

The Cycle of Child Protection Services Involvement: A Cohort Study of Adolescent Mothers

Elizabeth Wall-Wieler, MSc,^a Marni Brownell, PhD,^{a,b} Deepa Singal, PhD,^b Nathan Nickel, PhD,^{a,b} Leslie L. Roos, PhD^{a,b}

abstract

OBJECTIVES: To determine if adolescent mothers who were in the care of child protection services (CPS) when they gave birth to their first child are more likely to have that child taken into CPS care before the child's second birthday than adolescent mothers who were not in the care of CPS.

METHODS: Linkable administrative data were used to create a population-based cohort of adolescent mothers whose first child was born in Manitoba, Canada between April 1, 1998, and March 31, 2013 ($n = 5942$). Adjusted odds ratios (aOR) of having that first child taken into care before their second birthday were compared between mothers who were in care ($n = 576$) and mothers who were not in care ($n = 5366$) at the birth of their child by using logistic regression models.

RESULTS: Adolescent mothers who were in care had greater odds of having their child taken into care before the child's second birthday (aOR = 7.53; 95% confidence interval [CI] = 6.19–9.14). Specifically, their children had higher odds of being taken into care in their first week of life (aOR = 11.64; 95% CI = 8.83–15.34), between 1 week and their first birthday (aOR = 3.63; 95% CI = 2.79–4.71), and between their first and second birthday (aOR = 2.21; 95% CI = 1.53–3.19).

CONCLUSIONS: Findings support an intergenerational cycle of involvement with CPS. More and better services are required for adolescent mothers who give birth while in care of CPS.

FREE

^aDepartment of Community Health Sciences, University of Manitoba, Winnipeg, Canada; and ^bManitoba Centre for Health Policy, Winnipeg, Canada

Ms Wall-Wieler contributed to the conceptualization of the study, acquired the data, ran all statistical analysis, and wrote the primary manuscript draft; Drs Brownell, Singal, and Nickel contributed to the conceptualization of the study and critically reviewed drafts of the manuscript; Dr Roos contributed to the conceptualization of the study, critically reviewed drafts of the manuscript, and provided supervision; and all authors approved the final manuscript as submitted.

DOI: <https://doi.org/10.1542/peds.2017-3119>

Accepted for publication Jan 29, 2018

Address correspondence to Elizabeth Wall-Wieler, MSc, Department of Community Health Sciences, University of Manitoba, 408-727 McDermot Ave, Winnipeg, MB, Canada R3E 3P5. E-mail: wallwiee@myumanitoba.ca

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2018 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

WHAT'S KNOWN ON THIS SUBJECT: Children who spend time in the care of child protection services (CPS) have higher rates of adolescent pregnancy. Children of mothers who spent time in the care of CPS are more likely to be placed in care.

WHAT THIS STUDY ADDS: Adolescent mothers who were in the care of CPS when they gave birth are more than 7 times more likely to have their child taken into care before age 2 than adolescent mothers who were not in care.

To cite: Wall-Wieler E, Brownell M, Singal D, et al. The Cycle of Child Protection Services Involvement: A Cohort Study of Adolescent Mothers. *Pediatrics*. 2018;141(6):e20173119

Adolescent motherhood has health and social consequences for both the mother and the child. Adolescent mothers and their offspring tend to experience lower levels of education and lower rates of labor force participation, and children of adolescent mothers are more likely to experience maltreatment.¹⁻⁴ Although adolescents who are in and out of care of child protection services (CPS), such as foster care, have similar patterns of sexual intercourse (ie, age of initiation, number of partners), those in the care of CPS are more likely to engage in risky behaviors such as unprotected sex or inconsistent contraceptive use.⁵⁻⁸ This results in young women in foster care being more than twice as likely to have an adolescent pregnancy.^{5,9} These young women have often experienced abuse or neglect, do not have a positive attachment to their primary caregiver, and have lived with many different caregivers, which can make the transition to motherhood more challenging.^{3,4,10}

Given the vulnerabilities experienced by adolescent mothers, and the significantly increased rates of adolescent pregnancy and challenges experienced by those in foster care, in this study, we examine the differences in custody loss to CPS for mothers giving birth while in care and adolescents who were not in care when they became mothers. Authors of many studies have identified a cycle of involvement with CPS (mothers who were in care are more likely to have their children placed in care); we aim to examine the odds of this cycle occurring before the child's second birthday. Specifically, are mothers who were in care when they gave birth more likely to have their child taken into care within the first week, between the first week and first birthday, and between the child's first and second birthday? These outcomes are examined in a population-based

cohort of adolescent mothers giving birth in Manitoba, Canada by using linkable administrative databases. Identifying both (1) whether mothers who gave birth while in care have greater odds of having their child placed in care, and (2) the child's age when taken into care, can help to elucidate time periods during which additional supports and services can be provided to these mothers to interrupt the cycle of involvement with CPS.

METHODS

Data

The setting of this study, Manitoba, is a central Canadian province with ~1.2 million residents.¹¹ Among health and education indicators, Manitoba is similar to other Canadian provinces; however, the rates of children in care in this province are among the highest in the country, and higher than rates seen in most developed countries.¹²⁻¹⁴ Adolescent pregnancy rates were also higher in Manitoba (at 48.7 per 1000 adolescent girls) compared with the overall Canadian rate (28.2 per 1000 adolescent girls).¹⁵

This study used data from the Population Data Research Repository at the Manitoba Centre for Health Policy, which contains province-wide, routinely collected information over time for each family and for each resident. The research registry contains information on all residents of Manitoba, including births, deaths, and arrival and departure dates. This registry was linked at the individual level with physician claims, hospitalizations, and child protection cases to create a rich longitudinal data set that details life events in the biological mother in the years after her first birth. A scrambled personal health number linked these de-identified data sets at the individual level. Information on linkage methods, confidentiality and

privacy, and validity can be found elsewhere.^{16,17}

Cohort Formation

Women included in this study were drawn from all mothers whose first child was born in Manitoba, Canada between April 1, 1998, and March 31, 2013, who were younger than 18 at the birth of their first child, and lived in Manitoba at least 2 years after the birth of their first child. These mothers were divided into 2 groups. Group 1 included mothers who were in care of CPS when they gave birth to their first child ($n = 576$), and Group 2 included mothers who were not in the care of CPS when they gave birth to their first child ($n = 5370$). Figure 1 diagrams the formation of these 2 groups.

Outcomes

We created the following set of 4 variables to describe whether a child was taken into care before the age of 2: (1) an overall variable identifying all children placed in care at any point within 2 years of birth, (2) placed in care within 7 days of birth, (3) placed in care between 7 days and 1 year of birth, and (4) placed in care between 1 and 2 years of birth.

Covariates

To obtain more accurate estimates of the association between being in care when giving birth and having that child placed in care before their second birthday, we controlled for a series of characteristics and events in the 2 years before the birth of the child, during pregnancy, and at the birth of the child. A history of mental illness has been associated with having a child placed in care¹⁸; to account for this, we adjusted for whether mothers had a diagnosis of depression, anxiety, substance use, attention-deficit/hyperactivity disorder (ADHD), and/or suicide attempts in the 2 years before childbirth. Prenatal care use, characteristics of the birth and

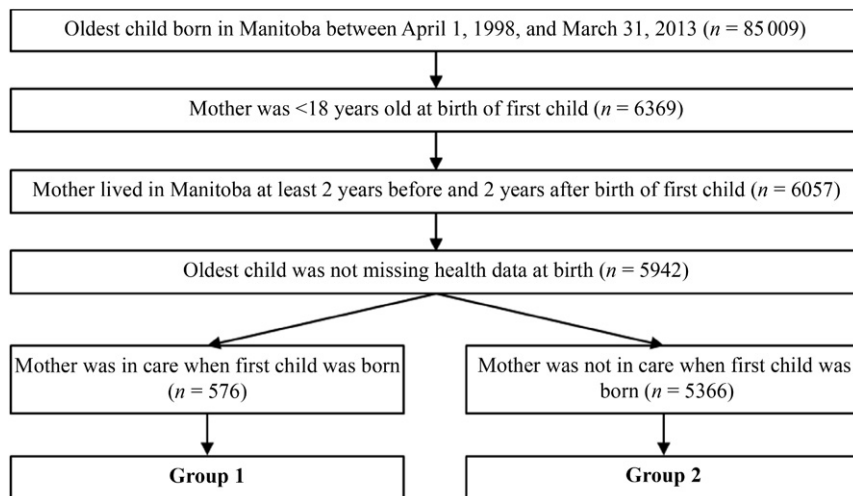


FIGURE 1
Cohort formation.

the child at birth have also been linked to the placement of child in care.¹⁹ For this reason, prenatal care during pregnancy, whether the birth was a cesarean delivery, the hospitalization length of stay during birth, whether breastfeeding was initiated in hospital, gestational age, and birth weight are also included. In Manitoba, adolescent mothers have access to expectant parent services, provided through CPS, to assist in the transition to motherhood. Whether mothers received this support was accounted for. We also included whether mothers were in care when they became pregnant. All covariates are defined in Table 1.

Statistical Analysis

We first examined differences in characteristics and events in the lives of adolescent mothers who were and were not in care when they gave birth to their first child. Differences were examined by using a *t* test for continuous variables and a χ^2 test for binary variables. We obtained unadjusted and adjusted odds ratios of having a child taken into care, comparing mothers who were in care and mothers who were not in care at the birth of their first child by using logistic regression models.

A second logistic regression model included information on whether mothers were in care at the conception of the child and maternal involvement in CPS divided into the following 4 categories: (1) not in care at the conception or birth of the child, (2) in care at the conception of the child but not at birth of child, (3) in care at the birth but not conception of child, and (4) in care at the birth and the conception of child. All data management, programming, and analyses were performed by using SAS version 9.4 (SAS Institute, Inc, Cary, NC).

RESULTS

In Manitoba, ~10% of adolescent mothers were in CPS care when they gave birth to their first child. Table 2 displays the frequency and means of characteristics, events, and diagnoses leading up to the birth of the mother's first child. Adolescent mothers who were in care had significantly greater rates of substance use, depression, anxiety, ADHD, and suicide attempts in the 2 years before the birth of their first child. These mothers also had higher rates of adequate prenatal care and breastfeeding initiation in hospital; these higher rates could be attributed

to the higher rates of expectant parent services use among mothers who had a child taken into care (Table 2).

Among mothers who were in care, 25% had their children taken into care within the first week after birth, an additional 17% had a child taken into care between the first 7 days and 1 year after birth, and 7% had a child taken into care between the child's first and second birthday. This resulted in almost half of children being taken into care before their second birthday; this was much higher than the 10% of children taken into care among adolescent mothers who were not in care when they gave birth (Table 2).

Among mothers who were in care, the duration of the episode in care during which the birth occurred varied; 225 mothers (39.1%) were in care for <1 year, 68 mothers (11.8%) were in care between 1 and 2 years, and 283 mothers (49.1%) had been in care for more than 2 years before they gave birth to their child. More than 346 mothers (60%) were in care <1 year after the birth of their child, 158 mothers (27.4%) were in care between 1 and 2 years, and 72 mothers (12.5%) were in care for more than 2 years after the birth of their child.

Table 3 displays the unadjusted and adjusted odds ratios for each outcome. After adjusting for maternal mental illness, expectant parent service use, prenatal care use, and characteristics at the birth of the child, mothers who were in care when they gave birth had 7.53 times greater odds of having their child taken into care before their second birthday than adolescent mothers who were not in care when they gave birth to their first child. Specifically, mothers in care had 11.64 times greater odds of having their child taken into care within the first week, 3.64 times greater odds of having their child taken into care

TABLE 1 Definition of Covariates

Variable	Definition
Depression	In the 2 y before the birth of her first child, the mother had the following: ≥1 hospitalization with a diagnosis of depression (unipolar and bipolar; 296.2–296.3, 296.5, 300.4, 309, and 311; ICD-10-CA codes F31.3–F31.5, F32, F33, F34.1, F380, F381, F432, F438, and F530) ≥1 physician visit with a diagnosis for depression (ICD-9-CM codes 309, 311) ²⁰
Anxiety	In the 2 y before the birth of her first child, the mother had the following: ≥1 hospitalization with a diagnosis of an anxiety disorder (ICD-9-CM codes 300.0, 300.2, 300.3; ICD-10-CA codes F40, F41.0, F41.1, F41.3, F41.8, F41.9, F42, F43.1) ≥1 physician visit with a diagnosis of an anxiety disorder (ICD-9-CM code 300) ²⁰
Substance use disorders	In the 2 y before the birth of her first child, the mother had the following: ≥1 hospitalization with a diagnosis for alcohol or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD-9-CM codes 291, 292, 303, 304, 305; ICD-10-CA codes F10–F19, F55) ≥1 physician visit with a diagnosis for alcohol or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD-9-CM codes 291, 292, 303, 304, 305) ²¹
ADHD	In the 2 y before the birth of her first child, the mother had the following: ≥1 hospitalization for ADHD (ICD-9-CM code 314; ICD-10-CA code F90) ≥1 physician visit with a diagnosis for ADHD (ICD-9-CM code 314) ²²
Suicide attempt	In the 2 y before the birth of her first child, the mother had ≥1 hospitalization with a diagnosis for suicide or self-inflicted injury (ICD-9-CM codes E950–E959). ²³
Received expectant parent services	The mother received expectant parent services from CPS during her pregnancy (yes or no)
Prenatal care	The R-GINDEX is a measure of the adequacy of prenatal care by a health care provider. Knowledge of 3 birth-related outcomes are required to calculate the R-GINDEX: The gestational age of the infant (date of pregnancy and birth) The trimester during which prenatal care began The total no. prenatal visits during pregnancy There are 6 major categories of prenatal care outcomes identified for the index: Inadequate prenatal care use Intermediate prenatal care use Adequate prenatal care use Intensive prenatal care No care Missing information on prenatal care ²⁴
Cesarean delivery	During the birth hospitalization, the OBCSECT field indicates a cesarean delivery or ICD-9-CM procedure code 74.0, 74.1, 74.2, or 74.9 is present in the hospital discharge abstract (before March 31, 2004). After April 1, 2004, this is identified by CCI code 5MD60 in the hospital discharge abstract of the birth hospitalization. ²⁵
Length of hospitalization during birth	Continuous measures calculated separately for infants delivered vaginally and by cesarean because of different stays expected for these groups ²⁶
Breastfeeding initiation	Exclusive or partial breastfeeding at hospital discharge ²⁶
Low birth wt	If child was born weighing <2500 g ²⁶
Premature	If child was born at <37 wk gestation ²⁶

CCI, Canadian Classification of Health Interventions; ICD-9-CM, *International Classification of Diseases, Ninth Revision, Clinical Modification*; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada*; OBCSECT, Hospital Abstract User Manual, Item 40 C.S. Type; R-GINDEX, Revised-Graduated Prenatal Care Utilization Index.

between 7 days and 1 year after birth, and 2.21 times greater odds of having their child taken into care between their first and second birthday.

Not all mothers in care when they gave birth were in care when they became pregnant. Of the 576 mothers in care at the birth of their child,

403 mothers (70%) were in care at conception, and of the 5366 mothers not in care at the birth of their child, 83 mothers (1.6%) were in care at conception. Compared with mothers who were not in care at conception or at birth, those in care only at conception had 3.68 times the odds of having their child taken into care before the age of 2, those in care only at the birth had 6.25 times the odds of having their child placed in care, and those in care both at conception and at the birth of their child had 8.64 times the odds of having their child placed in care of CPS before the child turned 2 (Table 3). The biggest differences were seen for children taken into care within 7 days; mothers only in care at the conception of their child had 2.5 times the odds of having their child taken into care, whereas those in care at the birth of their child (regardless of whether they were in care at conception) had more than 11 times the odds of having their child placed in care.

Children placed in care remained in care for different lengths of time. For 194 out of the 828 children placed in care (ie, 23.4% of children placed in care), the first episode of care was ongoing on March 31, 2015 (the end date of the study period). Among children whose first episode of care ended before March 31, 2015, for 92 out of 634 children (14.5%), this first episode was <1 month long (Table 4). Of those whose mothers were in care when they were born, and were placed in care before their second birthday, almost 75% were in care for more than 6 months; this was more than the 62% of children of adolescent mothers who were not in care when they gave birth (Table 4).

DISCUSSION

Authors of previous research have found that adolescents in care are more likely to become pregnant than

TABLE 2 Outcomes and Covariates Before and at Birth for Adolescent Mothers

Variable	Group 1: Mother Was in Care at Birth of First Child (n = 576)	Group 2: Mother Was Not in Care at Birth of First Child (n = 5366)	Difference
	n (%)	n (%)	P
Child was taken into care			
Any time before second birthday	281 (48.8)	547 (10.19)	<.0001
Within 7 d of birth	141 (24.5)	134 (2.50)	<.0001
Between 7 d and 1 y after birth	99 (17.2)	255 (4.75)	<.0001
Between 1 y and 2 y after birth	41 (7.1)	160 (2.98)	<.0001
Covariate			
In the 2 y before birth of child			
Substance use	88 (15.3)	340 (6.3)	<.0001
Depression	115 (20.0)	526 (9.8)	<.0001
Anxiety	136 (23.6)	802 (15.0)	<.0001
ADHD	21 (3.65)	49 (0.9)	<.0001
Suicide attempt	20 (3.5)	98 (1.8)	.0071
During pregnancy			
Received expectant parent services	247 (42.88)	1445 (26.93)	<.0001
Prenatal care			
Intensive	36 (6.3)	215 (4.0)	<.0001
Intermediate	198 (34.4)	1839 (34.3)	
Adequate	156 (27.1)	965 (18.0)	
Inadequate	163 (28.3)	2112 (39.4)	
No care or missing ^a	23 (4.0)	235 (4.4)	
At birth			
Mother's age, y (SD)	16.74 (0.9)	16.81 (0.9)	.0880
Cesarean delivery	55 (9.6)	587 (10.9)	.3069
Mean hospital length of stay, d (SD)	3.14 (2.4)	3.06 (1.9)	.3649
Breastfeeding initiation in hospital	394 (68.4)	3410 (63.6)	.0211
Child was preterm	36 (6.3)	352 (6.6)	.7749
Child had low birth wt	24 (4.2)	261 (4.9)	.4567

Unless otherwise stated, all fields are n (%).

^a Missing data account for <0.2% of mothers.

those not in care, and that adolescent mothers in care are more likely to have a child taken into care.¹⁹ Our objective in this study was to identify the greater likelihood of removal from an adolescent mother in foster care than from an adolescent mother not in care, and to identify when this likelihood was the greatest. Adolescent mothers who gave birth to their first child while in the care of CPS had 7 times greater odds of having their child taken into care before the child turned 2. These odds were greatest during the first week of life; mothers in care had over 11 times greater odds of their child being taken into care. Among those who were not in care when they gave birth, over 10% had their child taken into care before age 2; this was significantly lower than

the 48% of children taken into care before age 2 among mothers who were themselves in care. For mothers in care at the birth of their child, the odds of having her child taken into care before age 2 were not significantly different if she had been in care at the conception of that child.

The high rate of children of adolescent mothers in care being taken into care has been attributed to higher surveillance of these mothers and western middle-class values among social workers. Young mothers who themselves are in care often feel as if they are under constant scrutiny by their social workers and are constantly needing to prove to everyone that they are able to parent.^{27,28} Receiving expectant parent services from CPS can also lead to more scrutiny; we

saw that 42% of adolescents who were in care received these services, compared with 27% of mothers who were not in care. From many case workers' perspectives, the cycle starts with adolescent motherhood (which is deemed as bad), and the only way to "break" the cycle is to take that child into care.²⁷ This is different from the view of adolescent mothers who often see the removal of their child as a continuation of the cycle of trauma in their lives.²⁷

Mothers who give birth while in care have specific needs that may not be met by existing services available to adolescent mothers that assist in the transition to motherhood. Adolescent motherhood comes with many challenges, but these challenges are exacerbated for young mothers in care by the lack of financial and parenting supports often provided by biological families. Mothers who give birth in care often come from dysfunctional families and are unable to access these supports.²⁹ Enhanced coordination of services and acknowledgment of the value of and motivation for becoming a mother for adolescents in care could better assist these mothers. Whenever possible, mothers and children should be placed together. Dual placement provides the opportunity for secure infant attachment; providing parenting supports, such as the Attachment and Biobehavioral Catch-up program or the Circle of Security program, could enhance mother-child bonding.^{30,31}

Our use of administrative data has some significant strengths and limitations. Linkable administrative data allow for the follow-up of a large cohort, and outcomes are free from measurement biases often associated with survey data.³² The data were collected independently of the research hypothesis, reducing surveillance bias. This study's limitations concern the measurement and availability of variables. Detailed information on

TABLE 3 Results of Unadjusted and Adjusted Logistic Regression Models

Outcomes	Unadjusted (95% CI)	Adjusted (95% CI)
Model 1: at birth of child (reference is “mother was not in care at birth of first child”)		
Any time before second birthday	8.39 (6.97–10.11)	7.53 (6.19–9.14)
Within 7 d of birth	12.66 (9.80–16.35)	11.64 (8.83–15.34)
Between 7 d and 1 y after birth	4.16 (2.34–5.34)	3.63 (2.79–4.71)
Between 1 y and 2 y after birth	2.49 (1.75–3.55)	2.21 (1.53–3.19)
Model 2: at conception and birth of child		
Any time before second birthday		
Mother was not in care at conception or birth of child	1.00 (reference)	1.00 (reference)
Mother was in care only at conception of child	4.42 (2.76–7.05)	3.68 (2.27–5.97)
Mother was in care only at birth of child	7.70 (5.63–10.52)	6.25 (4.52–8.66)
Mother was in care at conception and birth of child	9.21 (7.42–11.42)	8.64 (6.89–10.82)
Within 7 d of birth		
Mother was not in care at conception or birth of child	1.00 (reference)	1.00 (reference)
Mother was in care only at conception of child	3.14 (1.34–7.34)	2.50 (1.04–6.02)
Mother was in care only at birth of child	12.91 (8.75–19.06)	11.13 (7.33–16.90)
Mother was in care at conception and birth of child	13.12 (9.85–17.47)	12.39 (9.10–16.87)
Between 7 d and 1 y after birth		
Mother was not in care at conception or birth of child	1.00 (reference)	1.00 (reference)
Mother was in care only at conception of child	4.64 (2.61–8.23)	3.93 (2.19–7.05)
Mother was in care only at birth of child	3.55 (2.28–5.53)	2.85 (1.81–4.49)
Mother was in care at conception and birth of child	4.73 (3.56–6.27)	4.30 (3.21–5.78)
Between 1 y and 2 y after birth		
Mother was not in care at conception or birth of child	1.00 (reference)	1.00 (reference)
Mother was in care only at conception of child	2.60 (1.11–6.05)	2.30 (0.98–5.40)
Mother was in care only at birth of child	2.48 (1.35–4.56)	2.03 (1.09–3.77)
Mother was in care at conception and birth of child	2.58 (1.71–3.89)	2.39 (1.57–3.64)

CI, confidence interval.

TABLE 4 Length of First Episode of Care for Children Placed in CPS Care Before Second Birthday and Episode of Care Ended Before March 31, 2015

Length of First Episode of Care, mo	All (<i>n</i> = 634)	Mother Was in Care at Birth (<i>n</i> = 196)	Mother Was Not in Care at Birth (<i>n</i> = 438)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
<1	92 (14.5)	30 (10.20)	62 (14.16)
1–6	132 (20.8)	30 (15.31)	102 (23.29)
≥6	420 (66.2)	146 (74.49)	274 (62.56)

the reason for the mother and the child to have been placed in care are lacking; in Manitoba, 11.7% of CPS cases had allegations of abuse at some point, the remained were a result of neglect.¹² Full CPS histories of the mothers are not available; we do not know the age the mother was first placed in care, or the total number of placements. Although all children placed in care were in the legal custody of CPS, it is unknown

whether the mother and the child are in the care of the same care provider. There may be a few cases in which mothers lose legal custody of their child but are living in the same home as their child. How CPS meets the housing and cost of care needs of children born to adolescents in care is not known. It is possible that children were placed in care because placements that could care for both the mother and the child could not

be found. Certain covariates and mediating effects, such as individual income, attitudes of individuals around them, and culture, are unavailable in administrative data. Failing to adjust for these confounders may “inflate the association between exposure and outcome”.³³ Because mental illness is measured from diagnoses, and many women who experience mental illness don’t seek treatment, rates may be underestimated.³⁴ Findings need to be replicated in other settings to ensure generalizability.

CONCLUSIONS

Adolescent mothers in the care of CPS are much more likely to have their child taken into CPS care. By separating a quarter of young mothers from their infant within the first week of life, and almost half before the child turns 2, the cycle continues. For adolescents in CPS care who give birth, more and better services are required to support these mothers and to keep mothers and children together wherever possible.

ACKNOWLEDGMENTS

Data used in this study are from the Population Research Data Repository housed at the Manitoba Centre for Health Policy, University of Manitoba and were derived from data provided by Manitoba Health, Seniors and Active Living, and Manitoba Families under project 2016/2017-09. The results and conclusions are those of the authors and no official endorsement by the Manitoba Centre for Health Policy, Manitoba Health, Seniors and Active Living, or other data providers is intended or should be inferred.

ABBREVIATIONS

ADHD: attention-deficit/hyperactivity disorder
CPS: child protection services

FUNDING: Preparation of this manuscript was supported by a Social Sciences and Humanities Research Council of Canada Joseph-Armand Bombardier Canada Doctoral Scholarship, a Graduate Enhancement of Tri-council Stipend, and a Women's Health Research Foundation of Canada Full Time Scholarship.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

COMPANION PAPER: A companion to this article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2018-0577.

REFERENCES

- Hoffman SD, Maynard R. *Kids Having Kids: Economic Costs & Social Consequences of Teen Pregnancy*. Washington, DC: The Urban Institute Press; 2008
- Francesconi M. Adult outcomes for children of teenage mothers. *Scand J Econ*. 2008;110(1):93–117
- Stevens-Simon C, Nelligan D, Kelly L. Adolescents at risk for mistreating their children. Part II: a home- and clinic-based prevention program. *Child Abuse Negl*. 2001;25(6):753–769
- Whitson ML, Martinez A, Ayala C, Kaufman JS. Predictors of parenting and infant outcomes for impoverished adolescent parents. *J Fam Soc Work*. 2011;14(4):284–297
- Courtney ME, Dworsky A, Lee JS, Raap M. Midwest evaluation of the adult functioning of former foster youth: outcomes at ages 23 and 24. 2010. Available at: <http://fosteringmediaconnections.org/wp-content/uploads/2010/08/MW-Wave-4-full-report1.pdf>. Accessed June 6, 2017
- Love LT, McIntosh J, Rosst M, Tertzakian K. *Fostering Hope: Preventing Teen Pregnancy Among Youth in Foster Care*. Washington, DC: The National Campaign to Prevent Teen Pregnancy; 2005
- Manlove J, Welti K, McCoyRoth M, Berger A, Malm K. Teen parents in foster care: risk factors and outcomes for teens and their children. *Child Trends Research Brief*. 2011. Available at: https://www.childtrends.org/wp-content/uploads/2011/11/Child_Trends-2011_11_01_RB_TeenParentsFC.pdf. Accessed July 30, 2017
- Stott T. Placement instability and risky behaviors of youth aging out of foster care. *Child Adolesc Social Work J*. 2012;29(1):61–83
- Boonstra HD. Teen pregnancy among young women in foster care: a primer. *Guttmacher Policy Rev*. 2011;14(2):8–19
- Zuravin SJ, DiBlasio FA. The correlates of child physical abuse and neglect by adolescent mothers. *J Fam Violence*. 1996;11(2):149–166
- Statistics Canada. Focus on geography series, 2011 census. 2014. Available at: <http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-pr-eng.cfm?Lang=Eng&GK=PR&GC=46>. Accessed Sept 24, 2016
- Brownell M, Chartier M, Au W, et al. *The Educational Outcomes of Children in Care in Manitoba*. Winnipeg, Manitoba, Canada: Manitoba Centre for Health Policy; 2015
- O'Grady K, Deussing M, Scerbina T, Fung K, Muhe N. Measuring up: Canadian Results of the OECD PISA Study. Toronto, Canada; 2016. Available at: http://cmec.ca/Publications/Lists/Publications/Attachments/365/Book_PISA2015_EN_Dec5.pdf. Accessed January 3, 2017
- Gilbert R, Fluke J, O'Donnell M, et al. Child maltreatment: variation in trends and policies in six developed countries. *Lancet*. 2012;379(9817):758–772
- McKay A. Trends in Canadian National and Provincial/Territorial teen pregnancy rates: 2001–2010. *Can J Hum Sex*. 2012;21(3–4):161–175
- Roos LL, Gupta S, Soodeen RA, Jebamani L. Data quality in an information-rich environment: Canada as an example. *Can J Aging*. 2005;24(suppl 1):153–170
- Roos LL, Nicol JP. A research registry: uses, development, and accuracy. *J Clin Epidemiol*. 1999;52(1):39–47
- O'Donnell M, Maclean MJ, Sims S, Morgan VA, Leonard H, Stanley FJ. Maternal mental health and risk of child protection involvement: mental health diagnoses associated with increased risk. *J Epidemiol Community Health*. 2015;69(12):1175–1183
- Putnam-Hornstein E, Needell B. Predictors of protective services contact between birth and age five: an examination of California's 2002 birth cohort. *Child Youth Serv Rev*. 2014;33:1337–1344
- Bolton JM, Au W, Walld R, et al. Parental bereavement after the death of an offspring in a motor vehicle collision: a population-based study. *Am J Epidemiol*. 2014;179(2):177–185
- Chartier M, Brownell M, MacWilliam L, et al. *The Mental Health of Manitoba's Children*. Winnipeg, MB: Manitoba Centre for Health Policy; 2016
- Manitoba Centre for Health Policy. Concept: attention-deficit hyperactivity disorder (ADHD). 2016. Available at: <http://mchp-appserv.cpe.umanitoba.ca/viewConcept.php?conceptID=1316>. Accessed November 1, 2016
- Manitoba Centre for Health Policy. Concept: suicide and attempted suicide (intentional self inflicted injury). 2016. Available at: <http://mchp-appserv.cpe.umanitoba.ca/viewConcept.php?conceptID=1183>. Accessed October 26, 2016
- Alexander GR, Kotelchuck M. Assessing the role and effectiveness of prenatal care: history, challenges, and directions for future research. *Public Health Rep*. 2001;116(4):306–316
- Manitoba Centre for Health Policy. Concept: caesarean/cesarean section (c-section). 2012. Available at: <http://mchp-appserv.cpe.umanitoba.ca/viewConcept.php?conceptID=1110>. Accessed September 24, 2016
- Brownell MD, Chartier MJ, Nickel NC, et al; PATHS Equity for Children Team. Unconditional prenatal income supplement and birth outcomes. *Pediatrics*. 2016;137(6):e20152992

27. Rutman D, Strega S, Callahan M, Dominelli L. “Undeserving” mothers? Practitioners’ experiences working with young mothers in/from care. *Child Fam Soc Work*. 2002;7(3):149–159
28. Rolfe A. ‘You’ve got to grow up when you’ve got a kid’: marginalized young women’s accounts of motherhood. *J Community Appl Soc Psychol*. 2008;18(4):299–314
29. Radey M, Schelbe L, McWey LM, Holtrop K, Canto AI. “It’s really overwhelming”: parent and service provider perspectives of parents aging out of foster care. *Child Youth Serv Rev*. 2016;67:1–10
30. Powell B, Cooper G, Hoffman K, Marvin B. *The Circle of Security Intervention: Enhancing Attachment in Early Parent-Child Relationships*. New York, NY: Guilford Press; 2014
31. Dozier M, Lindhiem O, Ackerman J. Attachment and biobehavioral catch-up: an intervention targeting empirically identified needs of foster infants. In: Berlin LJ, Ziv Y, Amaya-Jackson L, Greenberg MT, eds. *Enhancing Early Attachments: Theory, Research, Intervention, and Policy*. New York, NY: Guilford Press; 2005:178–194
32. Jutte DP, Roos LL, Brownell MD. Administrative record linkage as a tool for public health research. *Annu Rev Public Health*. 2011; 32:91–108
33. Jaffee SR, Strait LB, Odgers CL. From correlates to causes: can quasi-experimental studies and statistical innovations bring us closer to identifying the causes of antisocial behavior? *Psychol Bull*. 2012;138(2):272–295
34. Wang PS, Aguilar-Gaxiola S, Alonso J, et al. Use of mental health services for anxiety, mood, and substance disorders in 17 countries in the WHO world mental health surveys. *Lancet*. 2007;370(9590):841–850

The Cycle of Child Protection Services Involvement: A Cohort Study of Adolescent Mothers

Elizabeth Wall-Wieler, Marni Brownell, Deepa Singal, Nathan Nickel and Leslie L. Roos

Pediatrics 2018;141;

DOI: 10.1542/peds.2017-3119 originally published online May 29, 2018;

Updated Information & Services

including high resolution figures, can be found at:
<http://pediatrics.aappublications.org/content/141/6/e20173119>

References

This article cites 21 articles, 2 of which you can access for free at:
<http://pediatrics.aappublications.org/content/141/6/e20173119#BIBL>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):
Adolescent Health/Medicine
http://www.aappublications.org/cgi/collection/adolescent_health:medicine_sub
Teen Pregnancy
http://www.aappublications.org/cgi/collection/teen_pregnancy_sub
Adoption & Foster Care
http://www.aappublications.org/cgi/collection/adoption_-_foster_care_sub

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.aappublications.org/site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

The Cycle of Child Protection Services Involvement: A Cohort Study of Adolescent Mothers

Elizabeth Wall-Wieler, Marni Brownell, Deepa Singal, Nathan Nickel and Leslie L. Roos

Pediatrics 2018;141;

DOI: 10.1542/peds.2017-3119 originally published online May 29, 2018;

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/141/6/e20173119>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2018 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

