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Health Care Expenditures of Young Adult Health First Colorado Members

by Lived Experience Emancipating from Foster Care

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Key Findings

- Young adults who emancipated from foster care experienced a significant increase in per member per month (PMPM) total FFS cost of care of $196 PMPM, or 22.6%, in the 12 months after their emancipation month compared to the 12 months before.
- The peer comparison group experienced a much smaller and insignificant increase in PMPM total FFS cost of care in the 12 months after their reference month compared to the 12 months before.
- The increase in PMPM total FFS cost of care for the emancipation cohort was driven primarily by increased cost for those with both physical and behavioral health complexities. Specifically, for this group costs increased $489 PMPM, or 35.9%.
- For this most complex group, the primary driver of this increase was the cost of ancillary services, which increased $748 PMPM, or 416.4%, after the emancipation month. A preliminary analysis of specific procedures within the ancillary service type suggested that these cost increases were driven by increased utilization of targeted case management and habilitation waiver services.

Purpose

Three companion briefs detailed differences in the patterns of health care utilization across young adults who emancipated from foster care and a peer comparison group of Health First Colorado members. This brief examines patterns in total fee for service (FFS) health care costs among young adults who emancipated from foster care compared to their matched peers without foster care experience in the 12 months before and after the emancipation or reference month. The analysis looks at costs for all youth and also distinguishing among the four categories of medical complexity. In addition, for those young adults with both a physical and behavioral health complexity (the most complex) the brief examines cost trends before and after the emancipation/reference month for 10 types of FFS cost.

Overview

Health First Colorado (Colorado's Medicaid program) provided health insurance coverage for approximately 20,000 children currently in or with prior experience of being in foster care during an average month in 2020.[1] A review of existing studies indicates that foster care experience has been associated with poor health outcomes and up to 80% of youth have a physical or mental health condition while in foster care.[2,3] The nearly 300 young adults who annually emancipate from foster care in Colorado are likely vulnerable to continuing health disparities and unmet health needs. For example, a previous study in Missouri suggested that few connect with adult health care services following emancipation.[4] In addition, a study from Iowa, Wisconsin, and Illinois suggested that young adults who emancipate report few supports during this transition, identifying a critical gap in health care delivery for this population.[5]

A better understanding of health care utilization and cost among this population is needed to inform policy, practice, and interventions to improve transitions for young adults emancipating out of foster care.[6] The Farley Health Policy Center at the University of Colorado School of Medicine, in collaboration with the Colorado Departments of Health Care Policy and Financing (HCPF) and Human Services (CDHS), analyzed health care utilization and cost trends among two cohorts of young adults. The first was a cohort of young adults who emancipated or aged out of foster care between January 2014 and December 2021, referred to below as the "emancipation cohort" or "young adults who have emancipated." The second cohort, which are referred to below as the "peer cohort" or "peers", was a matched group of Medicaid-eligible young adults with the same months of participation in Health First Colorado, similar demographic characteristics and the same categories of medical complexities. For the latter matching characteristics, we stratified Health First Colorado youth into one of four mutually exclusive categories using the Pediatric Medical Complexity Algorithm (PMCA)[7] for chronic physical and behavioral health medical complexities:

1. **No Chronic Physical or Behavioral Health Condition (Non-Chronic, No BH)**
2. **Chronic Physical Health Condition and No Chronic Behavioral Health Condition (Chronic, No BH)**
3. **No Chronic Physical Health Condition and a Chronic Behavioral Health Condition (Non-Chronic, BH)**
4. **Both Chronic Physical and Behavioral Health Conditions (Chronic, BH)**

The findings presented in this brief assessed health care expenditures for all services paid by Health First Colorado as a Fee For Service (FFS) benefit for the 12 months before and the 12 months after, but not including, the month of emancipation or the reference month for the matched peer cohort.[i] We identified 1,658 young adults 17 years of age or older, who emancipated from foster care, were enrolled in Health First Colorado, and matched with a peer between January 2014 and December 2021. Of these young adults, 1,611 emancipated before February 2021 and had at least 12 months of Health First Colorado enrollment information after their month of emancipation. These young adults exited foster care with one of three mutually exclusive reasons as recorded in the child welfare data system (Trails): (1) emancipated; (2) living with another (non-parental) relative; and, (3) runaway. Each individual who emancipated from foster care was matched to a young adult peer enrolled in Health First Colorado who, according to the child welfare data system, never experienced involvement in foster care or the child welfare system. A more detailed description of the matching criteria and other study design features is provided as an appendix.

Results are presented as PMPM costs averaged for each 12-month period for the months an individual was eligible for Health First Colorado and not enrolled in a physical health managed care plan. All costs have been adjusted to calendar year 2021 dollars using the quarterly Personal Consumption Expenditures for Health Care Services (chain-type price index) from the U.S. Bureau of Economic Analysis.[8]

Research Questions and Findings:

1. **How does the per-member, per-month (PMPM) total fee-for-service health care costs change from the 12 months before to the 12 months after emancipation and how do these trends compare to a peer cohort? Do these trends differ for young adults with medical complexities?**
2. **What types of services are driving differences in total fee-for-service health care costs before and after emancipation for the most complex members, that is those with both chronic physical and behavioral health conditions?**

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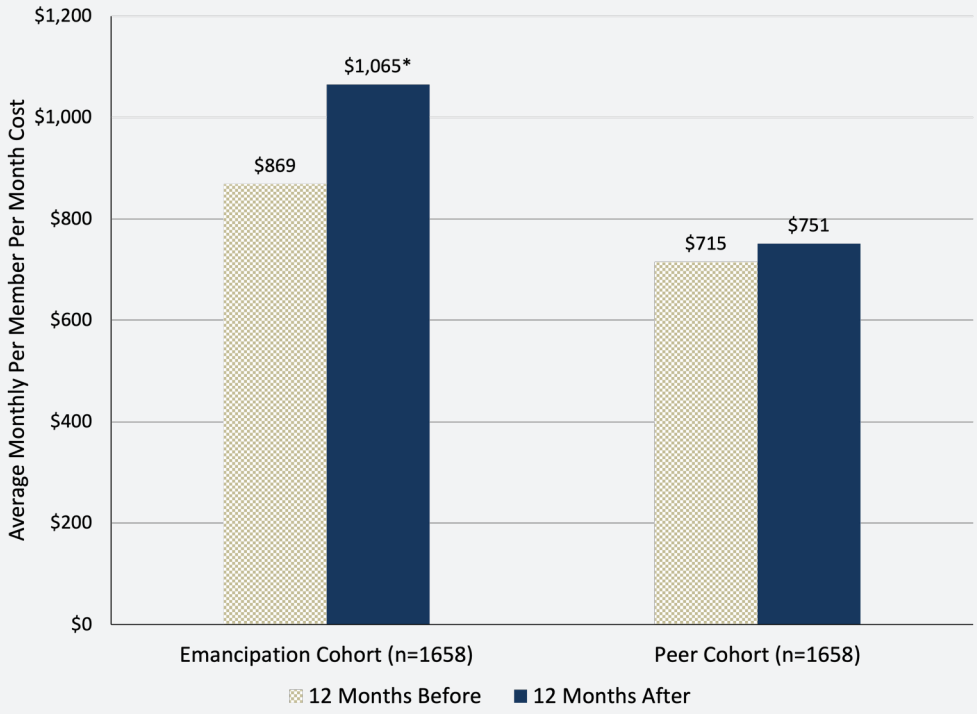
i Note that per 42 CFR Part 2, substance use services are excluded from the data HCPF provides to the Farley Health Policy Center and are, therefore, not included in this analysis.

Total FFS Costs for All Emancipated Youth and Their Peers

As documented in a companion brief,[9] youth who emancipated from foster care utilized more physical and behavioral health care services while in foster care compared to their peers with similar chronic physical and behavioral health conditions and utilized fewer services after emancipation. As such, we would expect young adults who emancipate from foster care to have higher total cost of care while they are in foster care and lower total cost of care after emancipation compared to their peers. Figure 1 presents the average PMPM total fee-for-service cost of care in the 12 months before and the 12 months after the emancipation/reference month for our emancipator and matched peer cohorts.

Figure 1: Average Per Member Per Month Total Fee for Service Costs in 12 Months Before and 12 Months After the Emancipation/Reference Month for Emancipation and Peer Cohorts

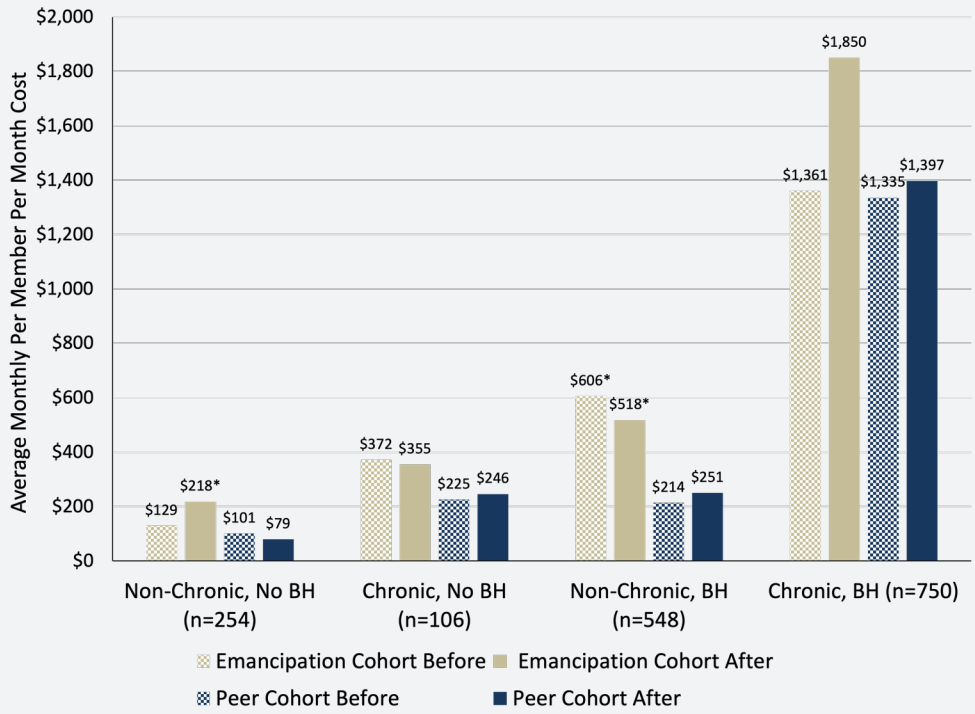


**Difference between Emancipation and Peer Cohorts statistically significant at the 1% level of significance (p <0.01)*

As shown in Figure 1, emancipators had higher PMPM FFS costs both before and after emancipation compared to their matched peers though the difference in the 12 months before the emancipation/reference month was not statistically significantly different. In contrast to the findings regarding decreased utilization, it is striking that there was an increase in the monthly average PMPM cost for the young adults with lived experience emancipating from foster care in the 12 months after emancipation. Specifically, the monthly average PMPM total FFS cost of care for our emancipation cohort increased by $196; from $869 PMPM in the 12 months before emancipation to $1,065 PMPM in the 12 months after emancipation. This increase was statistically significant. The corresponding increase for the peer cohort was $36 and not statistically significant.

This inconsistent result of lower utilization but higher cost after emancipation merits further examination to understand what is driving these higher costs. As a first step, Figure 2 presents the average PMPM total FFS costs for the 254 individuals in each cohort that did not have either a physical or behavioral health complexity, the 106 that had a chronic physical health complexity only, the 548 that had a chronic behavioral health complexity only, and the 750 that had both chronic physical and behavioral health complexities.

Figure 2: Average PMPM Total FFS Costs in 12 Months Before and 12 Months After the Emancipation/Reference Month for Emancipated and Matched Peer Cohorts by Medical Complexity Category



**Difference between Emancipation and Peer Cohorts statistically significant at the 1% level of significance (p <0.01)*

As shown in this figure, PMPM costs were higher in both the 12 months before and 12 months after the emancipation/reference month for the emancipation cohort across all four medical complexity categories. For example, members of the emancipation cohort with a behavioral health complexity only had significantly higher cost in both periods compared to their peers; although this cost difference did decrease from $392 to $267 after the emancipation/reference month. The only other statistically significant cost difference between the emancipation and peer cohorts was for members without a physical or behavioral health complexity after the emancipation/reference month where the cost difference increased from $28 to $139.

Examining the changes over time within each cohort helps isolate the sources of the inconsistent finding between decreasing utilization and increasing cost. While there were statistically significant decreases in utilization of services across all four medical complexity categories for the emancipation cohort, as shown in Table 1, cost only increased significantly for members of the emancipation cohort who had both physical and behavioral health complexities. Specifically, cost increased by $489 or by 35.9% for these medically complex young adults who emancipated. Although cost also increased for the emancipation cohort with

no physical or behavioral health complexities, this increase was not significant and cost decreased for members with either physical health complexity only or a behavioral health complexity only. None of the changes for the four complexity categories for the peer cohort were statistically significant.

Table 1: Changes in Average Monthly PMPM Cost Before and After the Emancipation/Reference Month by Lived Experience Emancipating from Foster Care and Medical Complexity (percentage change in parentheses)

	Medical Complexity Category			
Cohort	**Non-Chronic, No BH**	**Chronic, No BH**	**Non-Chronic, BH**	**Chronic, BH**
Emancipation	$89 (69.4%)	-$17 (-4.5%)	-$88 (-14.5%)	$489* (35.9%)
Peer	-$22 (-21.4%)	$21 (9.4%)	$36 (17.0%)	$62 (4.6%)

**Difference statistically significant at the 1% level of significance (p <0.01)*

Total FFS Costs for Emancipated Youth and Their Peers with Both Chronic Physical and Behavioral Health Complexities

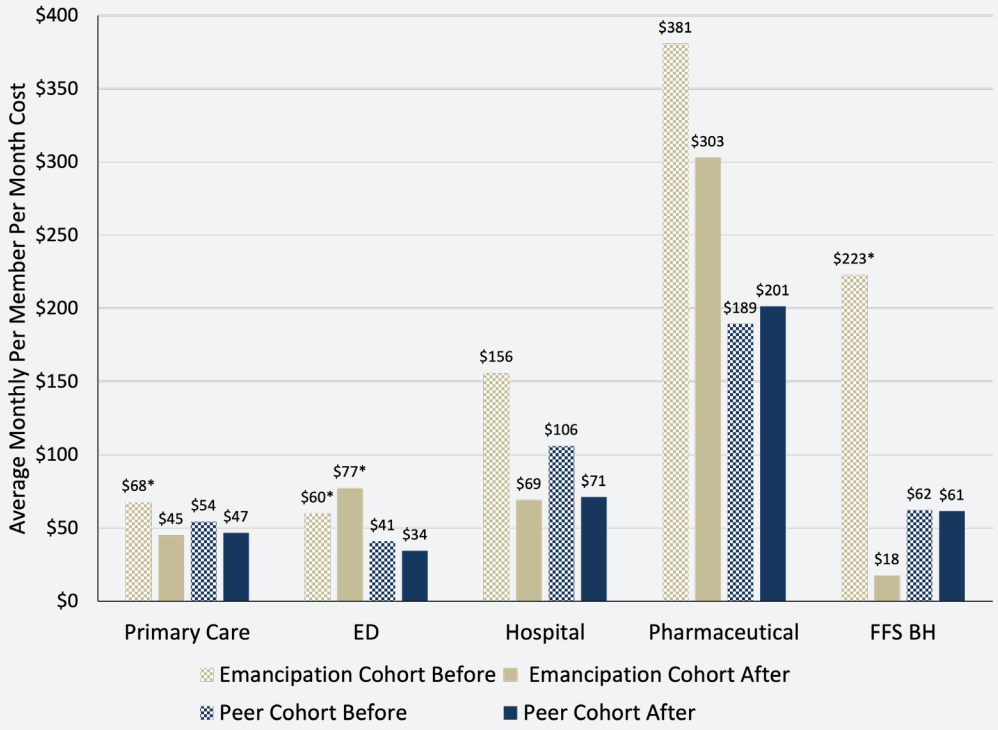
The results presented in Table 1 suggest that the primary driver for the increased PMPM total FFS cost for all of the young adults with lived experience emancipating from foster care is concentrated among the most complex members, i.e. those with both physical and behavioral health complexities. To further understand the drivers behind the significant cost increase for these members, we examined PMPM costs for 10 types of health care services:

1. **primary care services,**
2. **emergency department services,**
3. **hospital services,**
4. **pharmaceutical services,**
5. **FFS behavioral health services,**
6. **ancillary services,**[ii]
7. **home health services,**
8. **diagnostic services,**
9. **transportation services, and**
10. **other services.**

Figure 3 presents the PMPM cost for the first five listed above: primary care services, emergency department services, hospital services, pharmaceutical services, and FFS behavioral health services before and after the emancipation/reference month for members with both physical and behavioral health complexities in the emancipation and peer cohorts.

ii Ancillary services include supportive or diagnostic services that supplement and support a primary physician, nurse, or other healthcare provider in treating a patient.

Figure 3: Average PMPM Primary Care, ED, Hospital, Pharmaceutical and FFS BH Services Costs in 12 Months Before and 12 Months After the Emancipation/Reference Month for Emancipated and Matched Peer Cohorts for the Members with Physical and Behavioral Health Complexities



**Difference between Emancipation and Peer Cohorts statistically significant at the 1% level of significance (p <0.01)*

The results presented in this figure are consistent with the utilization patterns reported in the companion brief for primary care, emergency department services, and pharmaceutical services. Specifically, for the most medically complex young adults who emancipated we found decreasing utilization of primary care and pharmaceutical services, and increasing utilization of emergency department services. Figure 3 shows decreasing costs for primary care and pharmaceutical services and increasing costs for emergency department services. This figure also shows a substantial decrease in costs for FFS behavioral health services covered under FFS benefits and a decrease in hospital services for the emancipation cohort.

To illustrate the magnitudes of these changes from before to after the emancipation/reference month, Table 2 presents the dollar magnitude of the difference and the percentage change for the emancipation and peer cohorts. As shown in this table, there was a statistically significant $205 decrease in PMPM cost of FFS behavioral health services for the emancipation cohort that amounted to 92.0% decrease. There were also significant decreases in the cost of primary care services of $23 or 33.4%, and pharmaceutical services of $78 or 20.4%. There was a significant cost increase of $17 PMPM or 29.1% for emergency department services. In contrast, none of the changes for the peer cohort in the service types was significant.

Table 2: Changes in Average Monthly PMPM Cost Before and After the Emancipation/Reference Month by Lived Experience Emancipating from Foster Care and Type of Service (percentage change in parentheses)

	Type of Service				
Cohort	**Primary Care**	**ED**	**Hospital**	**Pharmaceutical**	**FFS BH**
Emancipation	-$23* (-33.4%)	$17* (29.1%)	-$87 (-55.6%)	-$78* (-20.4%)	-$205* (-92.0%)
Peer	-$8 (-13.9%)	-$7 (-15.9%)	-$35 (-32.9)	$12 (6.4%)	-$1 (-1.4%)

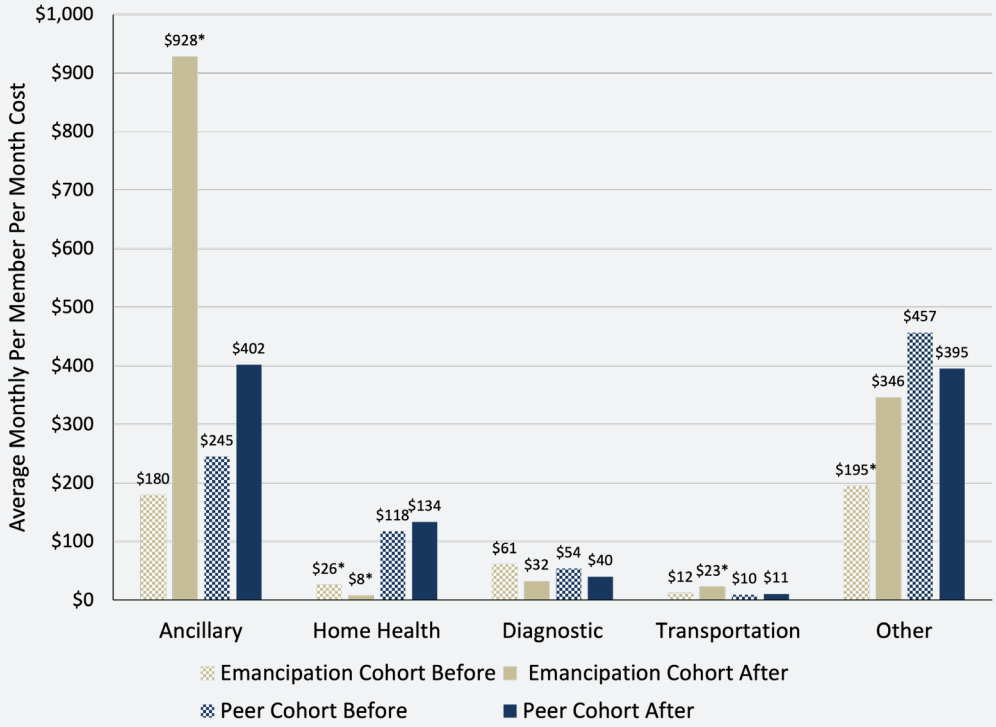
**Difference statistically significant at the 1% level of significance (p <0.01)*

Figure 4 presents the PMPM cost for ancillary services, home health services, diagnostic services, transportation services, and other types of services for those members with both physical and behavioral health complexities. As shown in this figure, PMPM cost of ancillary services increased substantially for both the emancipation and peer cohorts from before to after the emancipation/reference month. There were divergent patterns between the emancipation and peer cohorts for home health, transportation and other types of services. Specifically, members of the emancipation cohort had a decrease in costs of home health services while member of the peer cohort had an increase. In contrast, cost for transportation and other types of services increased for the emancipation cohort and decreased for the peer cohort.

To illustrate the magnitudes of these changes from before to after the emancipation/reference month, Table 3 presents the dollar magnitude of the difference and the percentage change in the PMPM costs of these five service types for the emancipation and peer cohorts. As shown in this table the cost for ancillary services significantly increased $743 PMPM or 416.4% for the most medically complex members of the emancipation cohort, whereas the increase for their peers was $157 PMPM or 64.2%. The increase in the PMPM costs of $151 or 77.4% for other types of services for the emancipation cohort was not statistically significant.

Taken together, the results indicate that the driver for increased PMPM cost for the most medically complex young adults who emancipated from foster care are primarily due to increases in the PMPM cost of ancillary services with some contribution from emergency department, transportation and other types of services. Ancillary services are also driving the smaller increase in PMPM cost for the members of the peer cohort who have both physical and behavioral health complexities. To further explore the specific ancillary services that are driving these costs, Table 4 presents the utilization rates for the 15 most utilized Healthcare Common Procedure Coding System (HCPCS) procedures in the 12 months before and after the emancipation/reference month along with the percentage change in utilization rates. As shown in this table, the most utilized services with some of the largest increases are for targeted case management (T1017 and T2023) and habilitation waiver services (T2016 and T2021).

Figure 4: Average PMPM Ancillary, Home Health, Diagnostic, Transportation and Other Services Costs in 12 Months Before and 12 Months After the Emancipation/Reference Month for Emancipated and Matched Peer Cohorts by Medical Complexity Category



**Difference between Emancipation and Peer Cohorts statistically significant at the 1% level of significance (p <0.01)*

Table 3: Changes in Average Monthly PMPM Cost Before and After the Emancipation/Reference Month by Lived Experience Emancipating from Foster Care and Type of Service (percentage change in parentheses)

	Type of Service				
Cohort	**Ancillary**	**Home Health**	**Diagnostic**	**Transportation**	**Other**
Emancipation	$748* (416.4%)	-$18 (-68.8%)	-$29* (-47.1%)	$11* (87.9%)	$151 (77.4%)
Peer	$157* (64.2%)	$16 (13.6%)	-$14 (-25.1%)	$1 (12.5%)	-$62 (-13.5%)

**Difference statistically significant at the 1% level of significance (p <0.01)*

Table 4: Average Monthly Utilization of Specific Ancillary Services in 12 Months Before and 12 Months After the Emancipation/Reference Month for Emancipated and Matched Peer Cohorts (15 most utilized services)

HCPCS Code and Brief Description	Emancipation Cohort			Matched Peer Cohort		
	Before	After	% Change	Before	After	% Change
T1017: Targeted case management	0.270%	7.408%	2643.70%	3.351%	4.880%	45.63%
T2016: Habilitation residential waiver; per diem	0.602%	9.085%	1409.14%	0.923%	1.685%	82.56%
T2021: Day habilitation waiver: per 15 minutes	0.016%	4.142%	25787.50%	0.804%	2.515%	212.81%
T2023: Targeted case management; per month	0.088%	1.125%	1178.41%	0.036%	0.495%	1275.00%
S5150: Unskilled respite care; per 15 minutes	0.005%	0.000%	-100.00%	0.830%	0.805%	-3.01%
H0041: Foster care child non-therapeutic; per diem	1.437%	0.073%	-94.92%	0.000%	0.000%	
T2040: Financial management, self-directed waiver; per 15minutes	0.000%	0.015%		0.462%	0.795%	72.08%
T2025: Waiver services, not otherwise specified	0.000%	0.015%		0.462%	0.790%	71.00%
T1016: Case management; per 15 minutes	0.000%	0.000%		1.157%	0.045%	-96.11%
T2024: Service assessment/plan of care development, waiver	0.031%	0.680%	2093.55%	0.041%	0.230%	460.98%
T2019: Habilitation, supported employment, waiver; per 15 minutes	0.016%	0.631%	3843.75%	0.031%	0.145%	367.74%
H2021: Community-based wrap-around services, per 15 minutes	0.005%	0.024%	380.00%	0.353%	0.225%	-36.26%
G0176: Activity therapy, such as music, dance, art or play therapies not for recreation	0.000%	0.000%		0.280%	0.285%	1.79%
99000: Specimen handling office to laboratory	0.207%	0.166%	-19.81%	0.124%	0.050%	-59.68%
T1004: Services of a qualified nursing aide, up to 15 minutes	0.088%	0.049%	-44.32%	0.114%	0.160%	40.35%

Implications for Policy, Practice, and Research

The results presented in this brief document a significant increase in PMPM total FFS cost of care for young adults who transition from being in foster care to having responsibility for their own health care, which we have termed emancipation. This increase in cost is inconsistent with findings in a companion brief that overall utilization of services decreased from the 12 months prior to the 12 months after the month of emancipation. To place these findings into context, we also examined PMPM total FFS cost for a matched peer cohort before and after a reference month that corresponded to the emancipation month for their matched member of the emancipation cohort. The peer cohort also had a small increase in costs despite a decrease in overall utilization of health care services from before to after the reference month.

In examining changes in PMPM total FFS cost for members with different medical complexities of both the emancipation and peer cohorts, the findings showed that members of the emancipation cohort with both physical and behavioral health complexities were driving the increase in cost following the emancipation month. This medically complex group had an increase of $489 PMPM, or 35.9%, in the 12 months after their emancipation month compared to the 12 months before. Examining costs of 10 different types of health care services for this group revealed the primary driver of this increase was the cost of ancillary services, which increased $748 PMPM, or 416.4%, after the emancipation month. A preliminary analysis of specific procedures within the ancillary service type suggested that these cost increases were driven by increased utilization of targeted case management and habilitation waiver services. These ancillary services along with increases in PMPM cost for emergency department and transportation services more than offset the decreases in primary care, pharmaceutical, FFS behavioral health, and diagnostic services.

Appendix - Study Design

Our historical, observational study used linked child welfare and Medicaid administrative data, including all FFS claims and Capitated BH encounter data, for young adults in Colorado, aged 17 to 23 years old, from January 2014 through June 2021. Using child welfare data, we identified 2,059 young adults who emancipated from foster care using one of three mutually exclusive child welfare categories: 1) emancipated; 2) living with another (non-parental) relative; and 3) runaway. We excluded those individuals who lacked Medicaid-eligibility in the month of and month following emancipation to ensure we had information on health care utilization before and after the emancipation month. We matched young adults who emancipated to peers by age (within a six month window), the young adult member's income relative to the Federal Poverty Limit (FPL) in the first month after the emancipation/reference month, monthly Medicaid-eligibility pattern in the 12 months preceding the emancipation/reference month, Medicaid eligibility in the emancipation/reference month and the following month, and the presence or absence of chronic physical and BH complexities calculated using the PMCA through all FFS claims and Capitated BH encounter data available prior to the emancipation/reference month. A total of 401 young adults who emancipated were excluded from the analysis for the following reasons: (1) lack of Medicaid-eligibility in the month of (N=113) or month following emancipation (N=220); and (2) insufficient monthly Medicaid-eligibility information, inadequate PMCA categorization, or unresolvable data quality issues (N=68). Table A-1 presents the demographic characteristics of our study population.

Table A-1 Demographic Characteristics of the Study Population (N = 3,316)

Characteristic	Emancipation Cohort N=1,658 (%)	Peer Cohort N=1,658 (%)
Age		
17 – 18	63.6	63.4
19	20.6	20.8
20	10.4	11.6
21+	5.4	4.2
Sex		
Female	41.1	41.1
Race and Ethnicity		
American Indian/Alaska Native; Asian; Native Hawaiian/Other Pacific Islander	2.1	3.1
Black/African American	12.0	5.1
White/Caucasian	41.5	41.6
Hispanic/Latino	19.4	32.7
Other People of Color	6.7	5.2
Other Unknown Race	7.8	5.6
Not Provided	10.6	6.8
Income Relative to Federal Poverty Level		
Up to 40%	65.9	65.9
41-100%	30.8	30.8
101%+	3.4	3.4
Medical Complexity		
Non-Chronic, no BH	15.3	15.3
Non-Chronic, with BH	33.1	33.1
Chronic, no BH	6.4	6.4
Chronic, with BH	45.2	45.2

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