

Demographics Characteristics							
Age at index date (yrs)							.17
3 to <13	652	27.38	561	29.64	91	18.65	
13 to <17	1,074	45.11	800	42.26	274	56.15	
17 to 22 ^a	655	27.51	532	28.10	123	25.20	
Gender							.19
Female	933	39.19	752	39.73	181	37.09	
Male	1,448	60.81	1,141	60.27	307	62.91	
Race							.20
African American	1,503	63.12	1,181	62.39	323	66.19	
Others ^b	188	7.90	157	8.29	31	6.35	
White	689	28.94	555	29.32	134	27.46	
Medicaid Coverage Group at Index Date							.21
Foster care	600	25.20	465	24.56	135	27.66	
Others ^c	258	10.84	210	11.09	48	9.84	
SSI	970	40.74	777	41.05	193	39.55	
TANF	553	23.23	440	23.24	113	23.16	
Clinical Characteristics							
Prior Medication Use ^d							
Antipsychotics	885	37.17	639	33.76	246	50.41	.42
ADHD Medication	936	39.31	732	38.67	204	41.80	.29
Antidepressant	1,828	76.77	1,453	76.76	375	76.84	.41
Lithium	107	4.49	69	3.65	38	7.79	.28
Mood stabilizer/ Anticonvulsants	236	9.91	179	9.46	57	11.68	.21
Prior Mental Health-Related Diagnosis ^e							
Schizophrenia	<11	<0.46	<11	0.58	<11	<2.25	.06
Bipolar disorder	35	1.47	21	1.11	14	2.87	.02
Depression	25	1.05	16	0.85	<11	<2.25	.01
Anxiety	97	4.07	72	3.80	25	5.12	.10
Conduct disorder	<11	<0.46	<11	<0.58	<11	<2.25	.05
Impulse control disorder	14	0.59	11	0.58	<11	<2.25	.01
Oppositional defiant disorder	46	1.93	33	1.74	13	2.66	.06
ADHD	350	14.70	264	13.95	85	17.42	.04

ADHD, Attention-deficit/hyperactivity disorder; TANF, Temporary Assistance for Needy Families; SD, standardized difference; SSI, Supplemental Security Income

a. Up to 22 years old at discharge

b. Others include Asian, Native American, and Pacific Islander

c. Others include home and community based services (HCBS) waivers, federal poverty level (FPL) up to 138 percent, Maryland children's health program (PW/MCHP), and long-term care

d. One year prior to the index.

e. The categories are not mutually exclusive.

f. Standardized difference is equal to the difference in means or proportions divided by standard error. SD is referred to Cohen's Effect Size Index, which primarily to evaluate the balance in baseline covariates between youth in the care management entity and a comparison group.

Supplemental Table 3 Demographic, clinical, and program characteristics of participants in care management entity with complete and missing discharge dates

Variable Description	Overall (N=709)	Complete Data (N=583)	Incomplete data (N=126)	P-value
Demographic Characteristics, N(%)				
Age (Mean, SD)	14.05 (3.06)	14.09 (2.98)	13.86 (3.39)	.434
Gender				
Female	289 (40.76%)	242 (41.51%)	47 (37.30%)	.383
Male	420 (59.24%)	341 (58.49%)	79 (62.70%)	
Race				
Black	449 (63.33%)	358 (61.407%)	91 (72.22%)	.046
Other	38 (5.36%)	35 (6.00%)	3 (2.38%)	
White	222 (31.31%)	190 (32.59%)	32 (25.40%)	
Medicaid Coverage Group at Index Date*				
SSI	180 (25.39%)	147 (25.21%)	33 (26.19%)	.356
TANF	190 (26.80%)	162 (27.79%)	28 (22.22%)	
Foster/Adoption	240 (33.85%)	190 (32.59%)	50 (39.68%)	
Others	99 (13.96%)	84 (14.41%)	15 (11.90%)	
Region ^a				
Unknown	5 (0.71%)	4 (0.69%)	1 (0.74%)	.895
Western	39 (5.54%)	39 (6.69%)	-	
Capital	90 (12.78%)	79 (13.55%)	11 (8.73%)	
Central	395 (56.11%)	315 (54.03%)	80 (63.49%)	
Southern	5 (0.71%)	5 (0.86%)	-	
Eastern shore	5 (0.71%)	4 (0.69%)	1 (0.79%)	
Clinical Characteristics, N(%)				
Prior Psychotropic Medication Use				
ADHD Medication	332 (46.83%)	274 (47.00%)	58 (46.03%)	.844
Antipsychotic	444(62.62%)	374 (63.82%)	70 (55.56%)	.708
Antidepressant	241 (33.99%)	194 (33.28%)	47 (37.30%)	.387
TCA	5 (0.71%)	4 (0.69%)	1 (0.79%)	.896
Others [†]	101 (14.25%)	85 (14.58%)	16 (12.70%)	.584
Mood Stabilizer	62 (8.75%)	50 (8.58%)	12 (9.52%)	.733
Anticonvulsant	84 (11.85%)	69 (11.84%)	15 (11.91%)	.983
Prior Mental Health-Related Diagnosis				
Depression	9 (1.27%)	7 (1.20%)	2 (1.59%)	.725
Anxiety	50 (7.05%)	45 (7.72%)	5 (3.97%)	.136
Conduct disorder	6 (0.85%)	5 (0.86%)	1 (0.79%)	.943
Oppositional defiant disorder	30 (4.23%)	24 (4.12%)	6 (4.76%)	.744
ADHD	124 (17.49%)	98 (16.81%)	26 (20.64%)	.305
Care management entity characteristics, N(%)				
Funding Source				

DJS	150 (21.16%)	125 (21.44%)	25 (19.84%)	.413
DHR	228 (32.16%)	192 (32.936%)	36 (28.57%)	
System of Care Grants	220 (31.03%)	173 (29.67%)	47 (37.30%)	
Others ^b	111 (15.66%)	93 (15.95%)	18 (14.29%)	

ADHD Attention-deficit/hyperactivity disorder (ADHD), *TCA* Tricyclic antidepressants, *TANF* Temporary Assistance for Needy Families, *SSI* Supplemental Security Income, *DJS* Department of Juvenile Services, *DHR* Department of Human Resources

a. Western: Garrett, Allegany, and Washington Counties; Capital: Frederick, Montgomery, and Prince George's Counties; Central: Anne Arundel, Baltimore city, Baltimore county, Carroll, Harford, and Howard; Southern: Calvert, Charles, St. Mary's; Eastern Shore: Kent, Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Somerset, Worcester, and Cecil.

b. Others included Community Services Initiative, RTC Waiver, Rehabilitation Services Option, and Stability Initiative

Supplemental Document Missing data management in youth with the care management entity who had missing length of stay (LOS) in the enrollment (i.e, no discharge date available in the original claims)

The missing discharge date was calculated by summing the imputed LOS in the care management entity service and date of enrollment. The imputed LOS in the care management service was imputed by multiple imputation methods.

The Multiple Chain Monte Carlo (MCMC) method was used to generate pseudorandom draws from a probability distribution based on the Bayesian framework.¹⁻³ Assuming the data follows multivariate normal distribution, the following two steps are applied to Bayesian inference: 1) data imputation and 2) posterior steps. First, the data imputation step simulated the missing values independently. Here, the variable with a missing observation is denoted by $Y_i(\text{missing})$ and the variable with an existing value i by $Y_i(\text{observed})$. This step drew values for a missing value from a conditional distribution $Y_i(\text{missing})$ given the observed values $Y_i(\text{observed})$. The second step, posterior step, simulated the posterior distribution from the complete estimates after the first step. Then, new estimates were obtained by repeating the first step for the next missing observation. The two steps above were repeated in sufficient cycles to converge to a stationary distribution of LOS and generated average estimates for each missing value.

We used a SAS/STAT procedure, PROC MI, to conduct the MCMC method to create 5 simulated datasets for missing LOS in the care management, with the number of iterations set to 100 by SAS default. SAS/STAT procedure, PROC MIANALYZE, was then used to generate the statistical inference about the missing LOS in the care management service by combining the five imputed datasets together. [ENREF 19](#)³

References:

1. Schafer JL. Multiple imputation: a primer. *Statistical methods in medical research*. Mar 1999;8(1):3-

15.

2. He Y. Missing data analysis using multiple imputation: getting to the heart of the matter. *Circulation. Cardiovascular quality and outcomes*. Jan 2010;3(1):98-105.
3. Yuan Y. Multiple Imputation Using SAS Software. *Journal of Statistical Software*. 2011;45(6).

Cohort Selection

