Improving Health Outcomes for Children Evaluation:

Health Status, Service Use and Cost among MaineCare Children in Foster Care

UNIVERSITY OF SOUTHERN MAINE
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About this Study

This study was conducted under a cooperative agreement between the Office of MaineCare Services, Maine Department of Health and Human Services, and the Muskie School of Public Service at the University of Southern Maine. The study was funded by a grant from the Centers for Medicare and Medicaid Services (CMS) through Section 401 (d) of the Child Health Insurance Program Reauthorization Act (CHIPRA). The views expressed are those of the authors and do not necessarily represent the views of either the Department or the School. For more information contact Erika Ziller, Muskie School of Public Service, 207-780-4615 or eziller@usm.maine.edu

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Executive Summary

In February 2010, the state of Maine was awarded a CHIPRA "Improving Health Outcomes for Children" (IHOC) quality demonstration grant funded by the Centers for Medicaid and Medicare Services (CMS). As part of this initiative, Maine proposed to improve outcomes in foster care children through automating the state's comprehensive health assessment (CHA) program offered by MaineGeneral Health's Edmund N. Ervin Pediatric Center's Pediatric Rapid Evaluation Program (PREP) to increase early identification of problems and increase information sharing between providers, care managers and care givers serving these children.

To inform the CHIPRA demonstration grant and proposed efforts to improve care coordination for foster care children, the Muskie School of Public Service conducted a baseline study of foster care children's service utilization, access and costs comparing the experience of foster care children that have received comprehensive assessments through the PREP program with children that had no comprehensive assessment. The study examines the experience of 4,050 foster care children from 2007 to 2009, including 484 children (12% of all foster care children) that received a PREP comprehensive health assessment and 3,566 that had not received a comprehensive assessment. This report presents the findings of this baseline study.

Key findings include:

- Children that received PREP assessments are, on average, 2 years younger than other children in foster care and are more likely to be aged 0-5.
- Based on all MaineCare expenditures, including placement in private non-medical institutions (PNMI), children with PREP evaluations cost about $1,150 less per month on average.
- MaineCare costs in both groups are skewed by a small number of foster care children with extremely high costs but this was particularly true for children that did not receive comprehensive health assessments of whom 15% had costs of more than $500,000 (compared to 4% of PREP participants).
- Monthly costs vary substantially based on where a child is placed, ranging from $300-$600 per child per month for children in adoptive settings to $8,000-$11,000 per month for children in PNMI settings. However, even within the same placement setting costs for children receiving PREP assessments are lower than costs for non-PREP children.
- Cost differences are not explained solely by age differences between PREP and non-PREP foster care children. Although children aged 0-5 have similar average monthly costs whether or not they received a comprehensive health assessment ($ 1,055 versus $1,092), foster care children in older age groups that received PREP assessments had considerably lower costs than Non-PREP foster care children (e.g. teenagers receiving PREP comprehensive health assessments had average monthly costs of about $3,406 compared to $5,112 for those without assessments).

- Foster care children that received PREP assessments were less likely to be placed in residential care, be taking prescriptions, or to have general or psychiatric inpatient stays and were more likely to see a physician and receive speech or occupational therapy than foster care children without these assessments.
- Foster care children that received PREP assessments are more likely to have well-child visits.

These findings suggest that PREP participation may be associated with lower costs and better access. However, the cross-sectional design of this study limits our ability to draw conclusions about causality. A future report will investigate these associations in more depth using a more robust research design to enhance the generalizeability of findings.

Introduction

In February 2010, the Office of MaineCare Services, in partnership with the State of Vermont, was awarded demonstration grant funding by the Centers for Medicare and Medicaid Services (CMS), under its state-based CHIPRA Quality Demonstration Grant program, to improve the quality of health care services provided to Maine's children, particularly those covered by Medicaid and the Children's Health Insurance Program (CHIP). Through this funding, the State of Maine established its initiative, "Improving Health Outcomes for Children," or IHOC, a collaboration of multiple State agencies and other public and private stakeholders working together to strengthen Maine's child health care quality improvement infrastructure using a multi-faceted approach.

As one of its IHOC initiatives, Maine proposed to use health information technology (HIT) to develop an automated system for sharing comprehensive health assessment information with health care providers, caseworkers, and families for children placed in foster care. The state proposed to pilot the initiative through the Pediatric Rapid Evaluation Program (PREP) operated by the Edmund Ervin Pediatric Center under the auspices of Maine General Health. Initiated in 1999, PREP consists of a comprehensive medical examination which children in state custody receive shortly after initial placement into out of home care in order to identify treatment needs and is available in six counties. The IHOC initiative plans to support automation of PREP processes to facilitate availability of assessments to DHHS and primary care providers.

In 2011, staff at the Muskie School of Public Service, as part of its IHOC evaluation activities, undertook a baseline analysis of the health care use and expenditure experience of children in foster care placement that have, and have not, received comprehensive health assessments prior to IHOC-related changes using MaineCare claims data from 2007 through 2009 to inform the planning process.

Purpose and Scope of Study

When a child is placed into the protective custody of the State of Maine's Department of Health and Human Services Office of Child and Family Services (OCFS), a primary care physician performs a physical exam within 72 hours to assess the child's immediate health needs. Where an assessment program is geographically available, OCFS also refers the child for a comprehensive health assessment based on the county in which the placement occurred. MaineGeneral's Pediatric Rapid Evaluation Program (PREP) is under contract with OCFS to provide these assessments to children placed in foster care in six Maine counties: Somerset, Waldo, Lincoln, Knox, Franklin, and Kennebec.

The PREP comprehensive health assessment (CHA) includes a physical exam that is in addition to the 72 hour assessment (which is performed by the child's primary care provider, not PREP). The PREP assessment also includes a behavioral health evaluation and a compilation of health history and other records, and provides a summary of acute and chronic health conditions and recommendations for follow up. Through the comprehensive health assessment process, PREP aims to create as complete a profile as possible of each child's medical and behavioral health status at the time of placement into custody. This information is presented in two specific documents: a preliminary summary report and a complete comprehensive health assessment report.

The PREP program has been evaluating children in foster care since February 1999. Evaluations are performed collaboratively by a pediatrician and child psychologist. PREP has four components.

1. Collect information including birth history, medical and behavioral health, immunization status, and school records in order to assemble a complete CHA, which is given to DHHS to determine what records will be forwarded and to whom.
2. Within 4 to 6 weeks of placement into custody, an evaluation is performed which includes a physical exam; a developmental and psychological assessment; and administration of screening tools such as the Trauma Symptom Checklist and the Child Behavior List. If the child remains in foster care, a follow-up evaluation is conducted 6 to 8 months later.
3. The results of the evaluation and a review of the medical history are summarized, and recommendations are made for immediate and ongoing care including indications for further assessments. Two documents are created for this purpose. The preliminary summary report—completed within 24 hours of the evaluation—briefly summarizes the history and identifies immediate health needs of the child. The complete Comprehensive Health Assessment report compiles all of the information gathered and allows the case worker to review and make recommendations for changes before it is finalized, usually within 21 days of the evaluation.
4. Both of these reports are provided to DHHS. DHHS then determines which health care providers or others involved in the child's care should have access to the reports, in support of coordination of services and continuity of care.

The purpose of this study was to inform IHOC program planning with baseline data on the health care use and expenditures of MaineCare children in the foster care program in general and to compare use and costs for foster care children that receive comprehensive health assessments through the Edmund N. Ervin Pediatric Center's Pediatric Rapid Evaluation Program (PREP), and those that do not. In 2011, other organizations including Key Clinic at Penobscot Pediatrics in Bangor and the Portland-based Spurwink Services program also began conducting comprehensive health assessments for children in foster care. However, because of the timing of this study, this report only analyzes children that received comprehensive health assessments through the PREP program.

Study Design

This study takes advantage of the natural experiment opportunity provided by the fact that the PREP program has been limited to only six out of Maine's sixteen counties. Using a quasi-experimental design we compared the health care use and expenditures of our study population (children receiving PREP assessments) to a non-random control group (children that did not receive assessments). The universe of children included in this study were all children (age 0-17) receiving foster care services in Maine between January 1, 2007 and December 31, 2009. To ensure that each child could be observed for at least 6 months, analyses include only foster children that had a placement or PREP evaluation by 6/30/2009. A total of 4,050 children met this criteria and were included in the study, 484 from the PREP program (12%) and 3,566 (88%) that had not received a comprehensive assessment.

Data for the study were derived from three key sources. First, we obtained information on eligible for foster care children and foster care placement data including dates of placement and placement location from the Maine Office of Child and Family Services foster care placement list. Data on health care use and expenditures came from MaineCare claims pulled from Maine's MaineCare Claims Managment System (MeCMS). Finally, a list of children that had received comprehensive health assessments through PREP was provided to research staff by the PREP program and linked to the other two data sources to create our two study groups.

TABLE 1. Age of Children in the Sample

	PREP	NON-PREP
Percent age 0-5	56.8%	43.4%
Percent age 6-12	26.7%	25.5%
Percent age 13-17	16.5%	31.1%
Average Age (Boys)	6.2 years	8.4
Average Age (Girls)	6.5 years	8.2
Average Age (Total)	6.3 years	8.3 years

As shown in Table 1, the sample of children participating in PREP during the study period was, on average, two years younger than the control group of foster children that did not participate in PREP. This was generally because PREP children were more likely to fall into the 0-5 age range, and less likely to be teenagers. Foster care children in PREP may be younger because the program is available to children removed from the home for the first time.

Health care use can vary by age and age differences between our study and control group could be a source of bias in our analyses. For foster care children, this is particularly true given the relationship between age and placement type. Older children are more likely to be placed in private, non-medical institutions (PNMIs) than homes; and PNMIs are a higher cost service to the MaineCare program. For this reason, we analyzed a number of our quality and cost measures by specific age groups, and broke out PNMI costs from total costs when looking at expenditure data.

Findings

Expenditures

Figure 1 compares total average monthly expenditure data for children in foster care that have received PREP assessments to those children in placement that have not received an assessment through PREP. Based on total MaineCare expenditures (including placement in private non-medical institutions, PNMIs), children that received PREP evaluations cost, on average, about $1,150 less per month than foster care children that did not receive an evaluation (non-PREP). MaineCare costs for children in foster care placement are skewed, with a small number of children having extremely high costs (Figure 2). This is particularly true for children that have not received comprehensive health assessments, of whom 15% had costs of more than $500,000 (compared to 4% of PREP participants).

FIGURE 1. Average Monthly MaineCare Costs Including PNMI for Foster Care Children with and without PREP assessments (2007-2009)

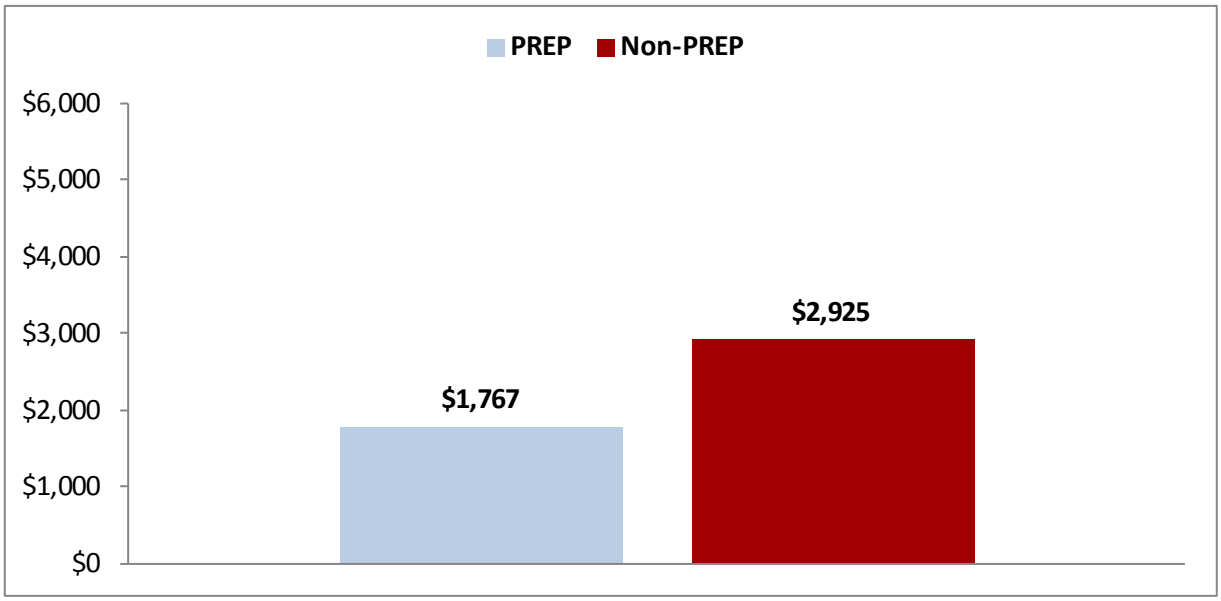
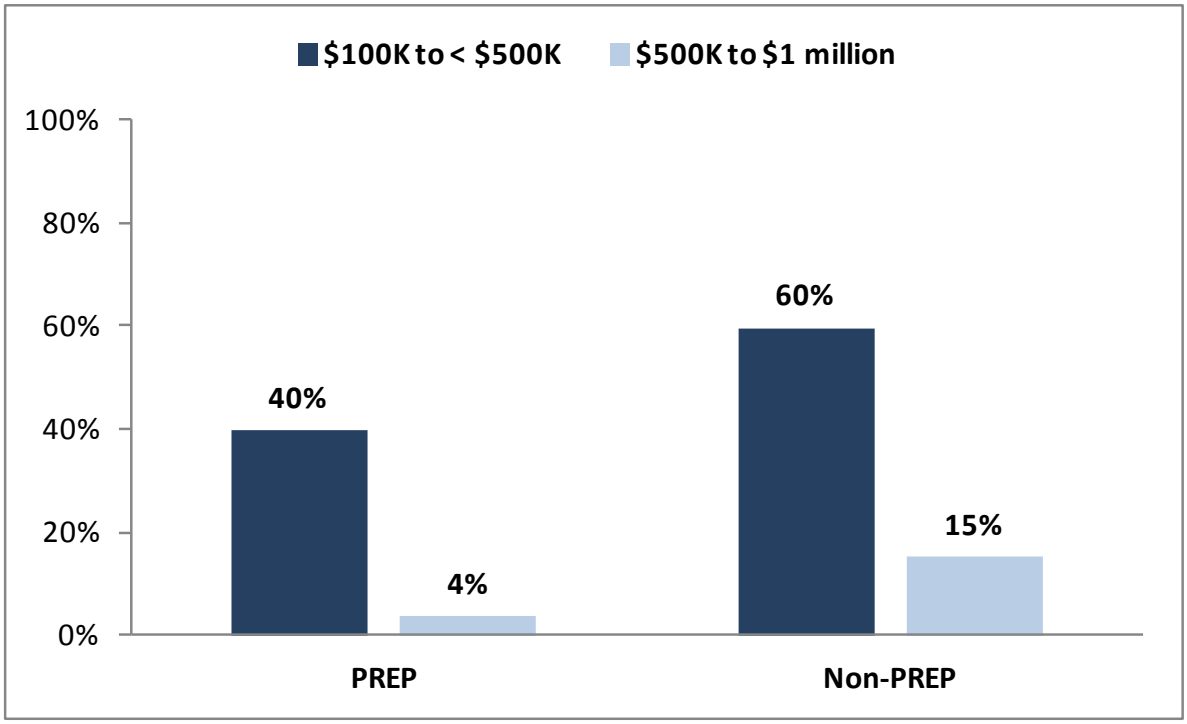
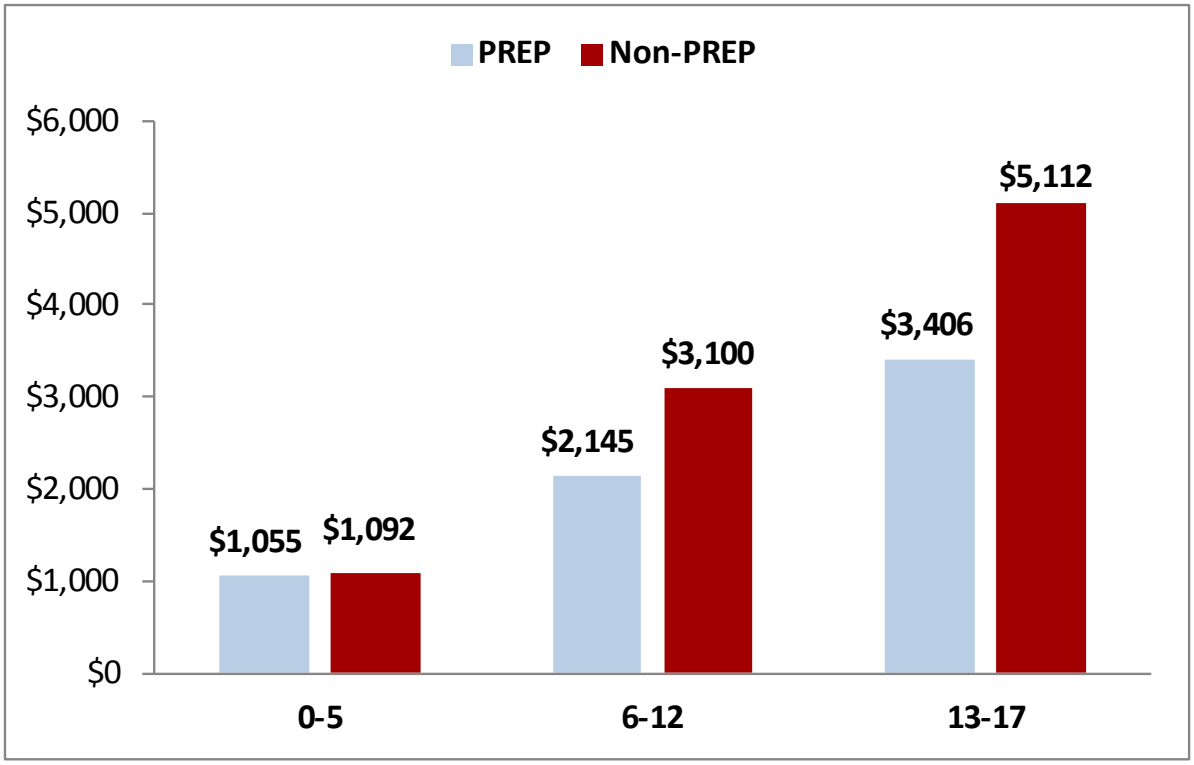


FIGURE 2. Percent of PREP and Non-PREP Foster Care Children with High Costs over 3 Years (2007-2009)



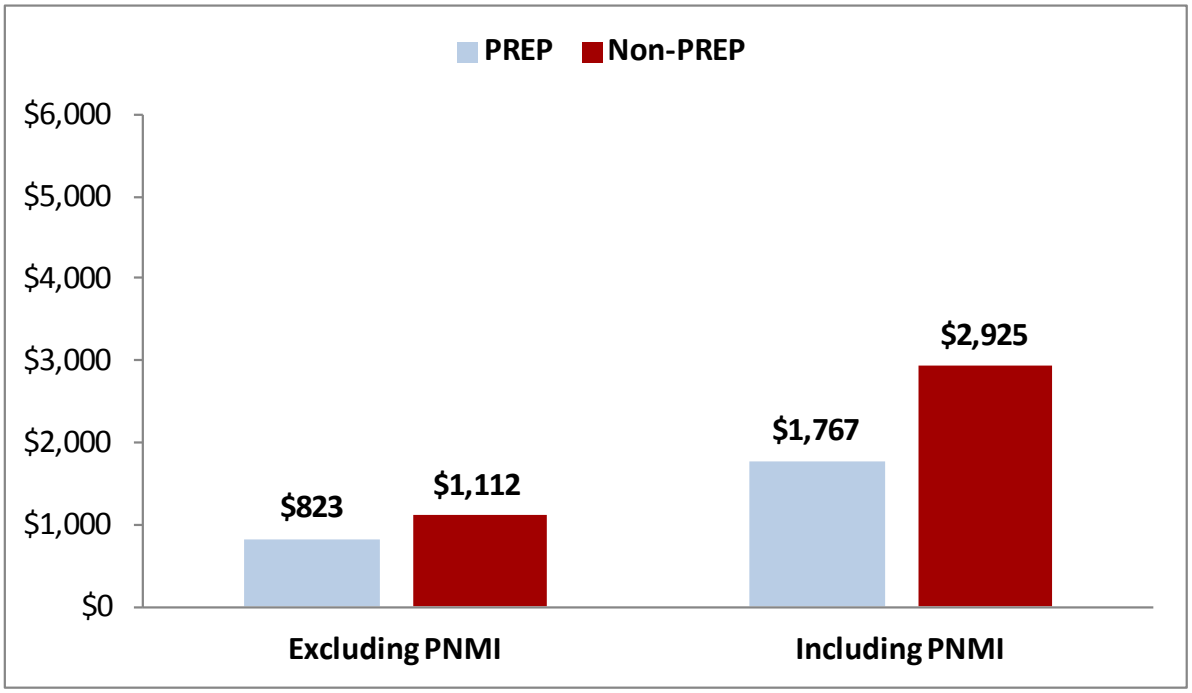
Some differences in health care use and costs between PREP participants and non-participants may be attributable to the sizeable age differences between the two groups. To ensure more appropriate comparisons between PREP and non-PREP foster care children, we compared monthly costs for the two groups within specific age ranges (Figure 3). While age appears to explain some of the difference in average monthly costs for PREP participants and non-participants, not all of the cost differences are explained by age. Although children aged 0-5 have quite similar average monthly costs whether or not they received a comprehensive health assessment ($ 1,055 versus $1,092), foster care children in older age groups that received PREP assessments had considerably lower costs than Non-PREP foster care children. For example, foster care teenagers receiving PREP comprehensive health assessments had average monthly costs of about $3,406 compared to $5,112 for those without assessments.

FIGURE 3. Average Monthly MaineCare Costs for PREP and Non-PREP Foster Care Children by Age (2007-2009)



As discussed in the methods section, one concern about the different age groups between PREP and non-PREP participants is that children who are older are more likely to be placed in private non-medical institution (PNMI) settings (e.g. group homes). PNMI placement is costly to the MaineCare program and overrepresentation in these settings by children that have not received health assessments could skew our analyses. Thus, we separated out PNMI costs from total MaineCare costs and compared PREP with non-PREP participants on all other costs. As Figure 4 demonstrates, PNMI costs contribute substantially to average total monthly MaineCare costs, representing between 50% and 60% of total MaineCare spending for foster care children. However, even when PNMI costs are excluded from our analyses, children receiving PREP assessments are lower cost ($823 versus $1,112 for non-participants).

FIGURE 4. Average Monthly MaineCare Costs *Excluding* PNMI (2007-2009)



To further explore the relationship between health care costs for children in foster care and placement type, we compared average monthly costs for PREP participants to non-participants across different placement categories (Table 2). Monthly costs vary substantially based on where a child is placed, ranging from $300-$600 per child per month for children in adoptive settings to $8,000-$11,000 per month for children in PNMI settings. However, even within the same placement setting costs for children receiving PREP assessments are lower than costs for non-PREP children.

TABLE 2. AVERAGE MONTHLY COSTS, BY PLACEMENT TYPE (2007-2009)

Placement Type	PREP	NON-PREP
Adoption	$302	$577
Bridge Homes*	$7,869	$10,596
Congregate Care (PNMI)	$7,994	$11,104
Foster Care	$676	$721
Kinship Care	$779	$891
Therapeutic Foster Care	$3,246	$4,010
Unlicensed Placements	$554	$813
Other	$2,511	$3,750

*** Bridge Homes, which are no longer used by OCFS but were during the study period, are immediate short-term placements for children while further assessments of the child's needs were completed to identify a more appropriate placement match with a family.**

Health Care Use

To assess the differences in health care use between foster care children receiving PREP exams and those who did not we compared rates for the most common services used by children in foster care placement. Table 3 shows that children that had participated in PREP were less likely to be placed in PNMIs, have a prescription, or to have general or psychiatric inpatient stays. Compared to children that had not received PREP assessments, foster care children that received PREP assessments were more likely to see a physician, and to receive speech or occupational therapy.

TABLE 3. PERCENT OF CHILDREN WITH SERVICE USE, BY SERVICE TYPE (2007-2009)

Service	PREP	NON-PREP
PNMI	31%	39%
Mental Health Agency	59%	58%
Pharmacy	80%	86%
General Inpatient	5%	8%
Psychiatric Inpatient	3%	7%
Physician	87%	82%
Speech Therapy	12%	9%
Occupational Therapy	11%	8%

We analyzed the primary diagnoses of children in foster care to develop a better understanding of how the health care needs of PREP participants may differ from those of non-PREP participants (Table 4). Medical diagnoses for children that received PREP health assessments are essentially the same as for children that did not receive the assessments. However, we found that psychiatric diagnoses differ between the two groups with PREP children having fewer diagnoses of anxiety, developmental & mood disorders or ADD/ADHD and a greater likelihood of being diagnosed with an adjustment disorder.

TABLE 4. PRIMARY DIAGNOSES ASSOCIATED WITH SERVICE USE (2007-2009)

Services	PREP	NON-PREP
Upper Resp. Infection	43%	44%
Ear Infection	27%	28%
Nutritional/Metabolic	22%	21%
Adjustment Disorder	39%	33%
Developmental Disorders	29%	35%
Anxiety Disorder	30%	35%
Mood Disorder	17%	28%
ADD/ADHD	30%	35%
Asthma	9%	12%

As a measure of access to health care, we analyzed rates of preventive care (well child) visits for children in foster care placement. As Figure 5 and 6 indicate, nearly 60% of adolescents and 73% of young children (aged 3-6) had a well-child visit over the course of a year (2007). In both age groups, children participating in PREP were more likely to have a well-care (preventive) visit than were non-participants. In the group of children aged 3 to 6, more than 85% of all children that received a comprehensive health assessment also had

a well-child visit.

Figure 5: Adolescent Well-Care Visits for PREP and Non-PREP Foster Care Children in MaineCare (2007)

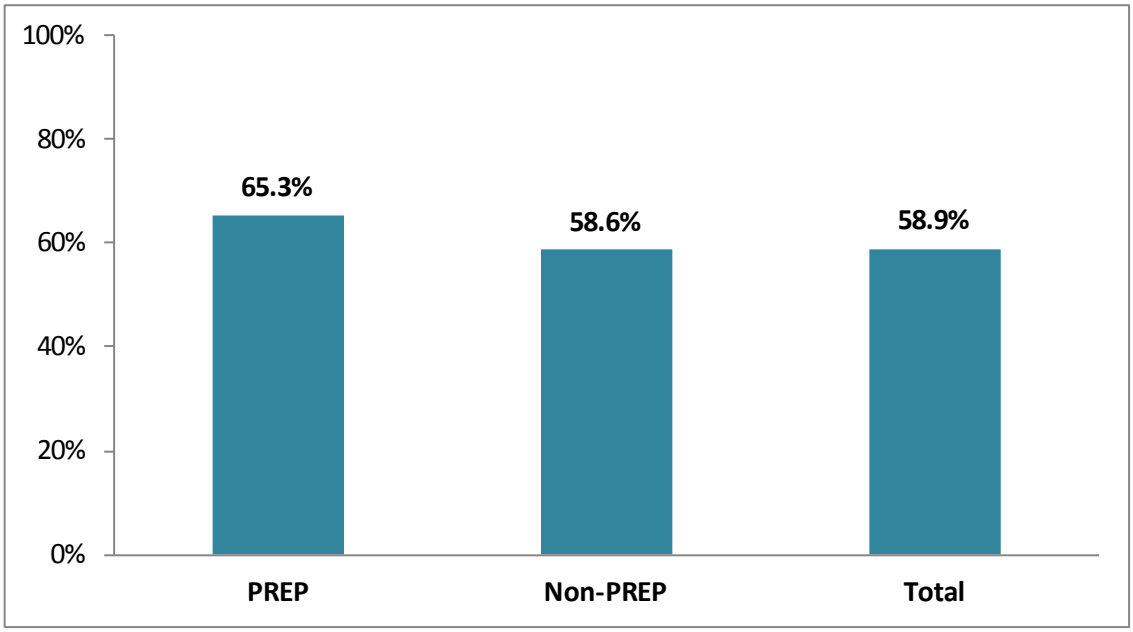
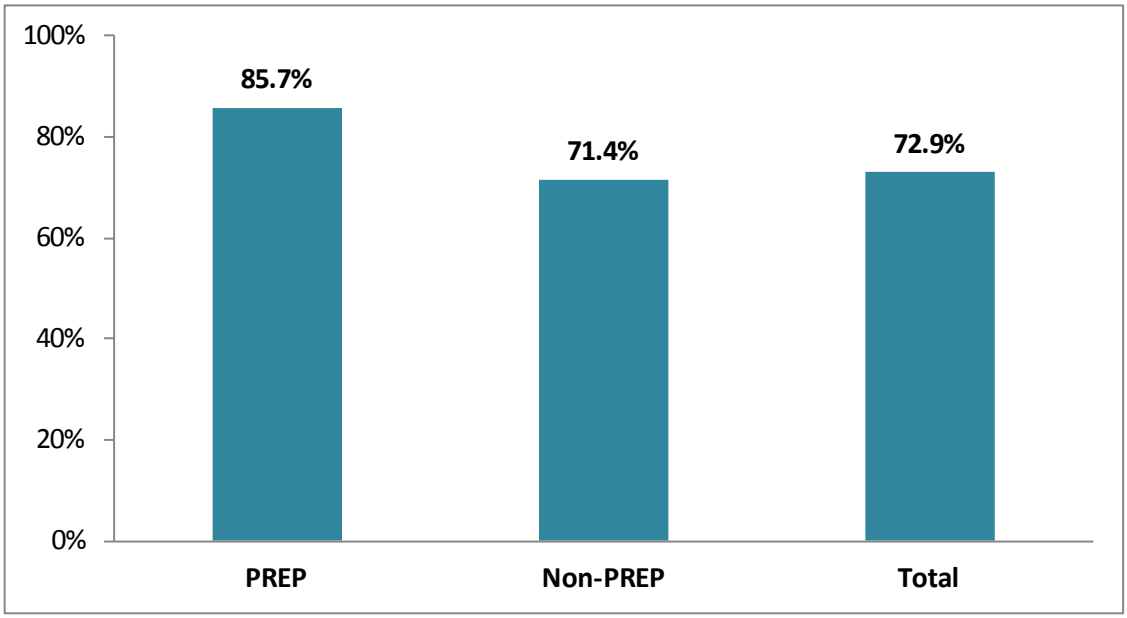


Figure 6: Well-Child Visits for PREP and Non-PREP Foster Care Children in MaineCare, Ages 3-6 (2007)



Conclusion and Recommendations for Future Study

Our findings indicate that foster care children who received PREP's comprehensive health assessment services generally had lower costs tha children that did not receive these assessments; however, it is not clear whether this is due to PREP, or to underlying differences between the two populations. MaineCare costs for foster care children are skewed by a small number of extremely high cost users, a group that is over-represented among children that did not receive health assessments. PREP participants are somewhat younger than non-participants (6.3 versus 8.3) and age may explain some of the cost differences between the two groups as younger children are generally less costly than older children, and teens are the most costly. However, even within each age grouping, PREP children continue to have lower costs (particularly among the older age groups).

Expenditures for private non-medical institutions (PNMIs) on behalf of children in foster care placement represent a substantial proportion of all MaineCare expenditures for this population. Children that did not participate in PREP are more likely to have PNMI expenditures, a finding that is likely to be related to their

higher average age. However, when PNMI costs are excluded, MaineCare expenditures for children that received health assessments are about 25% lower than for those that did not ($823 per month versus $1,112 per month). PREP participants are more likely to see a physician, and to receive speech or occupational therapy while non-participants are more likely to have received pharmacy, and general or psychiatric inpatient services. PREP participants and non-participants have similar medical diagnoses, but psychiatric diagnoses differ somewhat between the two groups. Although we find that average monthly costs for children vary substantially by placement type, within discrete placement categories, children with PREP assessments were generally lower cost than those that did not receive assessments. Finally, children receiving PREP assessment were also more likely to have a well child, or preventive, visit during 2007.

Limitations & Future Research

Although PREP participation appears to be generally associated with lower costs and better access, the cross-sectional design of this study limits ability to make conclusions about causality. For example, we know that PREP children are somewhat younger than non-PREP children and less likely to receive PNMI services. These factors clearly account for some of the differences in total spending between the two groups. Although we have sought to minimize the bias that these factors may add to our findings by comparing more narrowly between specific age groups and placement types, other unmeasured factors may also be biasing the results. For example, PREP health assessments have been limited to a 6-county service area and children in these communities may differ from those in other parts of the state. In addition, the relatively limited number of PREP participants across the study period (n = 484) meant that some estimates are based on very small numbers.

These limitations are due, in part, to the exploratory and baseline nature of these analyses. To enhance the generalizability of the findings, future studies that employ a more robust research design may be warranted. For example, children receiving PREP health assessments could be matched more systematically to a control group through the use of propensity scores or other methodology. In addition, as time elapses, MaineCare claims data on children in placement that received comprehensive health assessments from other providers (such as the Key Clinic in Bangor) will be available. By combining these data with the PREP data, it would be possible to both increase sample size and the geographic scope of the study.