Abstract

Objective: Children in foster care represent some of the most vulnerable children in the U.S. Their higher prevalence of a range of physical and behavioral health problems can lead to greater health care utilization and higher costs. However, many children in foster care have undiagnosed conditions and unmet needs. The purpose of this study was to provide a description of health services accessed by children in foster care in Delaware. The data serves as a baseline and informs current efforts to improve the health care of children in foster care. We analyzed rates of emergency room visits, behavioral health visits, hospitalizations, and costs of care for children in foster care and made comparisons with other children participating in Medicaid. We also looked at utilization before and after entry into care and assessed rates of appropriate medical screening for children on entering foster care. This study was conducted as part of a larger analysis guided by the Delaware Task Force on the Health of Children in Foster Care with funding appropriated by the Delaware General Assembly.

Methods: Using a unique identification number, we linked Medicaid claims data with demographic information and characteristics associated with foster care from the Delaware Department of Services for Children, Youth and Their Families. We examined diagnoses, patterns of utilization, and costs for children in foster care (n=1,458) and a comparable cohort of other children in Medicaid (n=124,667) during fiscal years 2013 and 2014.

Results: Compared with other children in Medicaid, children in foster care had similar rates of emergency department utilization, but relatively high rates of outpatient behavioral health visits. Similarly, compared with other children in Medicaid, those in foster care had particularly high rates of psychotropic drug utilization. Entry into foster care was associated with increased utilization of overall health care services, including receipt of well-child care. However, just 31 percent of those new to foster care met the recommended guidelines for a preventive screening in their first 30 days.

Conclusions: Because of the challenges in meeting screening policies for children entering foster care, collaboration among providers, state administrators, and policymakers is essential to guide improvement. Specifically, stakeholders should look for ways to improve the timeliness of preventive screenings and coordination of care. The high rate of behavioral health visits suggests the need to improve integration of behavioral health care into primary care.

Key Words: Foster care, preventive screening, coordination of care, Medicaid
Introduction

According to the American Academy of Pediatrics (AAP), children in foster care comprise a uniquely disadvantaged group with significantly worse health, including higher rates of physical, developmental, dental, and behavioral health problems, compared with other children. Children in foster care are disadvantaged due to the myriad reasons for which they enter care, including abuse, neglect, and mental illness and/or substance abuse among family members. Further, many children in foster care were exposed to drugs and alcohol prenatally, and many come from impoverished neighborhoods and toxic environments. Chronic early stress and adversity are thought to contribute to biological differences that can result in higher rates of physical and mental illness observed among children in foster care. Children often enter the foster care system with undiagnosed health problems and unmet health needs and, once in foster care, they can experience ongoing instability and other threats to their health and wellbeing.

Children in foster care are categorically eligible for Medicaid, which means that they do not need to meet income thresholds in order to participate. All children in Medicaid, including those in foster care, are entitled to a comprehensive set of covered health care services referred to as Early, Periodic Screening, Diagnosis, and Treatment (EPSDT). Children in foster care comprise approximately 1-3 percent of children in Medicaid, but account for a disproportionate (4-8 percent) share of expenditures due to their greater health care needs. The difference in cost is largely attributable to greater needs for behavioral health services and psychotropic drug utilization.

Due to the special needs of children in foster care, the AAP recommends a more rigorous schedule of preventive health visits for this population compared with other children. The recommendations include a screening visit within 72 hours of placement into foster care, a comprehensive examination within 30 days, and ongoing visits at least every six months. Despite recognition that preventive health care provides an opportunity for critical health and developmental screenings and early identification of health problems leading to better disease management and better overall health and quality of life, many children in foster care do not receive recommended services. A 2015 study completed by the Office of the Inspector General of the U.S. Department of Health and Human Services examined the receipt of preventive health screenings among children in foster care across four states with large foster care populations: California, Illinois, New York, and Texas. Twenty-nine percent of children in foster care who were enrolled in Medicaid in these states did not receive at least one required health screening. Furthermore, a similar percentage (28 percent) received at least one required screening late.

Given the state’s role in ensuring access to health care services for all children in foster care and concerns regarding the health needs of this vulnerable population, the Delaware General Assembly established a Task Force on the Health of Children in Foster Care in June 2014. The Task Force was charged with examining the health and receipt of health services of children in the custody of the State. This work builds on an initial chart review and joint report by the Child Protection and Accountability Commission and Child Death, Near Death, and Stillbirth Commission. This study, conducted by the Center for Community Research and Services at the University of Delaware, supported the work of the Task Force by providing an analysis of the health care services provided to children in foster care through the State’s Medicaid program between July 1, 2012 and June 30, 2014. By comparing health care utilization patterns of children in foster care with other children in Medicaid, we were able to provide a snapshot of the needs of this particularly vulnerable population in Delaware. The results highlight areas of ongoing need and opportunities for health system improvements, as well as a baseline for monitoring changes over time.

| TABLE 1: Children in Delaware Foster Care by Age Cohort, FY13-FY14 |
|-----------------|-----------------|-----------------|
| AGE COHORT*     | NUMBER          | PERCENTAGE      |
| Less than 1 year old | 203             | 14%             |
| 1-5 years old     | 333             | 23%             |
| 6-12 years old    | 405             | 28%             |
| 13-19 years old**| 517             | 35%             |
| Total            | 1,458           | 100%            |

* Age was calculated at the beginning of FY13, or if the child did not start until FY14, at the beginning of FY14.

** Only 16 children in this age cohort were 18 and over. None of the children was over the age of 19 at the beginning of the FY13.
METHODS

Medicaid claims data supplied by the Delaware Division of Medicaid and Medical Assistance (DMMA) provide the basis for this analysis. The claims database includes billing information for every encounter that a Medicaid participant has with a covered health care professional. In addition, the database includes claims for prescription drugs covered under Medicaid. We extracted data on diagnoses, types of services and professionals, types of prescription drugs, and expenditures for fiscal years 2013 and 2014 (i.e. covering the time period from July 1, 2012 through June 30, 2014). Importantly, due to the nature of the claims database, most of the cost data in our analyses are based on the “billed amount” for services. The billed amount can vary substantially from the actual cost of services because most individuals who participate in Medicaid in Delaware are enrolled in managed care plans which pay for care using a capitated rate. This means that the billed amount is a somewhat artificial representation of cost, but is still useful for making comparisons, examining trends, and understanding the relative distribution of costs. Because prescription drugs are paid separately, the data for prescription costs are for the actual amount.

Data to support our analyses were also provided by the Delaware Department of Services for Children, Youth and Their Families (DSCYF). Variables include demographic information on children in foster care, such as age, race/ethnicity, and zip code, as well as characteristics associated with children’s tenure in the foster care system, such as number and type of foster placements. The DSCYF database includes a unique Medicaid identification number for each child, such that we are able to identify children in foster care within the Medicaid database and link the health-related data with characteristics of foster care. After linking the Medicaid records with the DSCYF records, the resulting database used in our analyses includes 1,458 children in foster care during the time period FY13 and FY14.

We calculated descriptive statistics for selected diagnoses, prescription drug utilization, and health care services billed for this cohort, broken down by age group and characteristics of foster care where appropriate. In order to better understand the health and health care utilization of children in foster care in context, we compared diagnoses, patterns of utilization, and costs among children in foster care with a comparable cohort of 124,667 non-foster care children participating in Medicaid in Delaware during this time period.

Services provided to children in foster care who are placed within certain institutions, such as a youth detention center or an inpatient mental health facility were excluded from our analyses unless specifically indicated. These services are generally not included.
in the Medicaid claims data because the Delaware Division of Prevention and Behavioral Health Services (PBH) provides more intensive inpatient and outpatient services that are included in the State Medicaid Plan as a “carve out,” with PBH functioning as a separate managed care organization for those specific services. Similarly, health care services provided to children while in detention centers are paid for outside of the traditional Medicaid program through the Delaware Division of Youth Rehabilitation Services. Children eligible for Medicaid due to their disability status (i.e. SSI eligible) were removed from the database in order to have a more comparable cohort. We present the results for the full two-year cohort unless otherwise indicated.

**RESULTS**

**Characteristics of Children in Foster Care**

Among the 1,458 total children in foster care in Delaware in FY13 and FY14, 320 were new to foster care in 2013 and 222 entered foster care in 2014. These numbers show slight decreases over previous years, mirroring regional and national trends. The majority (59 percent) of children in foster care reside in New Castle County where a similar percentage of the population is concentrated. Fifty-one percent are male, a majority (50-55 percent) is African American, and the median age of children in foster care is 9 years old. Table 1 shows the total population of children in foster care included in our cohort for FY13 and FY14 according to age groups. The median length of time in foster care for children in Delaware is 1.6 years, while the mean is 2.3 years, suggesting that some children in Delaware are in foster care for particularly long periods of time which skews the average. In fact, 23 percent of children in this cohort have spent more than half of their lives in foster care.

**Health Care Utilization and Cost**

Figure 1 illustrates categories of service utilization among children in foster care compared with other children in Medicaid. Ninety-one percent of children in foster care received at least one type of health care service during FY13 or FY14, and 87 percent had a physician visit during this period. Physician visits in our database can include well-child visits, preventive screenings, as well as other kinds of services provided at physician offices by a physician, nurse practitioner, or physician assistant. Compared with other children in Medicaid, children in foster care had relatively high rates of behavioral health visits in an outpatient setting, which are defined in our database as any medical claim with an International Classification of Diseases (ICD-9) code of 290-319. In fact, we found that over three-quarters of children ages 6 and older in foster care had a behavioral health visit during the study period. Notably, visits to the emergency department were similar across the two cohorts.

The total amount billed for children in foster care exceeded $30 million across FY13 and FY14. Importantly, this billed amount is
based on all Medicaid medical claims, excluding dental, vision, nursing homes, and other costs incurred within the juvenile justice system or the state's child mental health system that are not billed to Medicaid. Also, as mentioned above, because most individuals who participate in Medicaid in Delaware are enrolled in managed care plans which pay for care using a capitated rate, the billed amount is a somewhat artificial representation of cost. However, it is useful to consider the relative billed amounts (or claims) for different services provided to children in foster care, as this is an indication of health care needs, as well as an indication of the potential burden on the health care system.

We found that more than half of the total claims for children in foster care were for outpatient behavioral health services. Additionally, while 87 percent of children in foster care had a physician visit in FY13-FY14, the relative cost of physician visits is low compared to other types of services, such as urgent or emergency care. Average billed amounts for children in foster care were similar among different age groups with the exception of children ages one to five years old, who had relatively lower average claims. When compared with other children in Medicaid, children in foster care in Delaware have approximately three times higher average claims. This disparity is largely attributed to differences in outpatient behavioral health claims which were roughly 14 times higher for children in foster care. The average prescription drug cost was also approximately three times as high for children in foster care compared with other children in Medicaid in Delaware in FY13-FY14, and this difference is largely attributable to higher costs associated with psychotropic drugs among the foster care population.

Patterns on Entry into Foster Care
To explore the relationship between foster care status and health care utilization, we also examined patterns of selected service utilization prior to entry into foster care compared with children's utilization while in foster care. Among children who were new to foster care in FY14 and had at least one claim during the prior year (n=127), utilization went up for every type of service. As seen in Figure 2, entry into foster care appears to be associated with better access to health care services. Further, the percent of children that received a well or preventive visit increased from 36 percent to 72 percent.

Preventive Screenings
In order to assess timeliness of preventive screenings and adherence to the AAP recommendation that children in foster care receive a comprehensive well visit within the first 30 days of entry into foster care, we analyzed a subsample of the cohort that entered foster care in FY13 or FY14 (n=542). Figure 3 shows the percentages of those children receiving well visits/preventive screenings within 30 and within 180 days of entry into foster care, according to age group. Our analysis revealed, only 31 percent of children new to foster care during our study time period met the AAP recommendation. Further, 41 percent still had not had a well visit within six months.

We furthered examined the data for those children without a well
visit in the first 30 days and found that approximately 20 percent of this group were in placements for which we do not have claims data. As mentioned earlier, because some children’s first placement in foster care may be in a detention center or with intensive inpatient/outpatient services provided through PBH (not paid for through Medicaid), these data do not include the screenings that may have occurred with those agencies. If we assume that all children in these alternative placements received a well child visit within 30 days, the total percentage of children that meet the AAP recommendations goes up to 42 percent. It should be noted that, because some children’s first placement in foster care may be in a detention center or with intensive inpatient/outpatient services provided through PBH (not paid for through Medicaid), these data do not include the screenings that may have occurred within those agencies.

DISCUSSION

To promote the health and well-being of children in foster care, it is critical that we better understand their health status, current health care utilization, and potential unmet health care needs. This study contributes to our understanding of the health-related needs of children in foster care in the state of Delaware. The results show that children in foster care in Delaware are connected to the health care system, with nearly all receiving at least one health care service during the study period. Further, children in our cohort received more services once they entered the foster care system than before being placed in foster care, suggesting that entry into foster care promotes health care utilization.

The results of this study also highlight areas of ongoing need and concerns related to the health of children in foster care in Delaware. For instance, similar to national trends, children in foster care in Delaware have more behavioral health-related needs compared with other children in Medicaid. These behavioral health needs translate into higher utilization of psychotropic prescription drugs and lead to higher costs. Further, many children in foster care in Delaware do not appear to be receiving preventive health visits within their first 30 days in foster care, as recommended by the AAP. While this challenge is not unique to Delaware, it is an area that deserves ongoing attention due to the nature and scope of the health needs of this vulnerable population. Building upon the AAP recommendations, the Division of Family Services within DSCYF currently recommends that all children obtain a screening visit, including specific requirements for comprehensive care, within five days if possible, or at least within 30 days, upon entry into the foster care system. This is important, as research has shown that state policies can have a positive impact on utilization of preventive care.

Our findings related to the high utilization of behavioral health services and psychotropic drugs suggest a need to consider issues related to coordination of care, particularly in terms of the integration of behavioral health services within primary care. The “medical home” is increasingly viewed as a model of delivering preventive and primary care that is comprehensive, patient- (or family-) centered, coordinated, accessible, and of a high quality. Medical homes have been found to improve the quality of care for vulnerable patients, including promoting higher rates of routine preventive services. Medical homes can also promote linkages to social supports needed to address related social needs among low-income and other vulnerable populations. For these reasons, the medical home has been identified as a model for addressing the health needs of children in foster care. Only one state (Illinois) has systematically incorporated the medical home model for children in foster care. Jaudes and colleagues examined the medical home experience of Illinois’ children in foster care compared with other children in the state’s Medicaid program. The study found that children in foster care served by a medical home received significantly more primary, preventive, and dental care, and that care was deemed more efficient and cost effective as reflected in lower utilization of emergency departments for chronic conditions. Due to the complex medical needs of children in foster care and our findings related to well visits and behavioral health needs, more attention to implementation of a medical home model may benefit children in foster care in Delaware. Additional recommendations, based upon a combination of our findings and expert opinion, were developed by the Delaware Task Force on the Health of Children in Foster Care and can be found at www.ccrs.udel.edu/node/489.

LIMITATIONS AND FUTURE RESEARCH

This study provided important new information about the health and health care utilization patterns of children in foster care in Delaware; however, it is not without limitations. First, our study was necessarily limited in scope by practical resource constraints (e.g. money and time), and the analysis revealed additional questions that could be explored in future studies. For instance, it would be valuable to explore the health-related needs of children in foster care over a longer period of time. We hope to build on this work using the Medicaid database to conduct a longitudinal analysis, which could provide a more detailed understanding of the foster care population and allow for potentially more meaningful comparisons. Similarly, it would be useful to explore relationships among different variables in our dataset in more detail and over a longer period of time. It may also be practical to compare the needs of children in foster care in Delaware to those in other states in our region, and use the existing database to help evaluate new models of care or other kinds of interventions. Finally, concerns raised by others regarding continuity of care suggest the need to examine this issue in Delaware to promote better health care for children in foster care in our state.
This study was also constrained by the nature of the administrative data sets used in our analysis. A more complete picture of the health-related needs of children in foster care could be gained by access to additional information regarding foster care placements through the Delaware Division of Youth Rehabilitation Services (e.g. detention centers) or the Division of Prevention and Behavioral Health Services (e.g. intensive inpatient and outpatient mental health facilities). In addition, different analytical approaches, such as qualitative interviews or more detailed chart reviews, could complement the quantitative analyses and contribute to a more holistic understanding of the needs of children in foster care in Delaware.

CONCLUSION

Children in foster care represent a particularly vulnerable population of children with unique needs and health care challenges. This study was the first of its kind to examine the health status and health care utilization patterns among children in foster care in Delaware using Medicaid claims data. It highlights two key areas of concern related to the system of health care available to children in foster care: the need to focus more attention on early screening and timely preventive health visits; and the need to identify opportunities for better care coordination, including further integration of behavioral health into primary care. Importantly, we examined the experience of 1,458 children in foster care that participated in Medicaid over a two year period; our findings have implications for many more children in our state at risk of neglect, abuse, or who are otherwise connected with the child welfare system.

We believe this study provides valuable baseline information to better equip providers and policymakers interested in improving the system of care for children in foster care. Further, this work represents an important partnership between DSCYF, DMMA, the Center for Community Research and Services at the University of Delaware, and Nemours. This partnership and the data infrastructure that has resulted from this effort, provides critical opportunities for ongoing research and analysis that is needed to better understand the complex health-related needs of children in foster care. A complete report of our findings is available at www.ccrs.udel.edu/node/489.

REFERENCES


