the Study Sample and Adjustments to their Specifications, 2022

Measure name	Measure Description	Adjustments to the Specification
Quality Measures		
Well-Child Visits (WCV) for Children and Adolescents	The percentage of children who received at least one comprehensive well-care visit with a primary care practitioner (PCP) or an obstetrician/gynecologist (OB/GYN) during the measurement year.	Limited to children 3-18 years old where the Core Set measure applies through age 21
Well-Child Visits (WCV) for Younger Children	• The percentage of children who received at least one comprehensive well-care visit with a primary care practitioner (PCP) during the measurement year • The average number of well-child visits per child by birth cohort.	• Modified age to 12-30 months and adapted the Well-Child Visits measure to examine the percentage of youth with at least one well-child visit within each birth cohort (age ≤ 18 months; 19-24 months; and, 25-30 months) • Modified age to 12-30 months and adapted the Well-Child Visits measure to examine average number of visits within each birth cohort (age ≤ 18 months; 19-24 months; and, 25-30 months)
Prenatal Care and Postpartum Care (PPC)	The percentage of deliveries of live births between October 8 of the year prior to the measurement year and October 7 of the measurement year in which the member received a timely prenatal care visit in the first trimester, on or before the start date or within 42 days of enrollment. The percentage of deliveries of live births between October 8 of the year prior to the measurement year and October 7 of the measurement year and who had a postpartum visit on or between 7 and 84 days after delivery.	Limited to youth aged 18 years or younger at the time of delivery whereas the Core Set measure applies to ages 21 and under Limited to youth aged 18 years or younger at the time of delivery whereas the Core Set measure applies to ages 21 and under

Measure name	Measure Description	Adjustments to the Specification
Quality Measures		
Oral Evaluation, Dental Services (OEV)	The percentage of enrolled children who received a comprehensive or periodic oral evaluation within the measurement year.	Limited to youth aged 1-18 years whereas the Core Set measure includes ages 0-21
Follow-Up After Hospitalization for Mental Health (FUH): 7-day rate	This measure assesses the percentage of discharges for beneficiaries ages 6 to 17 who were hospitalized for treatment of selected mental illness or intentional self-harm diagnoses and received timely follow-up care with a mental health provider. Specifically, it reports the percentage of discharges for which the beneficiary had a follow-up visit with a mental health provider within 7 days after discharge.	No adjustments
Follow-Up After Hospitalization for Mental Health (FUH): 30-day rate	This measure assesses the percentage of discharges for beneficiaries ages 6 to 17 who were hospitalized for treatment of selected mental illness or intentional self-harm diagnoses and received timely follow-up care with a mental health provider. Specifically, it reports the percentage of discharges for which the beneficiary had a follow-up visit with a mental health provider within 30 days after discharge.	No adjustments
Follow-Up After Emergency Department Visit for Mental Health (FUM): 7-day rate	The percentage of emergency department (ED) visits for beneficiaries ages 6 to 17 with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 7 days of the ED visit.	No adjustments
Follow-Up After Emergency Department Visit for Mental Health (FUM): 30-day rate	The percentage of emergency department (ED) visits for beneficiaries ages 6 to 17 with a principal diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness within 30 days of the ED visit.	No adjustments

Measure name	Measure Description	Adjustments to the Specification
Quality Measures		
Follow-Up After Emergency Department Visit for Substance Use (FUA): 7-day rate	The percentage of emergency department (ED) visits for beneficiaries ages 13-17 years with a principal diagnosis of substance use disorder (SUD), or any diagnosis of drug overdose, for which there was a follow-up within 7 days of the ED visit.	No adjustments
Follow-Up After Emergency Department Visit for Substance Use (FUA): 30-day rate	Percentage of emergency department (ED) visits for beneficiaries ages 13-17 years with a principal diagnosis of substance use disorder (SUD), or any diagnosis of drug overdose, for which there was a follow-up within 30 days of the ED visit.	No adjustments
Asthma Medication Ratio (AMR)	The percentage of children and adolescents ages 5 to 18 who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.	No adjustments

Measure name	Measure Description	Adjustments to the Specification
Quality Measures		
Follow-Up Care for Children Prescribed Attention-Deficit/Hyperactivity Disorder Medication – Initiation Rate (ADD)	This measure assesses the percentage of children ages 6 to 12 who were newly prescribed attention-deficit/hyperactivity disorder (ADHD) medication and received appropriate follow-up care. Specifically, it evaluates the Initiation Phase, defined as the 30 days following the Index Prescription Start Date (IPSD). The IPSD is the earliest date an ADHD medication is dispensed during the intake period, with no prior ADHD medication history. The measure reports the percentage of children who had at least one follow-up visit with a practitioner with prescribing authority within 30 days of the IPSD.	Adjusted the reporting time frame from a 12-month intake period (3/1 of the previous year through 2/28 of the measurement year) to an 11-month time period (1/1 of the measurement year through 11/30 of the measurement year). This reduced the drop off in case volume of requiring additional continuous enrollment; however, this meant we could not calculate the continuation measure because not all cases had a fully observable follow-up period. Also, we could not assess whether visits were to providers that had prescribing authority, so we adopted the more generous standard of any visit to a provider that often has prescribing authority with varying constraints (doctors, nurse practitioners, and physicians assistants).
Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)	The percentage of children and adolescents ages 1 to 17 who had a new prescription for an antipsychotic medication and had documentation of psychosocial care as first-line treatment.	No adjustments

Utilization Measures		
Inpatient utilization: Utilization Rate (percentage with any visits within the year)	The percentage of children with an acute inpatient stay aggregated across the following categories: Maternity, Surgery, and Medicine.	Limited to children 3-18 years old; excludes primary mental health and substance use disorders
Inpatient utilization: Length of stay	Total number of days hospitalized in an inpatient facility divided by the total number of stays among children with an inpatient stay.	Limited to children 3-18 years old; excluded cases with extreme length of stay (more than 2000 days) and top-coded remaining cases with stays longer than one year at 365
Residential Utilization: Utilization Rate (percentage with any visits within the year)	The percentage of children aged 3-18 with a residential stay.	No adjustments
Residential Utilization: Length of Stay	Total number of nights in a residential facility divided by the total number of stays among children with a residential stay.	Limited to children 3-18 years old; excluded cases with extreme length of stay (more than 2000 days) and top-coded remaining cases with stays longer than one year at 365
Emergency Department Utilization: Utilization Rate (percentage with any visits within the year)	The percentage of children with an emergency department (ED) visit.	Limited to children 3-18 years old; excludes primary mental health and substance use disorders
All-Cause Readmission	The percentage of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission or observation stay for any diagnosis within 30 days.	Limited to children 3-18 years old; the all-cause readmission measure is not a Child Core Set measure and so there were no validated risk weights available to calculate expected utilization for the Medicaid population generally or CYFC specifically

Appendix D: Additional Exhibits

Exhibit 12: Study Sample Descriptive Statistics, 2022

	Specialized MCO				General MCO				2-way p-value	FFS			3-way p-value
	N=	%	2-way signif	3-way signif.	N=	%	2-way signif	3-way signif.		N=	%	3-way signif.	
Total	165,060	31.11%	---	---	306,194	57.72%	---	---	---	59,211	11.16%	---	---
Age													
<3 years	14,017	8.49%	***	***	10,664	3.48%	***	***	<0.001	2,243	3.79%	***	<0.001
3-5 years	28,777	17.43%	***	***	36,550	11.94%	***	***		6,474	10.93%	***	
6-11 years	57,527	34.85%	***	***	112,146	36.63%	***	***		20,206	34.13%	***	
12-18 years	64,739	39.22%	***	***	146,834	47.95%	***	***		30,288	51.15%	***	
Sex													
Male	84,027	50.91%			157,074	51.30%			0.010	30,432	51.40%		0.021
Female	81,033	49.09%			149,120	48.70%				28,779	48.60%		
Race													
AAPI, Non-Hispanic	2,504	1.52%	***	***	7,870	2.57%	***	***	<0.001	2,927	4.94%	***	<0.001
Black, Non-Hispanic	40,373	24.46%	***	***	66,578	21.74%	***	***		12,034	20.32%	***	
Hispanic	29,413	17.82%	***	***	50,666	16.55%	***	***		10,925	18.45%	***	
White, Non-Hispanic	68,191	41.31%	***	***	135,470	44.24%	***	***		22,054	37.25%	***	
Other	1,340	0.81%	***	***	5,211	1.70%	***	***		6,788	11.46%	***	
Missing Race	23,239	14.08%	***	***	40,399	13.19%	***	***		4,483	7.57%	***	

Notes:

Results are N and percentage of cases per group; p-value is for a F-test of significant differences in group composition by system..

*2-way and 3-way significance values are for Pearson residuals for each cell in a two-way (special MCO v. general MCO) or three-way (special MCO v. general MCO v. FFS): * = p-value < 0.05; ** = p-value < 0.01; *** = p-value < 0.001.*

AAPI is "Asian American or Pacific Islander."

Source: KNG Health Consulting calculation using 2022 TAF data.

Exhibit 13: Prevalence of Chronic Conditions in the Study Sample, 2022

	Specialized MCO	General MCO	2-way p-value	FFS	3-way p-value
	%	%		%	
Chronic Conditions	100.00%	100.00%	<0.001	100.00%	<0.001
1 Non-Chronic	56.36%	55.90%		60.55%	
2 Non-complex Chronic	33.66%	33.00%		29.41%	
3 Complex Chronic	9.98%	11.10%		10.03%	

Notes: Results are N and percentage of cases per group; p-value is for a F-test of significant differences in group composition by system.
*2-way and 3-way significance values are for Pearson residuals for each cell in a two-way (special MCO v. general MCO) or three-way (special MCO v. general MCO v. FFS): * = p-value < 0.05; ** = p-value < 0.01; *** = p-value < 0.001.*

Source: KNG Health Consulting calculation using 2022 TAF data.

Exhibit 14: Prevalence of Selected Medical and Behavioral Health Conditions in the Study Sample, 2022

	Specialized MCO	General MCO	2-way p-value	FFS	3-way p-value
	%	%		%	
Specific Conditions					
Asthma	2.72%	2.63%	0.055	2.13%	<0.001
Any Tobacco Use Disorder	0.42%	0.28%	<0.001	0.31%	<0.001
Any Substance Use Disorder	1.49%	1.55%	0.128	1.95%	<0.001
Any Developmental Delay Disorder	11.39%	10.99%	<0.001	11.57%	<0.001
Any Mental Health Disorder	26.67%	29.27%	<0.001	25.43%	<0.001
ADHD	17.42%	19.27%	<0.001	14.59%	<0.001
Anxiety Disorders	11.44%	12.89%	<0.001	12.95%	<0.001
Bipolar Disorder	6.19%	5.20%	<0.001	4.18%	<0.001
Conduct disorder	7.00%	5.65%	<0.001	4.18%	<0.001
Depressive Disorders	6.60%	6.18%	<0.001	6.22%	<0.001
Personality Disorders	0.58%	0.58%	0.907	0.94%	<0.001
Post-Traumatic Stress Disorder (PTSD)	5.67%	6.45%	<0.001	6.72%	<0.001
Schizophrenia and Other Psychotic Disorders	0.63%	0.42%	<0.001	0.45%	<0.001

Notes: Results are N and percentage of cases per group; p-value is for a F-test of significant differences in group composition by system.
*2-way and 3-way significance values are for Pearson residuals for each cell in a two-way (special MCO v. general MCO) or three-way (special MCO v. general MCO v. FFS): * = p-value < 0.05; ** = p-value < 0.01; *** = p-value < 0.001.*

Source: KNG Health Consulting calculation using 2022 TAF data.

Exhibit 15: Quality Measures for Medical and Preventive Healthcare for the Study Sample, 2022

	Specialized MCO	General MCO	p-value†	FFS	p-value‡
	Performance (% or avg.)	Performance (% or avg.)		Performance (% or avg.)	
Well-child visits (ages 3-18)	44.63	42.00	<0.001	26.17	<0.001
Well-child visits, utilization rate (ages 12m-30m)					
12-18m	85.84	70.31	<0.001	46.29	<0.001
18-24m	80.93	71.68	<0.001	57.09	<0.001
24-30m	77.34	68.72	<0.001	52.06	<0.001
Well-child visits, average (ages 12m-30m)					
12-18m	3.74	3.57	0.002	3.10	<0.001
18-24m	2.92	2.83	0.012	2.70	<0.001
24-30m	2.20	2.10	<0.001	1.92	<0.001
Oral evaluation, dental services (ages 1-18)	44.58	53.32	<0.001	38.59	<0.001
Maternity-related (ages < 19)					
Prenatal care	69.59	72.41	0.511	55.32	0.057
Postpartum care	36.84	31.66	0.248	23.40	0.003
Asthma medication ratio (ages 5-18)	52.47	53.02	0.307	21.56	<0.001

Notes:

Results are N and percentage of cases per group.

†: p-value is for a F-test of significant differences in the measure by specialty MCO v. MCO only.

‡: p-value is for a F-test of significant differences in the measure by specialty MCO, MCO, and FFS..

Source: KNG Health Consulting calculation using 2021 and 2022 TAF data.

Exhibit 16: Quality Measures for Behavioral Health Conditions for the Study Sample, 2022

	Specialized MCO	General MCO	p-value†	FFS	p-value‡
	Performance (% or avg.)	Performance (% or avg.)		Performance (% or avg.)	
Follow-up after hospitalization for mental illness (ages 6-17)					
7-day rate	25.38	25.71	0.765	20.87	0.018
30-day rate	47.82	43.25	<0.001	38.18	<0.001
Follow-up after ED visit for mental illness (ages 6-17)					
7-day rate	47.91	31.07	<0.001	37.25	<0.001
30-day rate	69.03	49.49	<0.001	52.94	<0.001
Follow-up after ED visit for substance use (ages 13-17)					
7-day rate	21.74	15.87	0.033	14.41	0.062
30-day rate	31.99	26.79	0.108	21.62	0.076
Attention deficit disorder					
Initiation	61.73	56.14	<0.001	55.85	<0.001
Use of first-line psychosocial care for children on antipsychotics	65.48	56.21	<0.001	55.16	<0.001

Notes:

Results are N and percentage of cases per group.

†: p-value is for a F-test of significant differences in the measure by specialty MCO v. MCO only.

‡: p-value is for a F-test of significant differences in the measure by specialty MCO, MCO, and FFS..

Source: KNG Health Consulting calculation using 2021 and 2022 TAF data.

Exhibit 17: Utilization Rates for Selected Services in the Study Sample, 2022

	Specialized MCO		General MCO		p-value†	FFS		p-value‡
	N=	Performance (%)	N=	Performance (%)		N=	Performance (%)	
Inpatient utilization rate	151,041	0.58	295,528	0.65	0.006	56,968	0.65	0.018
Residential utilization rate	151,041	0.12	295,528	0.15	0.002	56,968	0.12	0.003
Emergency department utilization rate	151,041	25.21	295,528	21.77	<0.001	56,968	17.54	<0.001
Plan all-cause readmission (30d)	6,421	10.56	11,485	10.32	0.612	1,196	13.46	0.004

Notes:

Results are N and percentage of cases per group. All-cause readmission is typically interpreted as a "lower is better" measure (i.e., fewer discharges result in a

†: p-value is for a F-test of significant differences in performance rate by specialty MCO v. MCO only.

‡: p-value is for a F-test of significant differences in performance rate by specialty MCO, MCO, and FFS..

Source: KNG Health Consulting calculation using 2021 and 2022 TAF data.

Exhibit 18: Volume of Selected Services Used in the Study Sample, 2022

	Specialized MCO	General MCO	p-value†	FFS	p-value‡
	Mean	Mean		Mean	
Inpatient length of stay	8.2	7.2	0.025	11.4	<0.001
Residential length of stay	99.3	25.2	<0.001	84.5	<0.001
Emergency department visits (among ED users)	3.4	3.1	<0.001	3.0	<0.001

Notes:
Mean length of stay per stay or mean of visits within the service system.
†: p-value is for a F-test of significant differences in performance rate by specialty MCO v. MCO only.
‡: p-value is for a F-test of significant differences in performance rate by specialty MCO, MCO, and FFS..

Source: KNG Health Consulting calculation using 2022 TAF data.