The ECLIPSE Program at Childhaven

Short-Term Outcomes for Children Receiving Early Childhood Intervention and Prevention Services

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Report to Washington State Department of Early Learning

T HE EARLY CHILDHOOD INTERVENTION PREVENTION SERVICES (ECLIPSE) program has been administered by the Department of Early Learning (DEL) since November 1, 2011. ECLIPSE serves children zero to 5 years old who are at risk of child abuse and neglect and may be experiencing behavioral health issues due to exposure to complex trauma. ECLIPSE services are provided in two community-based programs in Washington: Childhaven in King County and Catholic Family & Child Services in Yakima County. This evaluation focuses on children who received ECLIPSE services at Childhaven.

Key Findings

1. **Childhaven served a population of very high risk children with intensive service needs.** Compared to the general child welfare population, Childhaven participants had much higher rates of parental risk factors such as having a parent with mental illness (85% compared to 66%), substance abuse (78% compared to 56%) or arrest history (53% compared to 38%).

2. **Childhaven children experienced fewer accepted Child Protective Services (CPS) referrals and fewer neglect findings in the follow up 12-months than the baseline 12-months.** However, the decrease in CPS referrals and neglect findings for the statistically matched comparison group was significantly larger. One likely contributing reason for the smaller decrease for Childhaven children was the daily supervision of children by the Childhaven staff. For this very high risk population, continued involvement in the child welfare system may be a positive impact of Childhaven, leading to greater child protection and safety.

3. **Childhaven participation led to increased service utilization among children.** Utilization of outpatient mental health treatment through DBHR increased significantly more for the Childhaven group than for the matched comparison group. The Childhaven group also experienced an increase in injury treatment encounters. In light of the very high risk population served, increased service utilization may indicate that children were having their pre-existing needs met after beginning to receive services at Childhaven.

Childhaven
King County

Enrolled = 300

ECLIPSE Program Services

ECLIPSE is a center-based intervention and preventive service program serving children from birth to five years of age. Children enrolled in ECLIPSE have experienced biological, familial, and environmental risk factors, such as fetal exposure to alcohol and/or drugs or other types of abuse and neglect, and require family centered, child focused mental health services. Children who display extreme behaviors because of exposure to risk factors are often expelled from their local child care setting and referred to ECLIPSE due to their behaviors.

ECLIPSE provides mental health and behavior screening, clinical assessment, treatment plan development, individual treatment services, rehabilitative case management, discharge planning, family treatment, and daily transportation services to enrolled children and their families. The ECLIPSE program staff are professionally licensed child mental health experts trained to address behaviors that children demonstrate given the traumatic stress experienced in their young lives. Licensed staff who are employed by program contractors work with the children and their families/caregivers to promote and develop social emotional competence, safety, security, and belonging so children can be successful in social settings and in life.

Previous Research on Early Childhood Interventions

Economic studies have found that early interventions with vulnerable infants and young children have much higher return on investment when compared with investments later in the life course.[1] The Childhaven intervention model has been evaluated once previously. Researchers conducted a longitudinal study of adolescents who were Childhaven clients during their preschool years.[2] The study found that former Childhaven clients experienced more supportive home environments, were less involved in violent delinquency, were reported as less aggressive, and had fewer school disciplinary actions than a randomized control comparison group 12 years after enrolling in the program. The Moore et al. study provides evidence to support long-term impacts of Childhaven on behavior and home environments. The current study adds new information by examining short-term impacts on health, child welfare involvement, and mental health treatment for a much more recent cohort of young children.

Childhaven: Serving Very High Risk Children

ECLIPSE at Childhaven targeted services toward vulnerable infants and young children. We identified 300 children served by Childhaven between November 2011 and June 2014. We then matched them to social service and health records in RDA's Integrated Client Database (ICDB). Figure 1 displays the prevalence of a number of risk measures for Childhaven participants. For reference, the prevalence of risk measures among infants and young children involved in the child welfare system who did not participate in Childhaven and the broader Medicaid population under age 6 are also included.[3]

Parental risk factors, measured over the 5 years prior to enrollment in Childhaven, were prevalent among Childhaven children. About eight in ten Childhaven children had a parent with a mental health condition, a history of homelessness, or a history of substance abuse. Over half had a parent who had been arrested or lived in families with a history of domestic violence. About one-third had a parent who was disabled. One in five lived in a family with no reported earnings. These risk levels were distinct from the child welfare population of the same age and were substantially higher than risk levels observed in the broader Medicaid population.

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[1] Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science, 312*(5782), 1900-1902.
[2] Moore, E., Armsden, G., & Gogerty, P. L. (1998). A twelve-year follow-up study of maltreated and at-risk children who received early therapeutic child care. *Child Maltreatment, 3*(1), 3-16.
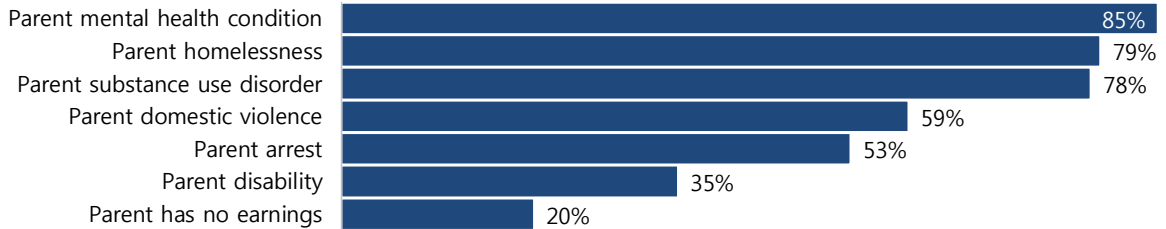
In addition to the risk factors present in their families, Childhaven children were likely to have adverse experiences during their lifetimes. Over half had spent time in out-of-home placement prior to entering Childhaven and over one-quarter had been diagnosed with a developmental delay. Because of stark differences in risk between the Childhaven clients and the broader child welfare population, we employed statistical matching techniques to select a well-matched comparison group from the broader population. See the Appendix and Technical Notes for details on this approach.

FIGURE 1.

Selected Parental and Child Risk Factors for Childhaven Clients

Childhaven Population TOTAL = 300
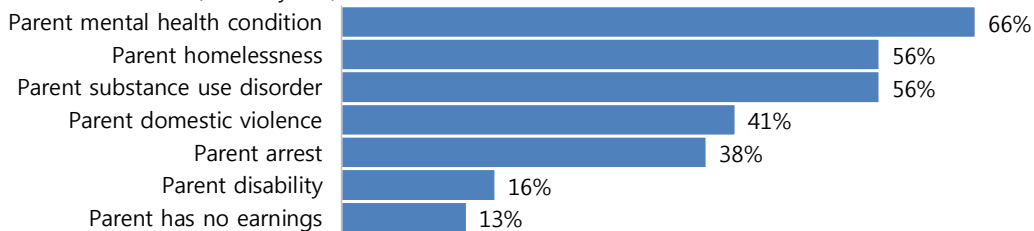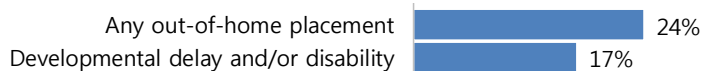
PARENTAL RISK FACTORS (Over 5 years)

Parent mental health condition	85%
Parent homelessness	79%
Parent substance use disorder	78%
Parent domestic violence	59%
Parent arrest	53%
Parent disability	35%
Parent has no earnings	20%

LIFETIME CHILD RISK FACTORS

Any out-of-home placement	57%
Developmental delay and/or disability	27%

Child Welfare Population Under Age 6[3]

PARENTAL RISK FACTORS (Over 5 years)

Parent mental health condition	66%
Parent homelessness	56%
Parent substance use disorder	56%
Parent domestic violence	41%
Parent arrest	38%
Parent disability	16%
Parent has no earnings	13%

LIFETIME CHILD RISK FACTORS

Any out-of-home placement	24%
Developmental delay and/or disability	17%

Medicaid Population Under Age 6[3]

PARENTAL RISK FACTORS (Over 5 years)

Parent mental health condition	36%
Parent homelessness	26%
Parent substance use disorder	23%
Parent domestic violence	16%
Parent arrest	18%
Parent disability	6%
Parent has no earnings	12%

LIFETIME CHILD RISK FACTORS

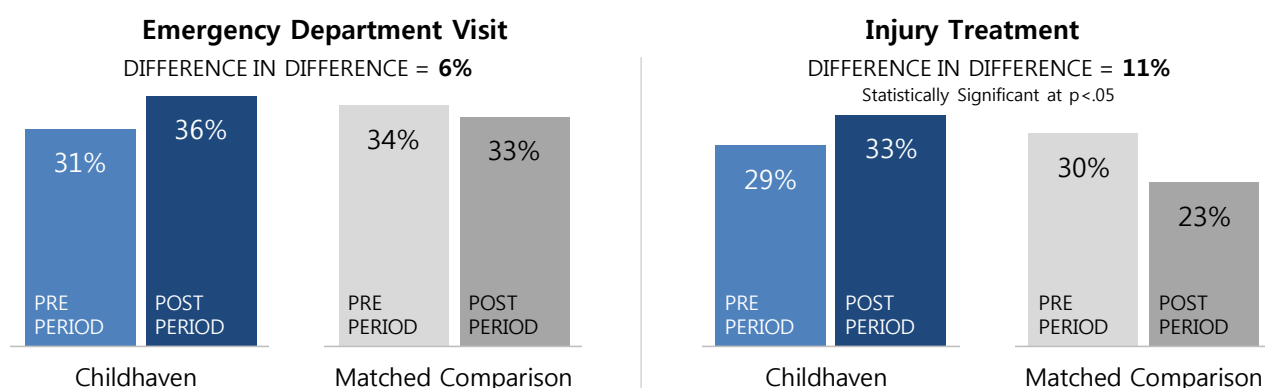|	
Any out-of-home placement	4%
Developmental delay and/or disability	4%

[3] The child welfare population included all person-months (N = 930,997) for children under 6 years of age living in urban counties who had at least one month of Medicaid eligibility between November 2011 and June 2014. The broader Medicaid population included all person-months (N = 8,709,772) for children less than 6 years of age with Medicaid across the state in the same time period. See Technical Notes for details.

Emergency Department Visits and Injuries

Emergency department visits and injuries for both the Childhaven and statistically matched comparison group were identified using ProviderOne medical claims and encounters. The rate of emergency department visits and injury-related treatment increased slightly for the Childhaven clients between the baseline 12 months and follow-up 12 months while the rate of visits and injuries declined for the comparison group. However, the difference-in-difference was only significant for injury treatment (see below for an explanation of difference-in-difference). When we break these results down by quarter (not shown), we found that emergency department visits and injury treatments among Childhaven children increased slightly in the first two quarters, but then stabilized at a similar rate to comparison children thereafter. The increased use of medical services may be associated with increased caregiver supervision of Childhaven child clients as well as treatment for pre-existing injuries.

FIGURE 2.

Rate of Emergency Department Visits and Injury Treatment

Emergency Department Visit
DIFFERENCE IN DIFFERENCE = **6%**

Injury Treatment
DIFFERENCE IN DIFFERENCE = **11%**
Statistically Significant at p<.05

Emergency Department Visit			
Childhaven		Matched Comparison	
31% PRE PERIOD	36% POST PERIOD	34% PRE PERIOD	33% POST PERIOD

Injury Treatment			
Childhaven		Matched Comparison	
29% PRE PERIOD	33% POST PERIOD	30% PRE PERIOD	23% POST PERIOD

What is a difference-in-difference?

A difference-in-difference estimate compares the average change over time on an outcome variable for the treatment group to the average change over time for the comparison group. For the this report, we compared the prevalence of a variable during the 12 month pre-period to the prevalence of a variable in the 12 month post-period, which results in a difference-in-difference estimate.

EXAMPLE:

- **Childhaven treatment group:**
  - 29% received injury treatment in 12 months prior to enrolling in Childhaven
  - 33% received injury treatment in 12 months after enrolling in Childhaven
  - Change between pre- and post-period: +4%

- **Matched comparison group:**
  - 30% received injury treatment in 12 months prior to their index month
  - 23% received injury treatment in 12 months after their index month
  - Change between pre- and post-period: -7%

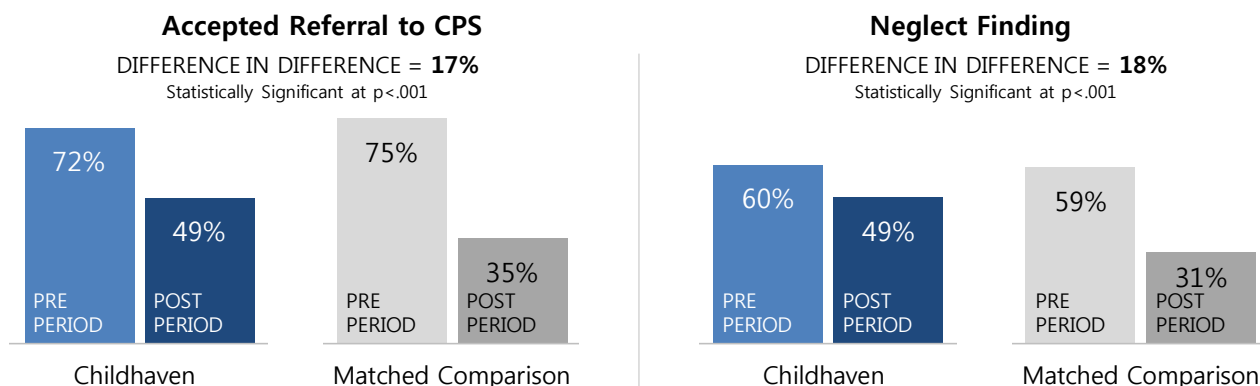- **Difference-in-difference:**
  - +4% - (-7%) = +11%

Meaning: The average rate of change in injury treatment was 11 percentage points higher for Childhaven children than comparison Children.

Child Protective Services Referrals and Neglect Findings

Child Protective Services (CPS) referrals and neglect findings were measured using FAMLINK data from the Children's Administration. Rates of accepted CPS referrals and neglect findings declined for children participating in Childhaven between the pre-period and follow-up period. However, the rates of accepted CPS referrals and neglect findings declined significantly more for comparison children. One likely contributing reason for the smaller decrease for Childhaven children was the daily monitoring of children by the Childhaven staff who were mandated reporters of abuse or neglect. The children participating in Childhaven spent 6 hours a day in the therapeutic early learning environment, received door-to-door van transportation by Childhaven staff which allowed for daily contact with the child's caregiver, and received monthly home visits from Childhaven staff. As such, it is possible that abuse or neglect in the comparison group may be underreported. This phenomenon, where children that are routinely monitored by service providers are more likely to be reported for maltreatment than non-participant children, has been referred to as the "surveillance effect."[4]

FIGURE 3.

Rate of Child Protective Services Referrals and Neglect Findings

Accepted Referral to CPS

DIFFERENCE IN DIFFERENCE = **17%**
Statistically Significant at p<.001

Neglect Finding

DIFFERENCE IN DIFFERENCE = **18%**
Statistically Significant at p<.001

Out-of-home Placement

Out-of-home placements were identified using FAMLINK placement data from the Children's Administration during the 12 month pre-period and 12-month post-period for both the Childhaven treatment group and the statistically matched comparison group.

FIGURE 4.

Rate of Out-of-home Placement

DIFFERENCE IN DIFFERENCE = **9%**
Statistically Significant at p<.01
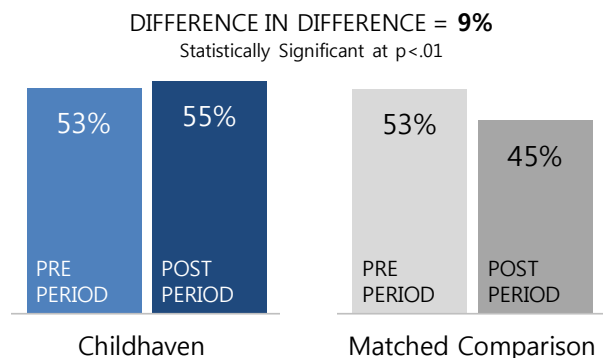
Rates of out-of-home placement increased slightly between the baseline and follow-up period for Childhaven clients, while the rate for the comparison group declined. The difference-in-difference estimate of 9 percent was statistically significant, indicating that out-of-home placement rates dropped more for the comparison group between the pre-period and post-period.
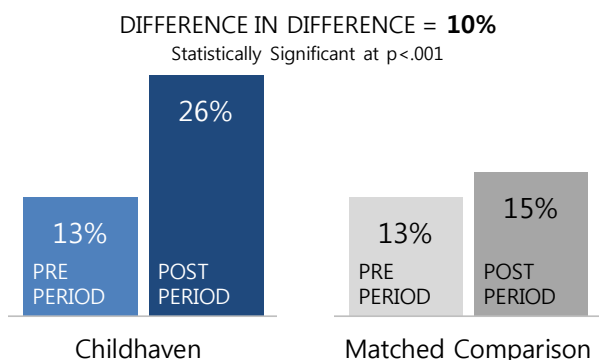
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[4] See Chaffin. M.. & Bard. D. (2006). Impact of intervention surveillance bias on analyses of child welfare report outcomes. *Child Maltreatment*, *11*(4), 301-312.

Outpatient Mental Health Treatment

Outpatient mental health treatment through the Behavioral Health Organization system was identified through mental health service records. Children participating in Childhaven increased their participation in outpatient mental health services in the follow-up period significantly more than the comparison group.

FIGURE 5.

Rate of Outpatient Mental Health Treatment

DIFFERENCE IN DIFFERENCE = **10%**
Statistically Significant at p<.001

	Childhaven		Matched Comparison	
	13% PRE PERIOD	26% POST PERIOD	13% PRE PERIOD	15% POST PERIOD

Only 13 percent of the Childhaven and comparison group children had a mental health service encounter in the baseline 12 months. In the follow-up period, utilization of mental health outpatient services increased to 26 percent among Childhaven participants whereas utilization among comparison children only increased to 15 percent.

Since 22 percent of both Childhaven and comparison children had an identified mental health diagnosis in the baseline period (see Appendix Table), we believe the greater increase in mental health treatment among Childhaven children was a positive indication that children who enrolled in Childhaven were also more likely to receive the mental health services they needed.

Study Limitations

This evaluation's findings suggest enrolling in Childhaven leads to greater service utilization in other areas including outpatient mental health treatment, injury treatment, as well as child welfare involvement. While this study used sophisticated statistical matching techniques with a quasi-experimental design, we also note three important limitations.

- We used propensity score matching, which balances a treatment and comparison group on **measurable** characteristics. Our propensity score matching model used an exhaustive list of matching criteria (see Appendix Table) to reduce the risk of selection bias, or the danger any differences in outcomes between two groups were due to pre-existing differences. However, if unmeasurable factors such as family environment or parental motivation are unbalanced between the two groups, selection bias may remain. This is especially true for a program such as Childhaven, which selects the most at-risk children to serve.

- We had a short follow-up period to observe outcomes for children. We examined outcomes for only 12 months after enrollment in Childhaven, while the average enrollment period for ECLIPSE was about 20 months. Positive impacts may also take longer to emerge, especially when working with such young clients.

- Because the study is based on administrative data, the outcomes we examined were limited to service receipt or system encounters. For example, we were unable to examine developmental outcomes, such as meeting developmental milestones, which more directly speak to child functioning.

Directions for Future Research

This study examined short-term impacts of Childhaven and ECLIPSE services for children. We found impacts of Childhaven participation on service utilization including increased use of outpatient mental health services and increased injury treatment relative to a statistically matched comparison group. Further, we found Childhaven children maintained higher rates of connection with the child welfare system than comparison group children. While in many populations maintaining connections to the child welfare system could be interpreted as negative, in this high risk population with intense service needs, greater connections to child welfare likely indicate that adults were closely monitoring these children and connecting them with interventions to keep them safe.

Further study is needed to both understand the longer-term impacts of Childhaven given the short-term impacts on service utilization and connections to child protection found in this report, and to determine the extent to which such services are needed statewide.

- Future Research Question 1: **Does the short-term increase in health and child welfare service utilization lead to longer-term positive outcomes for children?** The Department of Early Learning is undertaking a study of WaKIDS outcomes for early learning clients. Childhaven clients can be included in this longitudinal study to assess whether receiving Childhaven services leads to later improvements in developmental outcomes. The current study provides context for the upcoming DEL study, including highlighting the need to identify an equally at-risk comparison population in order to assess impacts and highlighting the short-term impacts of the program on service utilization.

- Future Research Question 2: **How many children statewide are in need of ECLIPSE services?** ECLIPSE is currently available in two counties (King and Yakima) and the number of children who could benefit from such services in other areas of the state is unknown. The risk measures defined for this evaluation provide a foundation for a predictive modeling approach to estimate the number of children across the state that have a risk profile similar to Childhaven clients.

APPENDIX | Selected Baseline Measures

	Childhaven Participants TOTAL = 300	Matched Comparison TOTAL = 300
Demographics (measured in the index month)		
Age in months	29	29
Female	40%	40%
White only	19%	22%
(Race/ethnicity categories below are not mutually exclusive)		
Hispanic	20%	19%
Black	51%	52%
American Indian	26%	20%
Asian	7%	9%
Native Hawaiian or Pacific Islander	3%	3%
Parent age (of youngest parent)	29	28
Lifetime Risk Factors (measured over child's lifetime)		
Medical eligibility months	27	26
Any out-of-home placement, lifetime	57%	56%
Time-in-care ratio	21%	21%
Total out-of-home placements	1.6	1.6
CPS referrals	5.2	4.7
Any physical abuse, lifetime	5%	5%
Any neglect, lifetime	73%	70%
ER outpatient visits	2.0	1.8
Injury treatment encounters	2.2	1.9
Months on TANF	16.1	15.3
Months on Basic Food	20.5	19.7
Months homeless	3.5	3.4
Index Month Risk Factors (measured as of index month)		
Out-of-home placement	42%	42%
CPS referral	19%	19%
Neglect	11%	10%
Physical abuse	1%	1%
ER outpatient visit	7%	6%
Injury treatment encounter	4%	5%
TANF receipt	58%	58%
Basic Food receipt	70%	69%
Homeless	11%	11%
Child Health and Mental Health (prior 24 months)		
Child mental health condition diagnosis	22%	22%
DBHR outpatient mental health treatment	15%	14%
Indication of mental health issue	26%	26%
Developmental delay diagnosis (lifetime)	26%	26%
Developmental disabilities service (lifetime)	27%	31%
Parent Risk Factors (measured over 5 years for either parent)		
Parent mental health condition	85%	86%
Parent substance use disorder	78%	76%
Parent homelessness	79%	76%
Parent arrest	53%	51%
Parent domestic violence	59%	62%
Parent disability	35%	35%
Parent has no earnings	20%	23%

ECLIPSE at Childhaven
Short-Term Outcomes for Children Receiving Early Childhood Intervention and Prevention Services

DSHS

STUDY DESIGN AND OVERVIEW

This report summarizes an evaluation of the ECLIPSE program at Childhaven. We examined ER visits, injuries, out-of-home placement, CPS referrals, neglect findings, and outpatient mental health treatment among Childhaven clients and statistically matched peers. Those selected for the comparison group had demographics, child welfare histories, behavioral health conditions, and parent indicators similar to the children who participated in Childhaven. See Appendix Table 1 for selected baseline measures for the Childhaven and comparison group.

STUDY POPULATION

The Childhaven study population (N = 300) included all children who:

1. Had their first month of participation in Childhaven between November 2011 and June 2014.

2. Could be matched to RDA's Integrated Client Database (ICDB). Over 90 percent of Childhaven participants were able to be linked to clients in the ICDB.

3. Had at least one month of medical eligibility in the 12 month baseline period and one month of medical eligibility in the outcome period.

The comparison population (N = 930,997) included person-months from children who:

1. Were under the age of 6 between November 2011 and June 2014.

2. Had at least one month of medical eligibility in the 12 month baseline period and one month of medical eligibility in the outcome period.

3. Lived in an urban county.

4. Had interacted with the child welfare system at some prior point during their lifetime.

PROPENSITY SCORE MATCHING

Using R software and the statistical matching package matchit, we implemented nearest neighbor propensity score matching with one comparison case selected for each treatment case. The Appendix displays selected variables used in the propensity score matching model. Though not displayed in the Appendix, we also included the utilization rates for each quarter of the baseline year for every measure used as an outcome to ensure balance on the measure prior to treatment. We forced exact matches on the following baseline variables: age group, gender, TANF in the index month, CPS in the index month, out-of-home placement in the index month, homeless in the index month, child mental health diagnosis present, parent mental health diagnosis present, and parent identified in the ICDB. Parents were identified using birth certificates, child support enforcement records, and prison visitation records. Overall, 91 percent of Childhaven children were matched with at least one parent. We also interacted baseline risk variables with age group. We achieved good matching on observable characteristics as all absolute standardized mean differences were below 0.2

PRIMARY MEASURES

Parent Risk Factors

Measured over five years leading into study period, for either parent when two parents are identified.

- **Parent mental health condition:** Data from ProviderOne (medical) and the Consumer Information System (mental health service records) were used to identify the presence of mental illness based on diagnoses, prescriptions, and treatment records.

- **Parent substance use disorder:** Data from three information systems—ProviderOne (medical), TARGET (substance use disorder treatment), and Washington State Patrol (arrests)—were used to identify probable substance use disorders based on diagnoses, prescriptions, and treatment records, as well as drug and alcohol-related arrests.

- **Parent homelessness:** The homelessness indicator came from the Automated Client Eligibility System (ACES), the data system used to track client eligibility for social and health services. Parents were identified as homeless if they were homeless, with or without housing, in ACES.

- **Parent arrest:** The arrest indicator comes from Washington State Patrol arrest records.

- **Parent domestic violence:** Domestic violence was identified through domestic violence-related arrests and convictions or through identification of domestic violence in the Automated Client Eligibility System (ACES).

- **Parent disability:** The disability indicator included receipt of SSI-related medical or receipt of services through the Division of Vocational Rehabilitation or the Developmental Disabilities Administration.
- **Parent has no earnings:** Absence of earnings was identified through Employment Security Department Unemployment Insurance records.

Child Risk Factors

- **Demographics:** Age, gender, and race/ethnicity were identified using the Integrated Client Database
- **Child welfare:** Abuse and neglect findings, CPS referrals, and out-of-home placements (foster, relative, or congregate care) were identified using FAMLINK data from the Children's Administration. Multiple measurements at different points of time were included: any in lifetime, any in the 4 quarters leading into the index month, and any in the index month.
- **Child health:** ER visits and injury treatment encounters were identified using ProviderOne medical data. Multiple measurements at different points of time were included: any in lifetime, any in the 4 quarters leading into the index month, and any in the index month.
- **Social and health services:** TANF, Basic Food, and Medicaid use were identified using service records from ESA and HCA in the ICDB. Multiple measurements at different points of time were included: any in lifetime, any in the 4 quarters leading into the index month (TANF), and any in the index month.
- **Homelessness:** The homelessness indicator came from the Automated Client Eligibility System (ACES), the data system used to track client eligibility for social and health services. Children were identified as homeless if they were homeless, with or without housing, in ACES. Multiple measurements at different points of time were included: any in lifetime and any in the index month.
- **Child mental health:** Child mental health measures use mental health service records medical records from ProviderOne to identify diagnoses, prescriptions, and mental health treatment. Diagnoses and treatment were identified in the 24 months prior the index month. Developmental delay diagnosis and services from the Developmental Disabilities Administration were measured over the lifetime.

Outcomes (over the 12-month follow up period)

- **ER visits** were identified using ProviderOne medical data.
- **Injury treatment encounters** were identified using ProviderOne medical data.
- **CPS referrals** were identified using FAMLINK data.
- **Neglect findings** were identified using FAMLINK data.
- **Out-of-home placement** (any placement out of home, including foster, relative, and congregate care) was identified using FAMLINK data.
- **Outpatient mental health treatment** was identified using mental health service records.

ROBUSTNESS OF RESULTS

We implemented the following robustness checks to test whether our results changed based on specification. These results are robust to several alternative approaches we explored for this evaluation, with exceptions noted below:

1. **10:1 propensity score matching ratio:** We replicated the above approach with a higher number of comparison units being matched to each Childhaven participant. Results were very similar.

2. **Examining outcomes by quarter in the follow up period:** Using the same propensity score matched group, we examined patterns in outcomes by quarter in the follow-up period. Findings by quarter did not differ substantially from those for the year, except in the case of injuries, where the increased prevalence of injuries was no longer significant after the first two quarters.

3. **Limiting study population to those with medical eligibility in each follow-up quarter:** We reduced the sample to those who had medical eligibility in all four quarters of the follow-up period to test if differences between the Childhaven group and comparison group might be due to differences in the likelihood of having medical and social services data in the follow up period. This restriction did not alter the findings.