

Do Children With Special Needs Receiving Care Coordination Have Greater Access to Primary Care?

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INTRODUCTION

- North Carolina's Child Service Coordination (CSC) program, which was recently replaced with Care Coordination for Children (CC4C), provided access to preventive and supportive primary care services to at-risk children or children with a special health care needs.
- In this program, children younger than 3 years with a qualifying risk indicator (such as health problems within their family) and children younger than 5 years with a qualifying diagnosed condition (such as developmental delay, disability, chronic illness, and emotional disorder) were eligible to receive CSC services, regardless of their family income.
- A designated child care coordinator monitored and coordinated healthy development of the child, with active involvement of the family and local health and social service providers.
- A few studies have documented the effect of the CSC program on child health outcomes¹; however, minimal data exist on its impact on the access to and utilization of health care services.
- Objectives of this study were to characterize CSC recipients and assess whether access to health care services was greater among CSC recipients, compared to non-CSC recipients, in the Medicaid program.

METHODS

Data Source

- Medicaid administrative claims data for a random sample of 7,467 births that matched with a Medicaid-eligible mother's record were drawn between October 2008 and September 2010.

Study Measures

Health Care Service Utilization

- Number of unique well-child primary care visits, inpatient admissions, and emergency department (ED) visits during the first year of life were identified using appropriate procedure and revenue center codes.
- A count variable for each of the three service-use categories represented the study outcomes.

Primary Independent Variable

- CSC-eligible infants were defined using applicable ICD-9-CM codes, whereas CSC participation was determined using state-specific procedure codes that represented an administrative fee paid to receive care coordination.

Control Variables

- Child-level risk factors included low birth weight, preterm birth status, any congenital anomaly, presence of any specified health condition at the time of birth, and neonatal intensive care unit (NICU) admission after birth.
- Mother-level risk factors included age at delivery, less than high school education, receipt of maternity care coordination (MCC), African American racial status, Hispanic racial status, and smoking status.
- Except for mother's age at delivery, binary indicators represented each of the control variables in the adjusted analysis.

Statistical Analyses

- All service-use measures, CSC participation, and risk factors were descriptively analyzed.
- Bivariate t-tests were performed to compare health care service use between CSC and non-CSC recipients.
- To control for various child-level and mother-level risk factors, multivariate negative binomial regression analyses were conducted. Beta coefficients were exponentiated and presented as incident rate ratios (IRR).
- All analyses were performed using SAS[®] statistical software, version 9.3 (SAS Institute, Cary, NC), at an a priori significance level of 0.05.

RESULTS

- A total of 636 (8.5%) infants, out of 7,467, had a reported diagnosis of one of the qualifying conditions and/or qualifying risk indicators for CSC enrollment.
- A descriptive summary of baseline sample characteristics and service-use outcome measures is presented in Table 1.

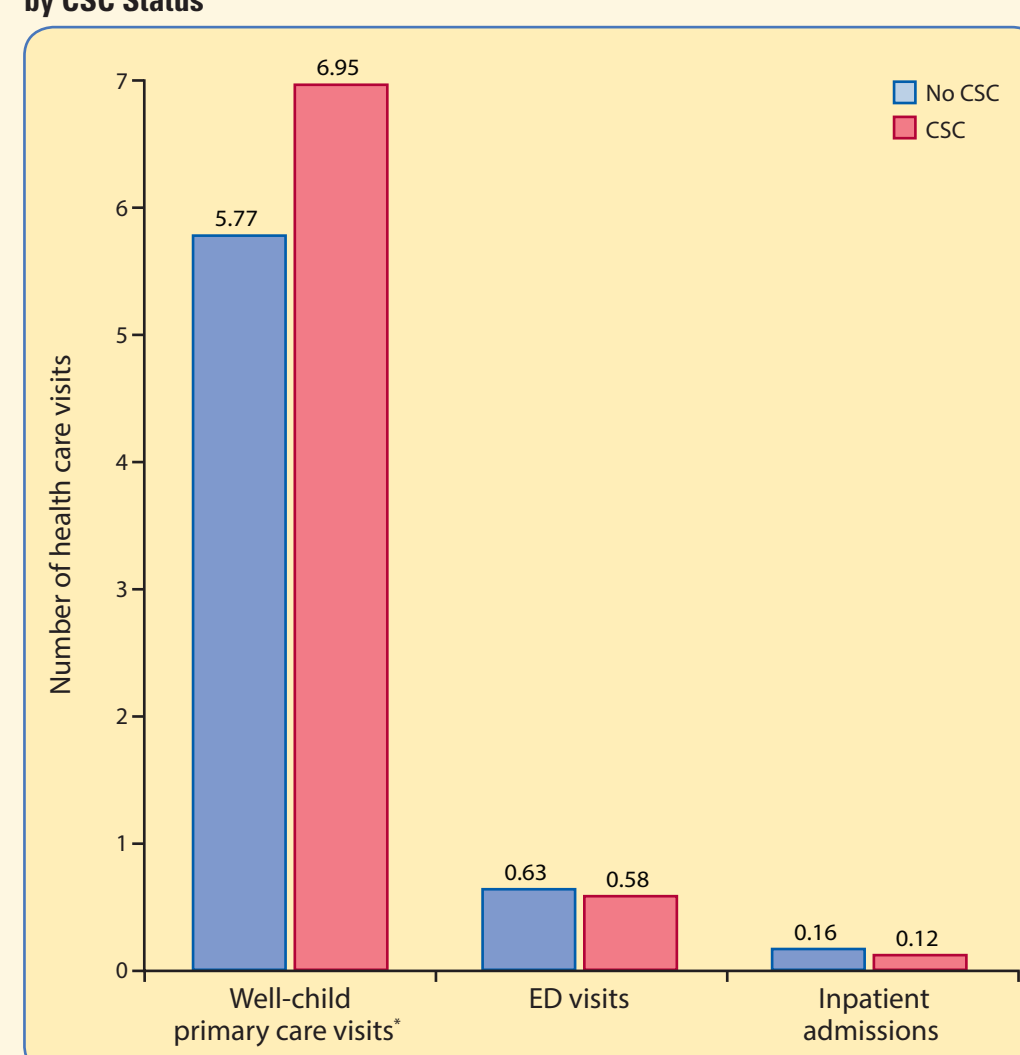
Table 1. Descriptive Summary of Baseline Risk Factors and Service-Use Outcome Measures

Variable	No CSC (n = 98)		CSC (n = 538)	
	n	%	n	%
Mother-level factors				
Age at delivery (mean, SD)	23.74	5.20	23.05	5.67
Received MCC services	30	30.9	300	55.8
Mother is African American	31	31.6	208	38.7
Mother is Hispanic	17	17.3	83	15.4
Received TANF benefits	8	8.2	63	11.7
Less than high school education (< 12 years)	31	31.9	172	32.0
Prenatal tobacco use	27	27.5	81	15.0
Child-level factors				
Low birth weight (< 2,500 grams)	19	19.4	81	15.1
Any congenital anomaly	32	32.7	180	33.5
Any condition of the newborn	36	36.7	190	35.3
NICU admission (within 28 days of birth)	38	38.8	167	31.0
Health care service use (during 12 months after birth)				
Any well-child primary care visits	97	99.0	534	99.3
Any ED visits	52	53.1	266	49.4
Any inpatient admissions	12	12.2	50	9.3

TANF = temporary assistance to needy families.

- The most frequent diagnoses were other specified suspected condition (59.1%), interpersonal problems (44.8%), family circumstances (32.4%), health problems within family (22.8%), and unspecified constitutional state in development (11%).
- In addition, a few infants had a reported qualifying diagnosis of lack of housing, observation of abuse and neglect, problems with learning and hearing, and internal organ deficiency.
- Of all 636 infants with a qualifying risk indicator or diagnostic condition, a majority received at least some CSC services during the study period (n = 538, 84.6%).
- Average time to receipt of first CSC service, from birth, was approximately 3 months (mean = 87.2 days, standard deviation [SD] = 103.5).
- In the bivariate analysis, the average number of well-child primary care visits was observed to be significantly higher among infants who received CSC services compared to those who did not (mean = 6.9 vs. 5.8, $P < 0.01$).
- The average number of ED visits and inpatient admissions were slightly lower in the CSC group, although the difference was not statistically significant (Figure 1).

Figure 1. Bivariate Analysis: Health Care Service Use During First Year of Life, by CSC Status



* $P < 0.01$.

- Similar results were observed in the multivariate analyses (Table 2). The rate of well-child primary care visits among CSC recipients was estimated to be 1.19 times higher than that of the non-CSC recipients.

Table 2. Results of Multivariate Negative Binomial Regression Analyses

Predictors	Well-Child Primary Care Visits		ED Visits		Inpatient Visits	
	IRR	95% CI	IRR	95% CI	IRR	95% CI
Received CSC	1.19**	1.06, 1.33	0.88	0.66, 1.16	0.82	0.40, 1.67
Low birth weight	1.18*	1.02, 1.36	0.68	0.45, 1.03	1.37	0.46, 4.06
Preterm birth	1.01	0.87, 1.17	1.43	0.97, 2.11	0.81	0.26, 2.54
Any congenital anomaly	1.15	0.83, 1.60	1.12	0.45, 2.78	2.84	0.45, 17.76
Any condition of the newborn	0.98	0.79, 1.20	0.82	0.44, 1.53	1.00	0.24, 4.14
NICU admission within 28 days of birth	0.94	0.86, 1.02	1.07	0.85, 1.34	1.20	0.68, 2.13
Mother received TANF benefits	1.08	0.96, 1.21	1.00	0.72, 1.38	0.69	0.28, 1.74
Mother's age at delivery	1.00	1.00, 1.01	0.99	0.97, 1.01	1.01	0.96, 1.06
Mother's education: less than high school	0.95	0.86, 1.04	1.02	0.78, 1.32	1.82	0.97, 3.44
Mother received MCC services	1.10*	1.02, 1.19	1.05	0.85, 1.30	0.70	0.40, 1.23
Mother is African American	1.01	0.93, 1.10	1.15	0.91, 1.44	1.14	0.63, 2.06
Mother is Hispanic	1.06	0.94, 1.19	0.93	0.66, 1.30	0.67	0.27, 1.67
Mother used tobacco during prenatal period	1.05	0.94, 1.18	0.92	0.67, 1.27	1.09	0.51, 2.33

* $P < 0.05$; ** $P < 0.01$.

CI = confidence interval.

DISCUSSION AND CONCLUSIONS

- The results of our study indicate that family-related risk indicators were more commonly reported than other qualifying risk indicators and diagnostic conditions necessary for CSC eligibility.
- North Carolina's CSC program was able to deliver at least some care coordination services to nearly 85% of qualifying infants.
- The higher number of well-child primary care visits in the CSC group indicates that the CSC program facilitated greater access to primary care among infants in low-income families during first year of their lives.
- We did not observe a significant reduction in the number of ED visits and inpatient admissions, but based on the results of other similar care management programs (such as medical homes),² we expect that greater access to primary care in the CSC program (now CC4C) may actually reduce preventable health care service use in the long term.
- Our study was limited to a short follow-up time (1 year after birth); future research should assess the effect of child care coordination programs on long-term health care utilization and cost consequences.

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