

Exploring the Enrollment of Children Born With Birth Defects into Michigan's Children's Special Health Care Services (CSHCS) Program

ABSTRACT

Background: Michigan's Children's Special Health Care Services (CSHCS) program operates statewide to improve access to care for over 33,000 of children with special needs annually, 1/3 of whom have congenital abnormalities. This study examines enrollment into the CSHCS program for children with select birth defects. The objective of this study is to determine the predictors of enrollment into the CSHCS program for children with select birth defects.

Study Question: Is birthing hospital level of care a predictor of CSHCS program enrollment for children born with easily recognizable birth defects? What additional maternal/child characteristics help further predict enrollment into CSHCS?

Methods: A dataset linking the Michigan Birth Defects Registry, Live Births and CSHCS files for 1998-2003 was used. This study was limited to a group of birth defects easily diagnosable at delivery that also met the CSHCS program eligibility criteria: neural tube defects, hydrocephalus, microcephalus, cyanotic heart diseases, oro-facial clefts and limb reduction deformities. A logistic regression model was developed to control for selected socio-demographic characteristics and thus further predict enrollment into the CSHCS program.

Results: Of 4240 children who met the inclusion criteria, 60.8% were enrolled in CSHCS. Younger mothers and those with less education were more likely to have their children enrolled. The presence of multiple anomalies (OR=2.95), NICU admission (OR=1.71), rural residence (OR=2.13) and hospital level of care 1 or 2 (OR=1.19) were also positively associated with enrollment. There was no apparent racial disparity noted between maternal reported race as "black" or "white", but those who reported race as "other" were significantly less likely to have their child enrolled in CSHCS services.

Conclusions: We were able to identify socio-demographic characteristics of children that are associated with enrollment in CSHCS services. Specific groups are shown to underutilize available services. Further studies are warranted that examine referral practices as well as barriers to parental participation for eligible populations.

Public Health Implications: Using the linked file containing data from the BD registry and the CSHCS program helps identify families who underutilize available resources. Improvements in referral of eligible children and removing enrollment barriers may increase the use of CSHCS services.

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Background

- Michigan Birth Defects Registry (MBDR)
 - Over 10,000 children in Michigan are affected with one or more Birth Defects each year
 - Nearly 140,000 children in Michigan's Birth Defects registry since inception in 1992
 - Over 860 reportable conditions
 - 564 of these conditions may be eligible for CSHCS
- Children's Special Health Care Services (CSHCS)
 - Michigan Definition – A person under 21 "whose activity is or may be so restricted by disease or deformity as to reduce the individual's normal capacity for education and self support."
 - Serves ~ 35,000 children per year
 - About 1/3 of CSHCS enrollees are children with birth defects
- Problem Statement
 - Not all children who are eligible for CSHCS services will receive benefits
 - There are varying enrollment rates by reporting hospitals across the state (fig. 1)

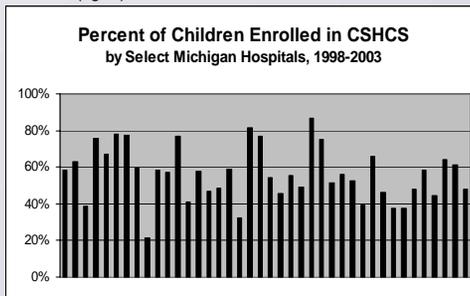


Fig. 1

Objective

An important goal of the birth defects registry program is to assure that affected children have access to available resources. The objective of this study is to analyze the predictors of enrollment into the CSHCS program for children with select birth defects to help identify factors that lead to increased enrollment.

Study Questions

- Does birthing hospital level of care predict enrollment into CSHCS?
- What additional maternal/child characteristics help further predict enrollment into CSHCS?

Methods

- Data Source
 - MBDR / CSHCS linked file
 - Birth years 1998 – 2003
- Selection Criteria
 - Born with a birth defect identifiable at birth*
 - ICD9 Code eligible for CSHCS services
- Analysis
 - SAS 9.1
 - Bivariate and Logistic Regression analysis

Results

- 4240 Cases met inclusion criteria
- Overall 60.8% enrollment in CSHCS

Predictors	Crude OR (95% CI)	Adjusted OR (95% CI)
Hospital Level of Care		
Level 3	1 (Ref.)	1 (Ref.)
Level 1 or 2	1.22 (1.07-1.38)	1.19 (1.03-1.37)
Residence		
Urban	1 (Ref.)	1 (Ref.)
Rural	2.22 (1.85-2.67)	2.13 (1.75-2.61)
Maternal Age		
<20 years old	2.03 (1.57-2.61)	1.44 (1.07-1.93)
20-24 years old	1.89 (1.54-2.23)	1.54 (1.15-1.81)
25-29 years old	1.43 (1.17-1.74)	1.40 (1.14-1.73)
30-34 years old	0.95 (0.78-1.17)	0.99 (0.80-1.22)
35+ years old	1 (Ref.)	1 (Ref.)
Education		
<High School	1.82 (1.53-2.17)	1.17 (0.94-1.46)
High School	1.44 (1.26-1.66)	1.13 (0.97-1.32)
>High School	1 (Ref.)	1 (Ref.)
# of Anomalies		
Single Anomaly	1 (Ref.)	1 (Ref.)
Multiple Anomalies	2.90 (2.49-3.38)	2.95 (2.51-3.46)
NICU Admission		
NICU no	1 (Ref.)	1 (Ref.)
NICU yes	2.01 (1.75-2.30)	1.71 (1.48-1.98)
Maternal Race		
White	1 (Ref.)	1 (Ref.)
Black	1.21 (1.03-1.43)	1.09 (0.91-1.31)
Other	0.66 (0.46-0.95)	0.63 (0.43-0.92)
Payor Source		
Private/other	1 (Ref.)	1 (Ref.)
Medicaid	2.21 (1.93-2.53)	1.87 (1.56-2.16)

Discussion

Of 4240 children who met the inclusion criteria, 60.8% were found to be enrolled in CSHCS.

Rural residence and birth at a level 1 or 2 birthing center were positively associated with CSHCS enrollment (adj. OR = 1.19 & 2.13 respectively). Also, children who were reported as having more than one birth defect or who were admitted to the intensive care unit were more likely to have been enrolled in CSHCS (OR 2.95 & OR 1.71). We saw trends for decreasing enrollment with increasing maternal age and education. Having Medicaid as a payor source was also positively correlated with enrollment (OR 1.87)

Analysis of race showed that blacks were more likely than whites to have their children enrolled in CSHCS services, but this finding was not statistically significant when adjusted for other factors. Races specified as "other" show findings of statistically significant fewer children enrolled.

Limitations

The race variable is self-reported maternal race and does not include paternal information or ethnicity.

Enrollment in CSHCS is a multi-step process which includes diagnosis, specialist referral, parental acceptance, severity of illness and other parameters that are beyond the scope of this study to address.

Conclusion

We were able to identify socio-demographic characteristics of children that are associated with enrollment in CSHCS services. We have demonstrated that certain groups underutilize available resources. Further studies are warranted that examine referral practices as well as barriers to parental participation for eligible populations.

Public Health Implications

Using Michigan's linked file that contains data from the MBDR and the CSHCS program helps us to identify characteristics of families who underutilize available services.

Recognizing and removing barriers to enrollment may assist health care providers in increasing enrollment for eligible children into Michigan's CSHCS program.

*neural tube defects, hydrocephalus, microcephalus, cyanotic heart diseases, oro-facial clefts and limb reduction deformities.