

Health Net of West Michigan

Community Healthcare Access Program: Impact Assessment

December 2020





**PUBLIC SECTOR
CONSULTANTS**

Prepared by

Public Sector Consultants
www.publicsectorconsultants.com

Prepared for

Health Net of West Michigan
www.healthnetwm.org

Table of Contents

EXECUTIVE SUMMARY	4
Introduction	4
CHAP Clients and Services	4
Healthcare Utilization	4
Estimated Cost Savings	5
Conclusion.....	5
INTRODUCTION	6
CHAP CLIENTS AND SERVICES	7
Client Demographics	7
CHAP Client Needs	9
Activities and Services Provided	10
Client Satisfaction.....	13
CHANGES IN HEALTHCARE UTILIZATION	14
Utilization Changes Among Children	15
Utilization Changes Among Adults	19
COST SAVINGS ESTIMATES	22
CONCLUSION	23
REFERENCES	25
APPENDIX A: HEALTHCARE UTILIZATION ANALYSIS METHODOLOGY	26
APPENDIX B: OUTPUT FOR STATISTICAL SIGNIFICANCE TESTS ON ED VISITS AND INPATIENT HOSPITALIZATIONS	28

Executive Summary

Introduction

In November 2019, Health Net of West Michigan (Health Net) engaged Public Sector Consultants (PSC) to assess the impact of its services on Kent County children and adults. PSC's evaluation solely focused on people who received Community Healthcare Access Program (CHAP) services in 2017 and 2018 because Health Net's other programs, including the Accountable Health Communities (AHC) cooperative agreement with the Centers for Medicare and Medicaid Services (CMS) and early childhood services (ECS), were too new to allow for outcomes analysis.

CHAP Clients and Services

Health Net provided CHAP services to 8,279 children and adults in 2017 and 2018. About half of those served were children under the age of 18. A much larger percentage of Health Net clients are Black or African American (35 percent) or Hispanic or Latinx (26 percent) than the county population (10 percent each). CHAP clients are also more likely to have Medicaid coverage than Kent County residents as a whole (85 percent compared to 14 percent)

Children and adults are often referred to Health Net for multiple reasons. About one-third of child and adult clients were referred for CHAP services due to missed medical appointments, while 15 percent or less were referred for other needs, including transportation, housing, or food assistance. Health Net provides some form of education, either by phone or in person, to the majority of its clients to support their use of healthcare and other services. It also assists with scheduling medical and other appointments, coordinating transportation services, and making referrals to community resources, with the most common outbound referrals for housing, food, and transportation assistance.

In 2018 and 2019, Health Net conducted a survey to gauge client satisfaction with its services. The majority of respondents said staff were helpful in connecting them to resources, reported feeling confident in using the recommended resources, felt respected by Health Net staff, and noted their needs were understood.

Healthcare Utilization

PSC analyzed healthcare utilization among children and adults with Priority Health–provided Medicaid coverage who also received Health Net CHAP services, with a primary focus on emergency department (ED) visits, inpatient hospitalizations, and primary care visits. To help strengthen the likelihood that any reductions in utilization were due to Health Net services, PSC also assessed utilization among Priority Health Medicaid beneficiaries who were referred to but did not receive any tangible CHAP services.

Children

ED utilization rates among children who received CHAP services decreased by more than two times of those who were referred to Health Net but did not receive any tangible services. Similarly, the rate of inpatient hospitalizations among children who received CHAP services decreased slightly, while the rate among children who were referred for services but did not receive them increased slightly. Children who received CHAP services also experienced a greater increase in the use of primary care services. Of those

who did not have any visits with a primary care provider in the year before their first tangible service, 30 percent had at least one primary care visit in the year following their first tangible service. Among children who were referred to Health Net but did not receive services, 20 percent of those who did not have any primary care visits in the year before their referral had at least one primary care visit in the year following.

PSC also analyzed the extent to which CHAP clients had appropriately timed lead screenings and well-child visits in 2017 and 2018. The impact of CHAP services on utilization of these preventive healthcare services is unclear. However, it is worth noting that among children aged three to six who received CHAP services in 2017 and 2018, the percentage who had appropriately timed well-child visits increased from an estimated 58 percent in 2017 to 67 percent in 2018.

Adults

While the rate of ED visits decreased among adults who received CHAP services, the rate of decrease was greater among adults who were referred to Health Net but did not receive any tangible CHAP services. In addition, inpatient hospitalization rates decreased among both populations by the same amount. Only small percentages of each population who did not have any primary care services in the year before their first tangible service or referral to Health Net had at least one primary care visit in the following year.

Estimated Cost Savings

Based on an analysis of healthcare utilization rates, PSC estimated the cost savings associated with CHAP services based on reductions in ED visits and inpatient hospitalizations. Because the analysis showed fairly strong reductions in these healthcare services among children who received CHAP services compared to those only referred for CHAP services and because the results for the adult population were less conclusive, PSC only estimated cost savings based on reductions in utilization among children. Using an average cost per event based on the Medical Expenditure Panel Survey and Health Net's average expenditure per child served, PSC found a benefit-cost ratio of 1.5, suggesting the program generates \$1.50 in cost savings per \$1.00 spent delivering services for children.

Conclusion

This impact assessment suggests the need to conduct further study and identify more comprehensive success measures. While the CHAP model has continued to demonstrate positive outcomes for children in Kent County based on healthcare utilization rates, the benefit to adults is less clear. Though reductions in ED visits and inpatient hospitalizations may reflect more effective management of chronic conditions and stronger connections with primary care providers, these measures provide a limited picture of the overall impact of Health Net's services. Access to community resources and other quality-of-life indicators may provide a more complete picture, especially for adults. As Health Net continues to evolve and expand services, as it has with AHC and ECS, it will also need to identify more comprehensive measures of success to strengthen future assessments.

Introduction

In November 2019, Health Net of West Michigan engaged Public Sector Consultants to assess the impact of its services on Kent County children and adults. Health Net provides a variety of services to these populations, promoting access to healthcare and helping its clients more effectively manage their health. Kent County residents are typically referred to Health Net through three primary programs or service lines:

- The Community Healthcare Access Program
- The Accountable Health Communities cooperative agreement with the Centers for Medicare and Medicaid Services
- Early childhood services

The CHAP service model was established by First Steps Kent as the Children’s Healthcare Access Program in 2008 before being transferred to Health Net in 2014. In that same year, Health Net expanded the program to serve adults and renamed it the Community Healthcare Access Program. Through CHAP, Health Net forms relationships with primary care providers and works directly with families to help strengthen their connections with primary care and other healthcare providers. A multidisciplinary team provides education, care coordination, community resource referral, transportation, and other services to address the social determinants of health and barriers to medical access for children on Medicaid.¹ This may include connecting their clients to a patient-centered medical home if they do not already have a primary care provider.

AHC and ECS are relatively new Health Net programs. AHC focuses primarily on improving access to health-related social needs, such as access to transportation, healthy food, and adequate housing, which builds on Health Net’s history of collaboration with healthcare and community service providers. ECS began in 2017 when Health Net adopted the Welcome Home Baby program to support first-time parents of newborns and newborns covered by Medicaid. In 2019, when Health Net received funding from the Kent County Ready by Five Early Childhood Millage, ECS expanded to serve all expectant parents and families with children from birth to age five.

Given the relatively recent additions of AHC and ECS, PSC’s evaluation of Health Net’s service impact focused on people who received CHAP services in 2017 and 2018. While CHAP’s effectiveness related to children’s health has been demonstrated in past evaluations, Health Net sought an updated assessment that included adults.

This report provides the following:

- An overview of the clients who received CHAP services and the types of services Health Net provided in 2017 and 2018
- An analysis of healthcare services utilization among CHAP clients who received services in 2017 and 2018
- Estimated healthcare cost savings due to changes in healthcare service utilization

The methodologies used to conduct the analyses are provided at the end of the report.

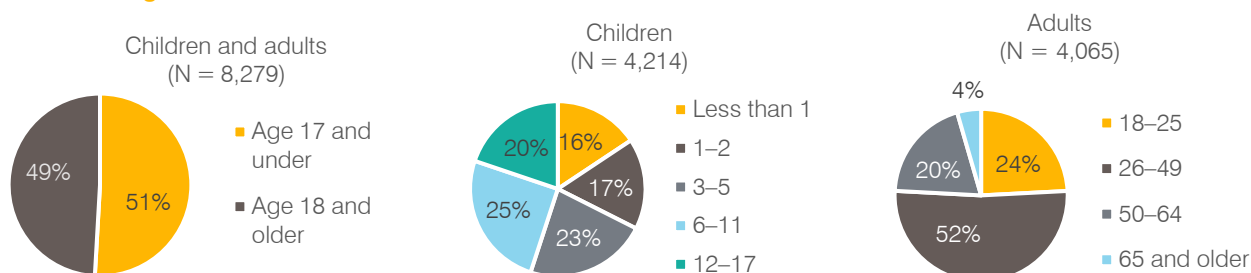
¹ The social determinants of health refer to nonmedical factors that influence a person’s health and well-being.

CHAP Clients and Services

Client Demographics

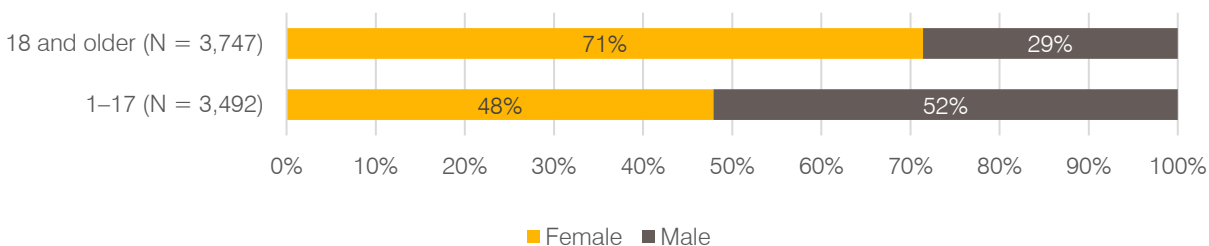
Health Net provided CHAP services to 8,279 children and adults in 2017 and 2018.² Just over half of CHAP clients were under the age of 18, while 49 percent were 18 and older (Exhibit 1). Of the children who received CHAP services, one-quarter were between the ages of six and 11. Of adults, more than half were between the ages of 26 and 49, and just 4 percent were aged 65 and older.

EXHIBIT 1. Age Distribution of CHAP Clients



A little more than half of children served by Health Net were male (52 percent), while 71 percent of adults who received CHAP services were female (Exhibit 2).

EXHIBIT 2. Gender Distribution of Children and Adults Who Received CHAP Services

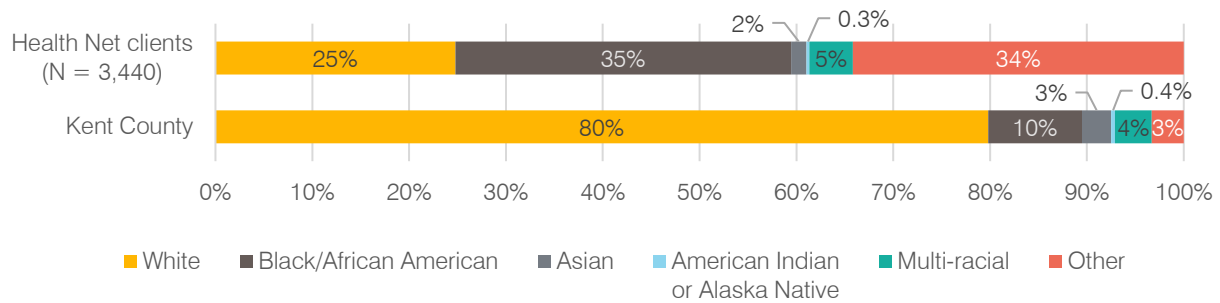


In 2017 and 2018, a small percentage of CHAP clients identified as American Indian or Alaska Native, Asian, or multiracial (about 7 percent total), which is similar to the percentage of all Kent County residents identifying as any of these races (about 8 percent) (Exhibit 3). However, the percentages of CHAP clients who identified as Black or African American or another race are much higher than among all county residents. Of CHAP clients, 35 percent identified as Black or African American, compared to 10 percent of the county population, and 34 percent of clients identified as another race compared to only 3 percent of the county population.³

² Due to missing and/or unreported demographic data in Health Net's client records management system, the number of children and adults included in the demographic analysis varies across categories.

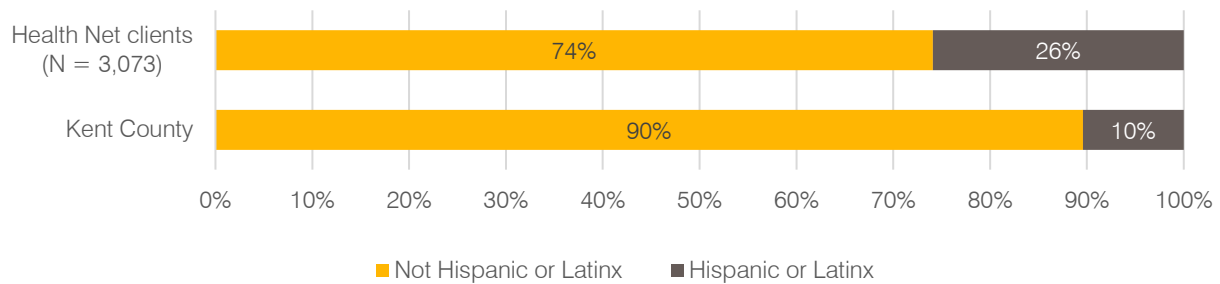
³ Data on client race and ethnicity is unavailable for more than half of the clients served in 2017 and 2018 because it is not required on the forms used to make referrals for CHAP services and Health Net staff were not required to ask for this information.

EXHIBIT 3. Race of CHAP Clients Compared to Kent County Residents



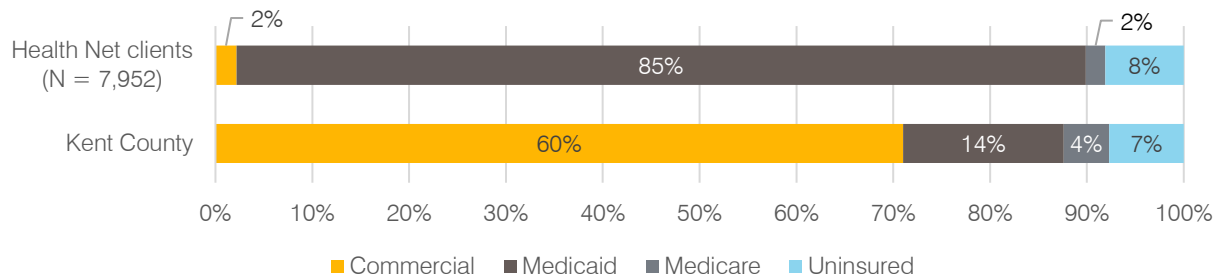
Additionally, 26 percent of CHAP clients were Hispanic or Latinx, compared to 10 percent of the total population in Kent County (Exhibit 4).

EXHIBIT 4. Ethnicity of CHAP Clients Compared to Kent County Residents



CHAP clients are far more likely to have Medicaid coverage than Kent County residents (85 percent versus 14 percent) (Exhibit 5). In 2017 and 2018, only 2 percent of CHAP clients had commercial insurance, compared to 60 percent of county residents. The percentage of uninsured CHAP clients and Kent County residents is about the same, at 8 percent and 7 percent, respectively.

EXHIBIT 5. Healthcare Coverage of CHAP Clients Compared to Kent County Residents

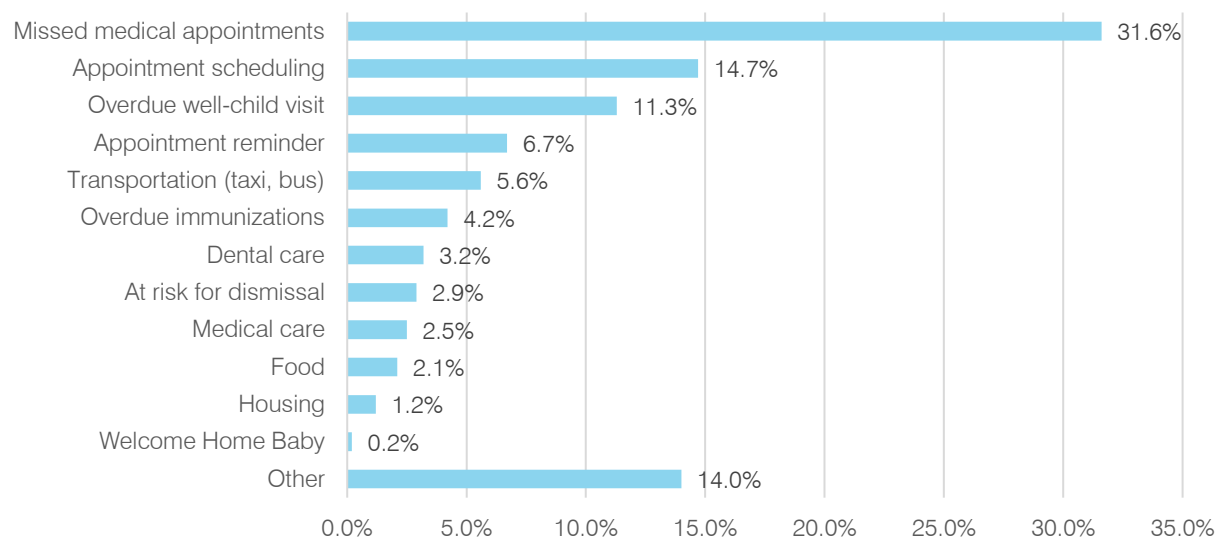


CHAP Client Needs

Health Net data on inbound referrals show how and where individuals were referred for CHAP services in 2017 and 2018 and what their needs were (i.e., why they were being referred). Outbound referral data (i.e., data on referrals to services outside of Health Net) help identify other services clients were connected to and the extent to which these connections were successful.

Clients were referred to Health Net for CHAP services for a variety of reasons in 2017 and 2018, including medical care assistance, transportation assistance, and housing services. For children between the ages of one and 17, nearly one-third were referred due to missed medical appointments, while approximately 15 percent were referred for assistance with scheduling appointments and 11 percent for an overdue well-child visit (Exhibit 6).

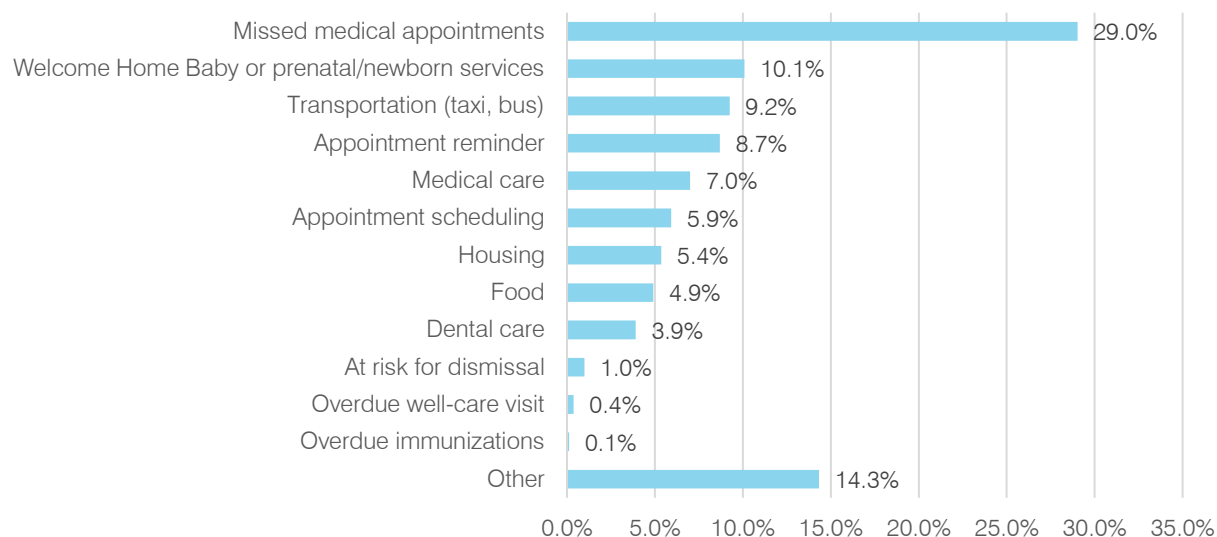
EXHIBIT 6. Inbound Referral Reasons for Children, Age One to 17



Note: N = 3,413. Other referral reasons include asthma case management, behavioral health services, ED use, and new patient education.

Similar to children, 29 percent of adults were referred due to missed medical appointments in 2017 and 2018. Another 10 percent were referred for prenatal/newborn services and about 9 percent for transportation assistance. Unsurprisingly, very few adults (less than 1 percent) were referred to Health Net for overdue well-care visits or immunizations (Exhibit 7).

EXHIBIT 7. Inbound Referral Reasons for Adults, Age 18 and Older



Note: N = 3,914. Other referral reasons include asthma case management, behavioral health services, ED use, and new patient education.

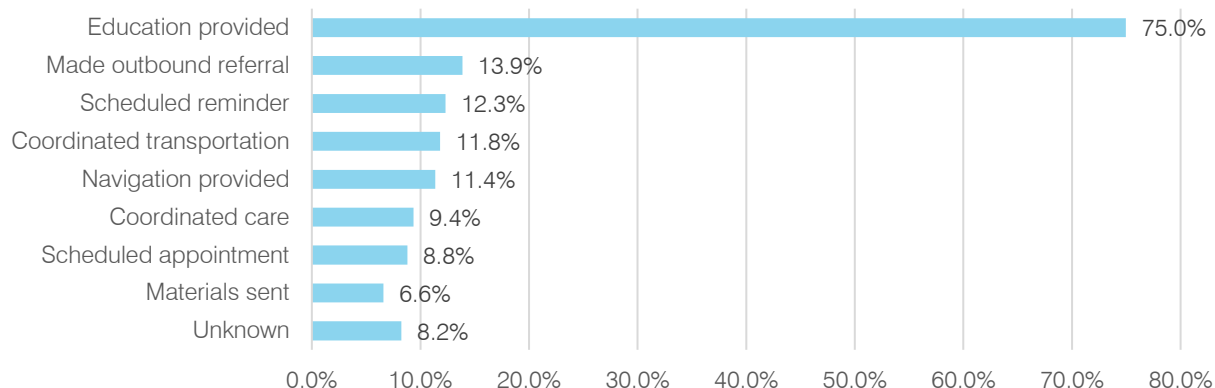
Activities and Services Provided

Once connected with a child’s family or an adult client, Health Net can provide a wide variety of services, including:

- Assistance with scheduling medical and other appointments
- Transportation services, including coordination with Medicaid health plans and third-party providers
- Referrals to community resources for addressing needs related to the social determinants of health
- Assistance with navigating health and social service systems (e.g., education and housing systems)
- Translation services for children and/or families whose first language is not English or interpretive services for those who are deaf or hard of hearing
- Education on appropriate ED usage and the importance of attending well-care visits, receiving immunizations, and having a medical home

In 2017 and 2018, 75 percent of inbound referrals resulted in Health Net staff providing education to clients (Exhibit 8). Other services provided included reminders of upcoming appointments (12.3 percent), coordination of transportation services (11.8 percent), and health and social service system navigation (11.4 percent), among others.

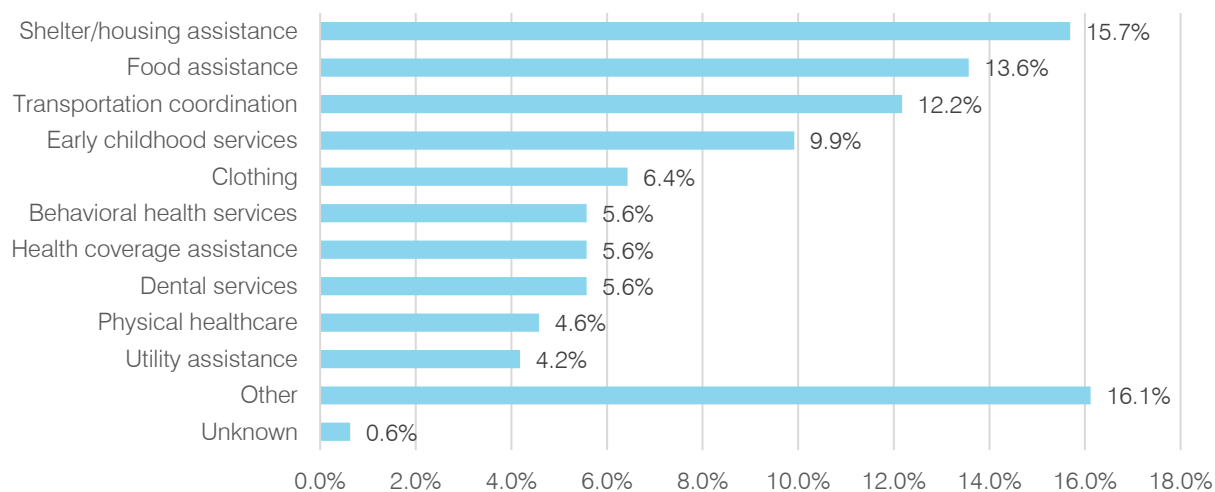
EXHIBIT 8. CHAP Services Provided Following Inbound Referrals



Note: N= 11,778. N represents all successful resolutions. More than one reason can be selected for each successful referral outcome. The “unknown” represents referrals marked as successful but not assigned an outcome.

Health Net can directly address many client needs by providing education, coordinating transportation, or scheduling healthcare services or other appointments; these services align with the majority of inbound referral reasons. However, clients often have several needs and are referred for multiple purposes, some of which Health Net cannot directly address. In these cases, it refers clients to other community resources. In 2017 and 2018, Health Net made 3,015 referrals to outside agencies and services, with each client receiving an average of two. Of these, 16 percent were for shelter/housing assistance, 14 percent for food assistance, and 12 percent for transportation assistance (Exhibit 9). An additional 16 percent of outbound referrals were for other needs, including disability assistance, furniture and household items, health education, and personal finance.

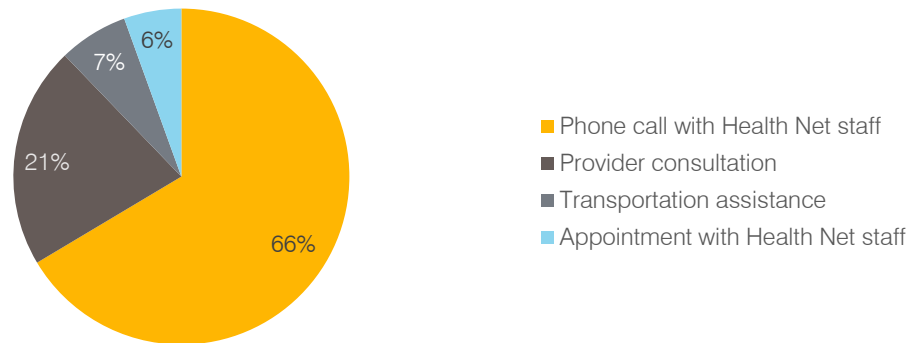
EXHIBIT 9. Outbound Referrals by Category



Note: N = 3,015. N represents the total number of outbound referrals made. The “unknown” category represents cases where a referral category was not selected.

Health Net’s primary tangible CHAP service delivery mechanisms include telephone calls with clients, in-person appointments, and transportation assistance. It also conducts provider consultations regarding client needs, which do not involve direct contact with the client. Phone calls with clients to address their needs comprised 66 percent of all successful CHAP activities in 2017 and 2018; provider consultations made up another 21 percent; and those remaining were almost evenly split between appointments with clients and transportation assistance (Exhibit 10).

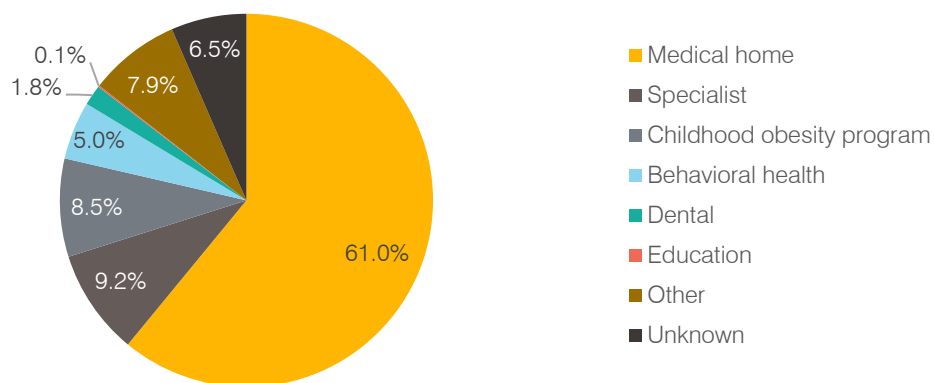
EXHIBIT 10. Successful CHAP Activities by Type



Note: N = 20,411. N represents all successful activities conducted by Health Net in the given time frame.

There are several destinations to which clients need transportation assistance. In 2017 and 2018, the majority of clients obtained transportation assistance from Health Net to get to their medical home for routine care or for same- or next-day care (61 percent) (Exhibit 11). Since that time, Health Net’s transportation services have expanded to include additional service destinations.

EXHIBIT 11. Transportation Services Destinations



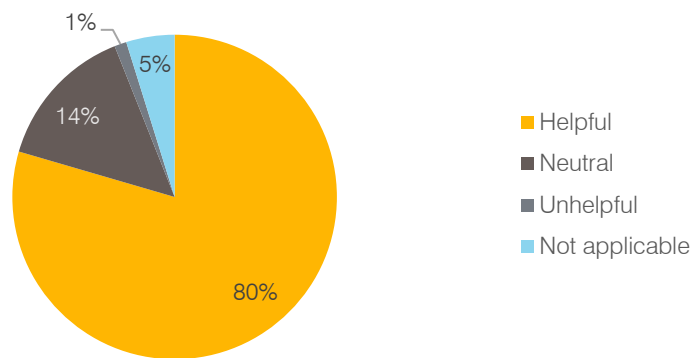
Note: N = 1,527. N represents total number of transportation services provided. Other destinations include labs, testing, Health Net, and education, among others. The “unknown” category represents cases not assigned a transportation category.

Client Satisfaction

Between spring 2018 and 2019, Health Net surveyed and interviewed clients to determine their satisfaction with services, implement a feedback process, and ensure services are appropriate for their desires and preferences. Through this process, clients were asked about their interactions with staff, satisfaction with services, and utility of services. PSC combined the results of both data collection phases, with findings presented in the following section.

Overall, Health Net staff received high marks on its interactions with surveyed clients and the resources it provides. The majority (80 percent) said staff were helpful in connecting them to resources (Exhibit 12).

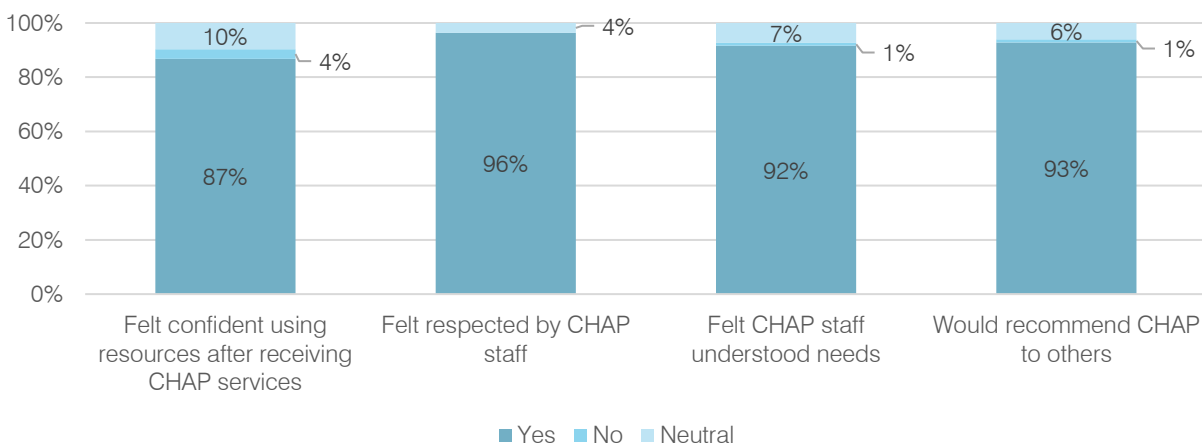
EXHIBIT 12. Helpfulness of Health Net Staff in Connecting Client to Resources



Note: N = 83.

Additionally, 87 percent reported they felt confident in using the recommended resources, 96 percent said they felt respected by staff, 92 percent felt staff understood their needs, and 93 percent said they would recommend CHAP to others (Exhibit 13).

EXHIBIT 13. Client Satisfaction with Services



Note: N = 83.

Changes in Healthcare Utilization

PSC analyzed healthcare utilization among children and adults with Priority Health–provided Medicaid coverage who also received CHAP services, primarily focusing on ED visits and inpatient hospitalizations. PSC also assessed Priority Health Medicaid beneficiaries who were referred to but did not receive tangible CHAP services.⁴ Comparing these groups helps determine the likelihood that any utilization rate reductions are due to Health Net’s services.

For children and adults either served by or referred to Health Net, PSC compared utilization rates in the year prior to and the year following the date of the individual’s first tangible CHAP service or referral for services. This allows for a comparison of pre- and post-CHAP healthcare utilization between these two populations.

Finally, PSC analyzed utilization trends among Priority Health Medicaid beneficiaries in Kent County who were neither referred to nor served by Health Net. To compare utilization among these populations with Priority Health members who did not interact with Health Net at all, PSC calculated annual utilization rates for all three populations for 2016–2019.

In addition to ED visits and inpatient hospitalizations, PSC reviewed primary care utilization among children and adults who either received or were referred for CHAP services. For children who received CHAP services, PSC also analyzed measures of preventive care services, including appropriately timed lead screenings and well-child visits for children ages three to six.

The analysis is limited to Priority Health Medicaid beneficiaries between the ages of one and 65 who had at least six months of Medicaid program eligibility in each analysis year.⁵ Of the 5,069 children and adults who received their first tangible CHAP service between 2017 and 2018, 971 children and 423 adults were eligible for inclusion in this analysis. Of the 1,945 children and adults referred to Health Net for CHAP services in 2017 and 2018 but did not receive those services, 386 children and 158 adults were eligible for inclusion in the analysis.⁶ PSC conducted separate analyses for children aged one to 17 and for adults aged 18 to 64.

Unless otherwise noted, the following exhibits show the findings in rates per 1,000 member months, which is calculated by dividing the total number of events (ED visits or inpatient hospitalizations) in the relevant age group by the total number of months of Medicaid eligibility in the relevant time period for that age group and multiplying the result by 1,000. The methodology for this analysis is provided in Appendix A.

⁴ Tangible CHAP services are phone calls with the client, appointments with the client, and transportation coordination.

⁵ Children under age one were excluded because it would artificially inflate the number of inpatient hospitalizations in the year prior to receiving or being referred for CHAP services.

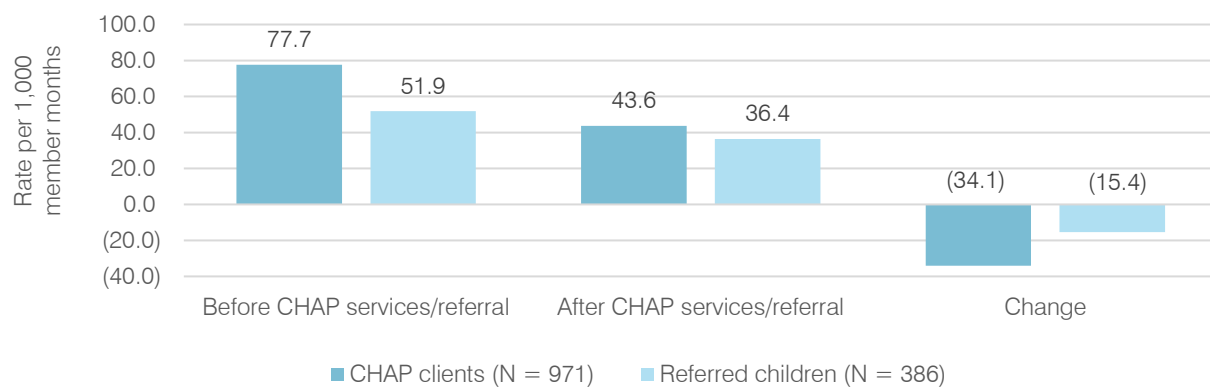
⁶ These children and adults may have received services that did not involve direct interaction with CHAP service providers, such as provider consultations, mailings, or outbound referrals.

Utilization Changes Among Children

ED Utilization

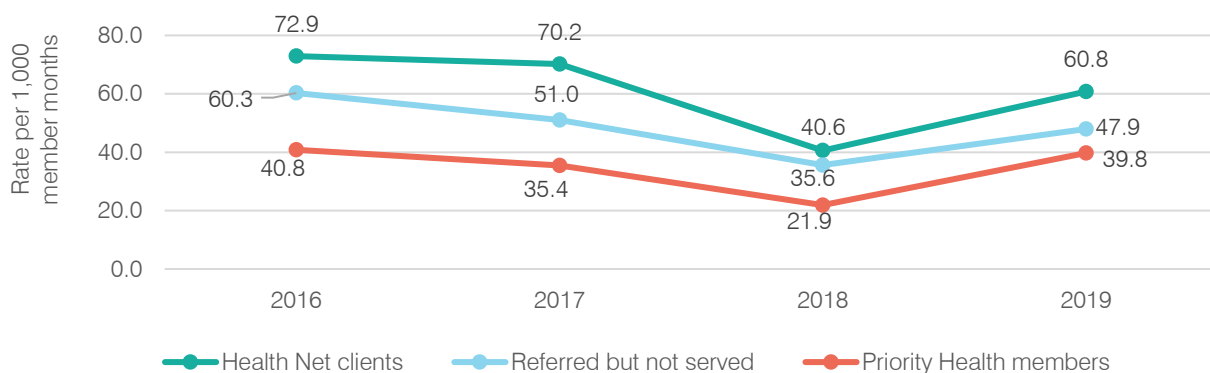
ED utilization among children who received CHAP services decreased by more than two times that of those who were referred to Health Net but did not receive any tangible services (34.1 visits per 1,000 members months compared to 15.4) (Exhibit 14). The average number of ED visits per child decreased from 0.9 to 0.5 among CHAP clients and from 0.6 to 0.4 among children who did not receive CHAP services. Both changes are statistically significant at the 99 percent confidence level. (Appendix B provides a more detailed analysis output.)

EXHIBIT 14. ED Utilization per 1,000 Member Months Before and After Receiving or Being Referred for CHAP Services, Children Aged One to 17



Comparing annual ED utilization rates among Health Net clients, children referred for services, and children neither referred nor served shows the general trend of ED utilization among the three populations (Exhibit 15). The trend lines are similar across these populations, with children who received CHAP services experiencing a greater decline between 2017 and 2018 and a greater increase between 2018 and 2019 than the other two populations.

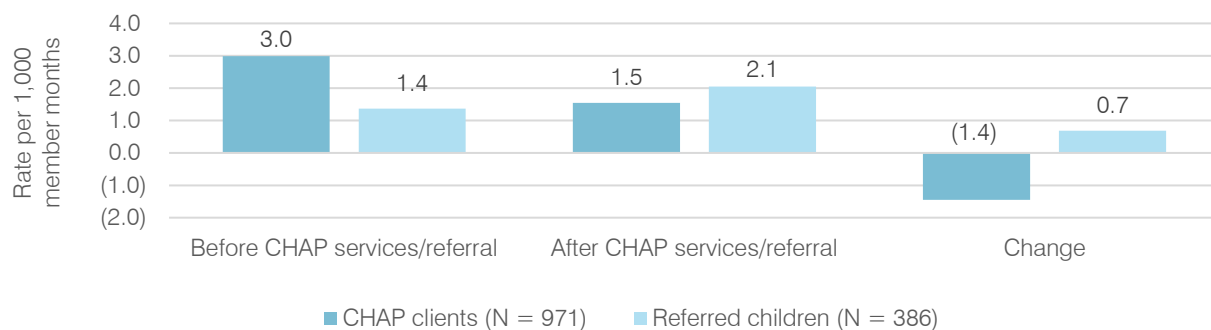
EXHIBIT 15. ED Utilization Among Children, by Population and by Year



Inpatient Hospitalization

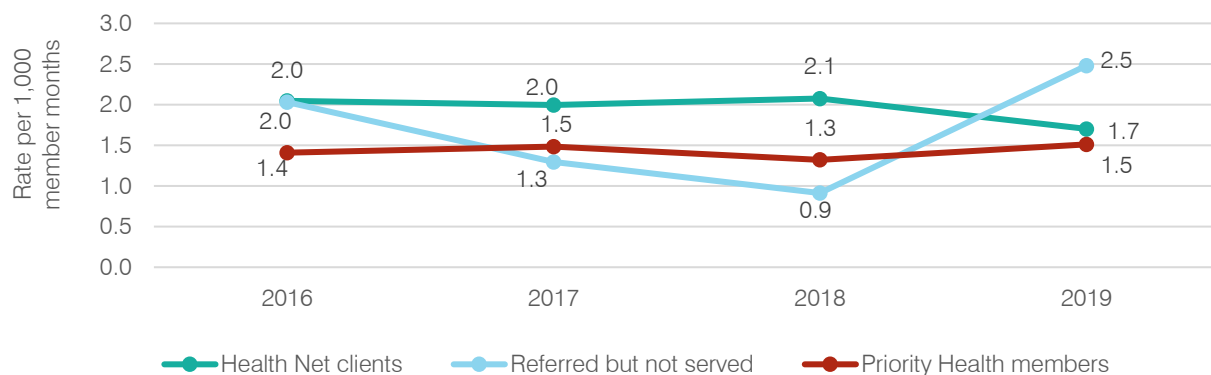
Inpatient hospitalizations among children who received CHAP services decreased by 1.4 per 1,000 member months while the rate among children who were referred for services but did not receive them increased by 0.7 (Exhibit 16). The average number of inpatient hospitalizations per child decreased from 0.3 to 0.2 among children who received CHAP services, which is statistically significant at the 95 percent confidence level. Among children who did not receive CHAP services, the average number of inpatient hospitalizations increased slightly from 0.016 to 0.023. This change is not statistically significant at any established confidence level (99 percent, 95 percent, or 90 percent).

EXHIBIT 16. Acute Inpatient Hospitalizations per 1,000 Member Months One Year Before and After Receiving or Being Referred for CHAP Services, Children Aged One to 17



Comparing annual inpatient hospitalization rates among Health Net clients, children who were referred for services, and children neither referred nor served shows these rates were similar between children who received services and the Priority Health Medicaid population. However, the overall rate decreased from 2.0 to 1.7 per 1,000 member months among children who received services while it increased slightly from 1.4 to 1.5 per 1,000 members months among Priority Health members. Among children referred for services, the rate decreased rather sharply from 2.0 to 0.9 between 2016 and 2018 before jumping to 2.5 per 1,000 member months in 2019 (Exhibit 17).

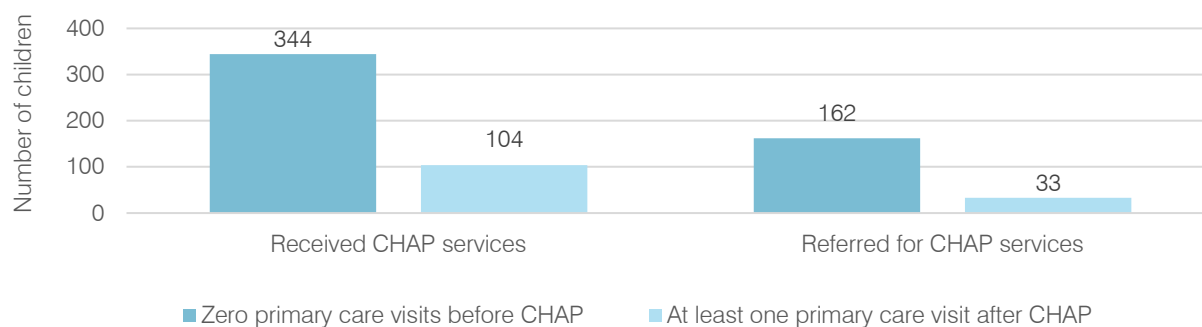
EXHIBIT 17. Acute Inpatient Hospitalizations among Children, by Population, by Year



Primary Care Utilization

In addition to helping families better manage chronic health conditions to avoid ED visits and inpatient hospitalizations, Health Net encourages families to identify and use a medical home for primary care services. Among children who received CHAP services in 2017 and 2018, 344 did not have any visits with a primary care provider in the year before their first tangible service. Among those referred to Health Net but did not receive services, 162 did not have any primary care visits in the year before their referral. Of these children, 104 (30 percent) who received services and 33 (20 percent) referred for services had at least one primary care visit in the year following their first tangible service or referral (Exhibit 18).

EXHIBIT 18. Increase in Primary Care Visits Among Children with No Primary Care Visits Before First Tangible CHAP Service or Referral



Well-child Visits and Lead Screenings

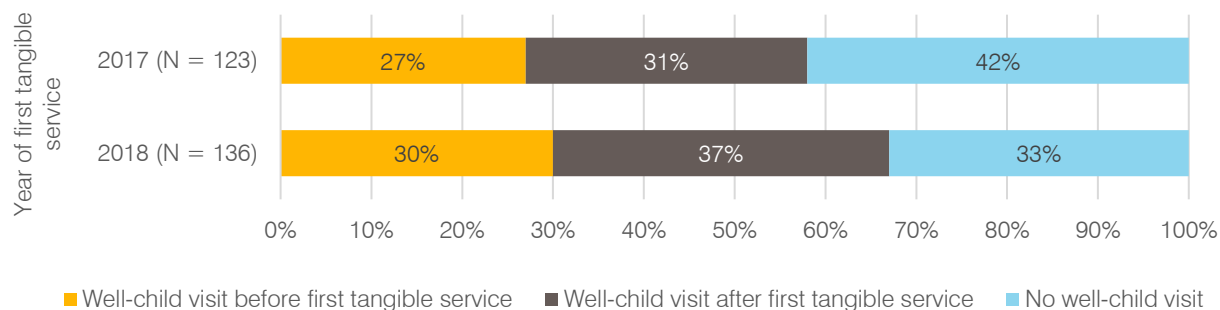
PSC used Priority Health’s PCP Incentive Program (PIP) data to analyze changes in preventive care service utilization among children who received CHAP services in 2017 and 2018. PSC looked specifically at well-child visits among three- to six-year-olds and blood lead level screenings among one- to two-year-olds. Of the children included in the healthcare utilization analyses, 259 were eligible for a three- to six-year-old well-child visit in 2017 and/or 2018, and 103 were eligible for a blood lead level screening in that same time period. However, due to data reporting methods, interpreting findings is somewhat limited. Overall, the results are inconclusive on whether CHAP services increased the number of children receiving lead screenings or well-child visits. However, the majority of children who received CHAP services did receive timely lead screenings and well-child visits.

Well-child Visits

Among children whose first tangible CHAP service occurred in 2017 and who were eligible for a three- to six-year-old well-child visit in that year, 27 percent had a well-child visit in 2017 prior to their first tangible CHAP service; 31 percent had a well-child visit in 2017 after their first tangible CHAP service; and 42 percent did not have a well-child visit at any time during the year.

Of children whose first tangible CHAP service occurred in 2018, 30 percent had a well-child visit in 2018 prior to their first tangible CHAP service; 37 percent had a well-child visit in 2018 after their first tangible CHAP service; and 33 percent did not have a well-child visit at any time during the year (Exhibit 19).

EXHIBIT 19. Well-child Visit Compliance by Year of First Tangible CHAP Service



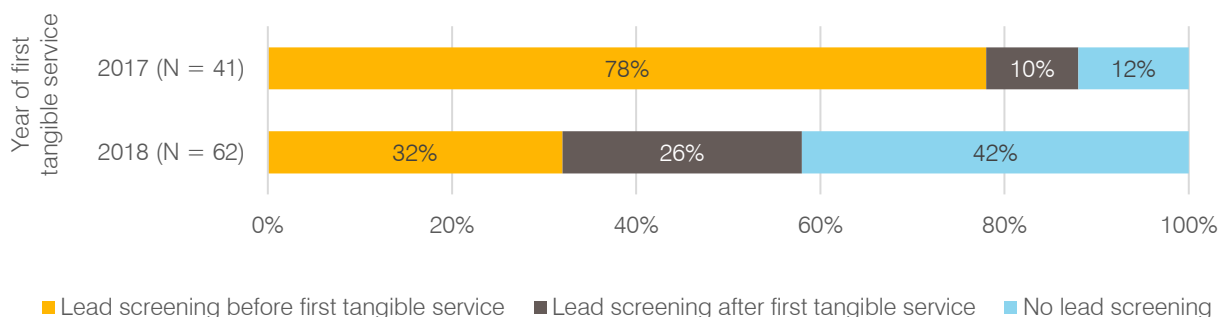
Among children aged three to six who received CHAP services in 2017 and 2018, the percentage who had appropriately timed well-child visits increased from 58 percent in 2017 to 67 percent in 2018. According to the Michigan Department of Health and Human Services (MDHHS), approximately 75 percent of children aged three to six with Priority Health Medicaid coverage had appropriately timed well-child visits in 2017 and 2018 (MDHHS 2017; MDHHS 2018).

Lead Screenings

Among children whose first tangible CHAP service occurred in 2017 and who were eligible for a lead screening in that year, 78 percent received a lead screening before their first tangible service; 10 percent received a lead screening after their first tangible service; and 12 percent did not have a lead screening at any time during the year.

Of children whose first tangible CHAP service occurred in 2018 and who were eligible for a lead screening in that year, 32 percent received a lead screening before their first tangible service; 26 percent received a lead screening after their first tangible CHAP service; and 42 percent did not have a lead screening at any time during the year (Exhibit 20).

EXHIBIT 20. Lead Screening Compliance by Year of First Tangible CHAP Service



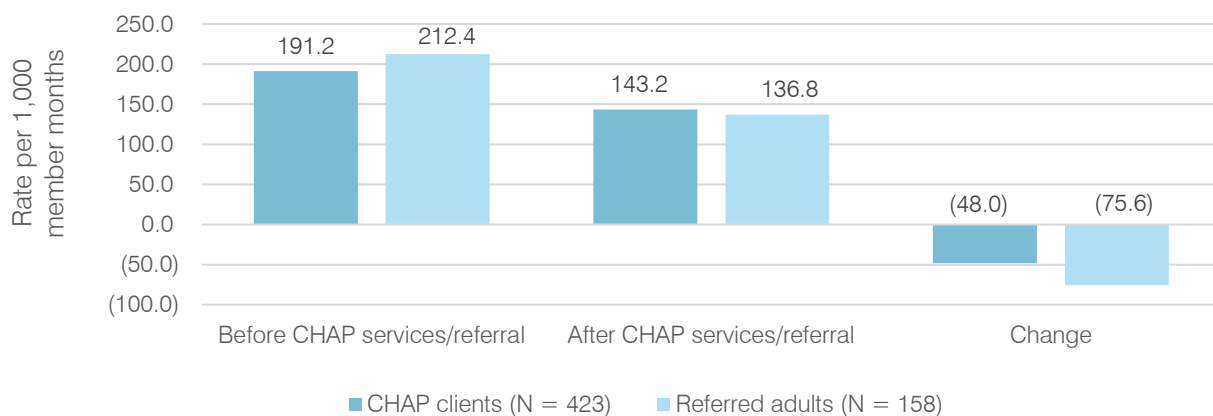
Among children who received CHAP services in 2017 and 2018, the percentage who received an appropriately timed lead screening decreased from 88 percent in 2017 to 58 percent in 2018. The reason for the decrease is unclear. Approximately 85 percent of children covered by Medicaid through Priority Health had appropriately timed lead screenings in 2017 and 2018 (MDHHS 2017; MDHHS 2018).

Utilization Changes Among Adults

ED Utilization

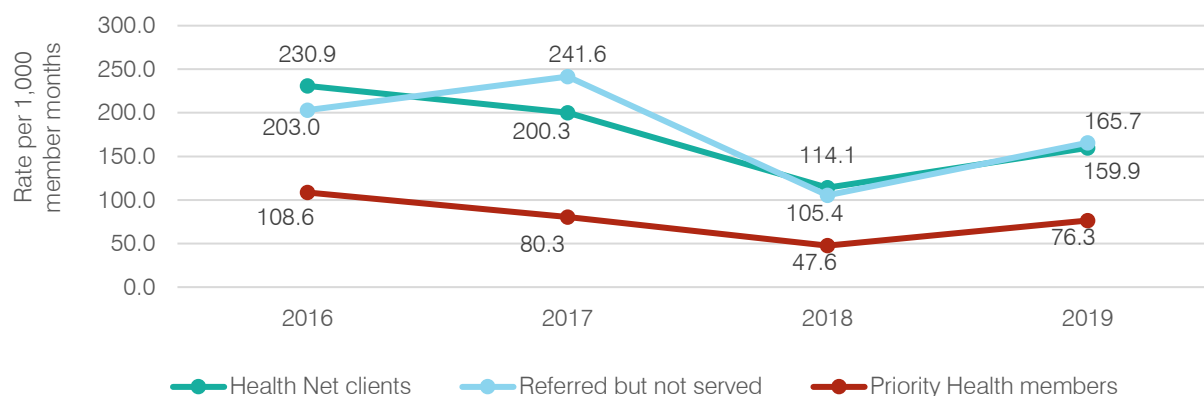
While the rate of ED visits decreased among adults who received CHAP services by 48.0 visits per 1,000 member months, the rate of decrease was greater among adults who were referred to Health Net but did not receive any tangible CHAP services (75.6 visits per 1,000 member months) (Exhibit 21). The average number of ED visits per adult decreased from 2.1 to 1.6 among those who received CHAP services and from 2.3 to 1.5 among those who did not. Both of these changes are statistically significant at the 99 percent confidence level. (Appendix B provides a more detailed analysis output.)

EXHIBIT 21. ED Utilization per 1,000 Member Months One Year Before and After Receiving or Being Referred for CHAP Services, Adults Aged 18 to 64



Comparing annual ED utilization rates among those who received CHAP services, those who were referred for CHAP services, and Priority Health Medicaid members in Kent County who were neither referred nor served, shows a similar trend in ED utilization between the adults referred for but did not receive CHAP services and Priority Health Medicaid members (Exhibit 22). Adults who received CHAP services experienced an increase in ED visits between 2016 and 2017 but otherwise followed a similar trend to the other two groups in 2018 and 2019.

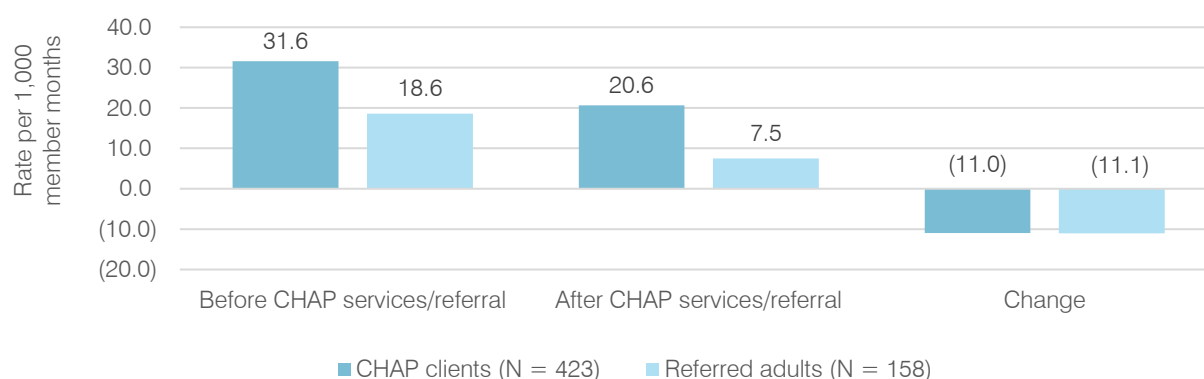
EXHIBIT 22. ED Utilization Among Adults, by Population and Year



Inpatient Hospitalization

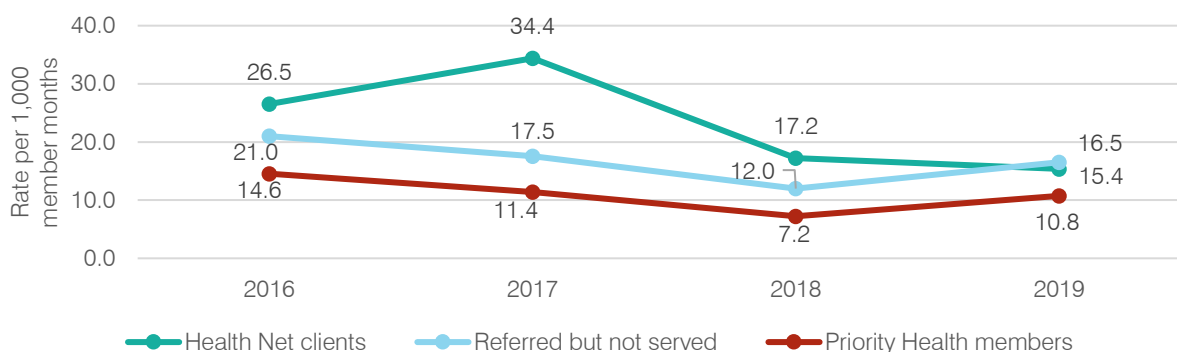
Inpatient hospitalization rates decreased by about 11 hospitalizations per 1,000 member months among adults who received CHAP services and among adults referred to Health Net but did not receive any tangible CHAP services (Exhibit 23). The average number of inpatient hospitalizations among CHAP clients decreased from 0.34 to 0.23, while the average number of hospitalizations among adults who did not receive CHAP services decreased from 0.2 to 0.08. Both of these changes are statistically significant at the 99 percent confidence level. (Appendix B provides more detailed analysis output.)

EXHIBIT 23. Acute Inpatient Hospitalizations 12 Months Before and After Receiving Health Net CHAP Services, Adults Aged 18 to 64



Comparing inpatient hospitalization rates among the three populations from 2016 to 2019 shows the adults who were referred for but did not receive CHAP services and Priority Health Medicaid members in Kent County followed a very similar pattern of inpatient hospitalizations across all four years. Adults who received CHAP services experienced an increase in hospitalizations between 2016 and 2017 before decreasing to rates similar to those among the other two groups in 2018 and 2019 (Exhibit 24).

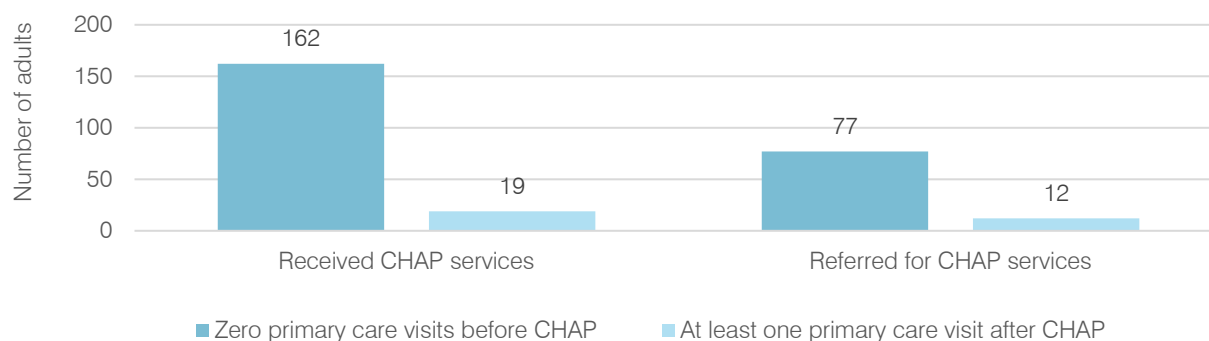
EXHIBIT 24. Acute Inpatient Hospitalizations Among Adults, by Population and Year



Primary Care Utilization

Among adults aged 18 to 64 who received CHAP services in 2017 and 2018, 162 did not have any visits with a primary care provider in the year before their first tangible service. Among those who were referred to Health Net but did not receive services, 77 did not have any primary care visits in the year before their referral. Of these adults, only 19 (12 percent) who received services and 12 (16 percent) who were referred for services had at least one primary care visit in the year following their first tangible service or referral (Exhibit 25).

EXHIBIT 25. Change in Primary Care Visits Among Adults Who Received CHAP Services



The apparently limited impact of CHAP services on adults mirrors findings from other studies of similar programs. When the Camden Coalition of Healthcare Providers studied the effects of its care management intervention for adults with complex needs using a randomized control trial, they found no statistical difference between treatment and control groups in hospital readmissions (Truchil, Wiest, and Karuna 2020). They did, however, find a significant increase in program participants receiving food assistance. Focusing on access to community resources and other quality-of-life measures may provide a more complete, accurate picture of the success of services designed to support adults.

Cost Savings Estimates

There are many outcomes that can be used to define a program’s success, including financial savings. With the data available, it is possible to estimate a portion of the cost savings associated with CHAP services based on reductions in ED visits and inpatient hospitalizations. It is important to note, however, these figures would represent immediate savings that would accrue to Priority Health. Longer-term savings are likely to occur due to improved care access and more effective, regular care. Families are likely to see savings as well due to lower out-of-pocket healthcare expenses and fewer missed workdays.

The reductions in ED visits and inpatient hospitalizations among children who received CHAP services compared to those who were only referred for services suggest that CHAP services had a considerable impact on the population served. The results for the adult population, however, were less conclusive. The reduction in ED visits among adults who received CHAP services was smaller than adults only referred for services, with the reduction in inpatient hospitalizations remaining the same among the two populations.

Because the findings among adults are inconclusive, PSC estimated cost savings associated with reductions in ED visits and inpatient hospitalizations for only children. To estimate these figures, PSC first calculated utilization rates per 100 children among those who received CHAP services and those who were referred for but not did not receive those services (Exhibit 26).

EXHIBIT 26. Change in ED Visits and Inpatient Hospitalizations per 100 Children

Population	ED Visits per 100 Children			Inpatient Hospitalizations per 100 Children		
	Pre-CHAP	Post-CHAP	Change	Pre-CHAP	Post-CHAP	Change
Health Net clients	88.4	49.5	(38.9)	3.4	1.8	(1.6)
Referred children	59.1	41.5	(17.6)	1.6	2.4	0.8
Difference	29.3	8.0	(21.3)	1.8	(0.6)	(2.4)

Using the difference between utilization changes for each population, PSC applied the average cost per event to identify the estimated savings per 100 children and then estimated the savings per child served. Health Net estimated its average expenditure per child served in 2018 at \$372. This results in a benefit-cost ratio of 1.5, suggesting the program generates \$1.50 in cost savings per \$1.00 spent delivering services for children (Exhibit 27).

EXHIBIT 27. Cost Benefit Ratio of CHAP Services Provided to Children Aged One to 17

Event Type	Reduction per 100 Children	Average Cost per Event	Savings per 100 Children	Savings per Child Served	Cost per Child Served	Benefit-cost Ratio
ED visit	21.3	\$751	\$15,983.85	\$160		
Inpatient hospitalization	2.4	\$16,144	\$38,745.60	\$387		
			\$54,729.45	\$547	\$372	1.5

Source: Agency for Healthcare Research and Quality. n.d.

This benefit-cost ratio is quite conservative. By using the difference between the rate changes for the two populations—rather than using the rate reductions for children who received CHAP services to calculate the cost savings—PSC assumes that only excess reductions can be attributed to CHAP services. It is possible, however, that some portion of the reduction in ED visits among children who did not receive services could be attributed to CHAP as well. While they did not receive direct tangible services, they may have received indirect services, such as a referral to an external resource or a mailing with education materials, that led to behavioral changes.

Conclusion

The CHAP model has contributed to demonstrably positive outcomes for children in Kent County. By using this model to connect children and families to a medical home and address needs related to the social determinants of health, the program appears to have reduced inappropriate use of the ED, helped families avoid inpatient hospitalizations, and increased appropriate use of primary care services. However, the benefit of the types of CHAP services provided to adults in 2017 and 2018 is less clear based on the data available and the analyses conducted. Rates of ED visits and inpatient hospitalizations decreased among adults who receive CHAP services, but those reductions were either the same or smaller than among adults who were referred for but did not receive CHAP services. Additionally, primary care utilization among both populations changed at similar rates.

It is possible that adults' health and other needs are more complex than those of the children served by Health Net and, therefore, require more intensive intervention. Health Net is continually striving to innovate and strengthen its care model, including identifying new, more efficient ways to serve its clients. As noted in the introduction, in the last two years, Health Net has begun providing more intensive interventions to adults through its AHC program and has expanded the services available to children and families through its ECS program. The results of these programmatic changes, however, are not reflected in the analysis.

It is also likely that new ways of defining and measuring success will be necessary. While reductions in ED visits and inpatient hospitalizations reflect more effective management of chronic conditions and stronger connections with primary care providers, these measures offer a narrow view of the overall impact of Health Net’s services. In its report of results and lessons learned from its randomized control trial, the Camden Coalition of Healthcare Providers concluded the following: “In the case of people with complex needs who are accessing multiple sectors, measures of success and the model for calculating return on investment needs to be complex and nuanced” (Truchil, Wiest, and Karuna, 2020, 9). Focusing on access to community resources and other quality-of-life measures may provide a more complete, accurate picture of the success of Health Net’s adult services.

Health Net has a strong history of successfully delivering services to both children and adults. This assessment reaffirms its success in serving children while also pointing to the need for more comprehensive success measures for the types of services Health Net delivers.

References

- Agency for Healthcare Research and Quality. n.d. "Number of People in Thousands, United States, 1996–2018: Medical Expenditure Panel Survey. *Agency for Healthcare Research and Quality* . Accessed November 30, 2020. https://www.meps.ahrq.gov/mepstrends/hc_use/
- Michigan Department of Health and Human Services. November 2017. *2017 HEDIS Aggregate Report for Michigan Medicaid*. Lansing: Michigan Department of Health and Human Services. Accessed November 23, 2020. https://www.michigan.gov/documents/mdhhs/MI2017_HEDIS-Aggregate-Report_609167_7.pdf
- . October 2018. *2018 HEDIS Aggregate Report for Michigan Medicaid*. Lansing: Michigan Department of Health and Human Services. Accessed November 23, 2020. https://www.michigan.gov/documents/mdhhs/MI2018_HEDIS-Aggregate_Report_F1_638961_7.pdf
- Truchil, Aaron, Dawn Wiest, and Teagan Karuna. January 2020. *Results and Lessons from the Camden Coalition's Randomized Control Trial*. Camden: Camden Coalition of Healthcare Providers. Accessed November 23, 2020. <https://camdenhealth.org/wp-content/uploads/2020/01/Results-and-lessons-from-the-Camden-Coalitions-RCT-FINAL.pdf>

Appendix A: Healthcare Utilization Analysis Methodology

PSC analyzed Priority Health claims data—obtained through a Business Associate Agreement with Health Net of West Michigan—for Medicaid beneficiaries who initiated services with Health Net’s CHAP in 2017 and 2018 as well as Medicaid beneficiaries referred to Health Net for CHAP Services in 2017 and 2018 but did not receive them. PSC analyzed changes in the rates of ED visits and inpatient hospitalizations among both of these populations to assess the likelihood that improvements seen among people who received CHAP services can be attributed to those services.

Priority Health data include healthcare event data and PCP Incentive Program (PIP) data for the years 2016 through 2019 for Priority Health Medicaid enrollees whose primary care providers are affiliated with Health Net. PIP data are used to track whether healthcare providers patients are receiving routine preventive services (e.g., well-child visits) according to Healthcare Effectiveness Data and Information Set (HEDIS) guidelines. Health Net provided client member information and service delivery data for child and adult clients who received CHAP services in 2017 and 2018.

Analysis Parameters

- To be included in the analysis, Health Net CHAP clients as well as referred-but-not-served clients must:
 - Have a first tangible service date or referral date between January 1, 2017, and December 31, 2018
 - Have at least six months of Medicaid eligibility in the year before their first tangible service date or referral date and at least six months of Medicaid eligibility in the year following their first tangible service date or referral date
 - Be between the ages of one and 64
- Priority Health Medicaid beneficiaries in Kent County who were neither referred nor served had to have at least six months of Medicaid eligibility in each year of the analysis and be between the ages of one and 64.
- Priority Health events included in the analysis are ED visits, inpatient hospitalizations, primary care provider office visits, well-child visits among three- to six-year-olds, and child lead screenings.

Data Sets for Analysis

Pre- and Post-CHAP Analysis Data Sets

Health Net CHAP client data and referred-but-not-served client data were merged with Priority Health member information using the following Health Net fields:

- Primary contract ID
- Secondary contract ID
- Tertiary contract ID
- Priority Health member Medicaid ID

This eliminated any Health Net and referred-but-not-served clients not covered by Medicaid since the Priority Health data set only includes Medicaid enrollees.

- Health Net provided data including the number of months for which each CHAP client with a first tangible service date or referral date in 2017 or 2018 was eligible for Medicaid in the 12 months before and after their first tangible service date or referral date. Clients who did not have at least six months of Medicaid eligibility in the year before and after their first tangible service or referral date were filtered out of the data set.
- The data sets with the Health Net clients and referred-but-not-served clients eligible for this analysis were then matched with the Priority Health event information data file using the member code field.
- Pre-CHAP and Post-CHAP events were identified based on the event begin date field and either the first tangible service date field (for CHAP clients) or the date of analysis field (for referred but not served clients). Events not defined as pre- or post-CHAP events were then filtered out of the data set.

Year-over-year Analysis Data Sets

To enable an analysis of utilization trends among Health Net CHAP clients, referred-but-not-served clients, and Priority Health members who were neither referred nor served, PSC created four data sets for each population for each year of the analysis (2016 through 2019). For each population, PSC worked with Health Net staff to identify the number of months each person was eligible for Medicaid in each year.

For consistency, children and adults not included in the pre- and post-CHAP analyses were not included in the year-over-year analyses for these populations. That is, children and adults whose first tangible CHAP service or referral occurred in 2017 or 2018 who were ineligible for inclusion in the pre- and post-CHAP analysis due to an insufficient number of Medicaid eligibility months were not included in the year-over-year analysis—even if they had more than six months of eligibility in one of the four years covered in the analysis. In addition, each child or adult who was included in the pre- and post-CHAP analysis is only included in the year-over-year analysis in the years in which they had at least six months of eligibility. Priority Health Medicaid beneficiaries were only included in the year-over-year analysis for the years in which they had at least six months of Medicaid eligibility.

Appendix B: Output for Statistical Significance Tests on ED Visits and Inpatient Hospitalizations

Group One: Referred and Served

T-Test: Paired Two Sample for Means Child ED

	Child Pre-CHAP ED	Child Post-CHAP ED
Mean	0.884	0.495
Variance	2.093	1.048
Standard Deviation	1.447	1.024
Observations	971	971
Pearson Correlation	0.389	
Hypothesized Mean Difference	0	
df	970	
t Stat	8.580	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.646	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.962	

T-Test: Paired Two Sample for Means Child Inpatient (IP) Hospitalizations

	Child Pre-CHAP IP	Child Post-CHAP IP
Mean	0.034	0.018
Variance	0.066	0.030
Standard Deviation	0.257	0.172
Observations	971	971
Pearson Correlation	0.243	
Hypothesized Mean Difference	0	
df	970	
t Stat	1.888	
P(T<=t) one-tail	0.030	
t Critical one-tail	1.646	
P(T<=t) two-tail	0.059	
t Critical two-tail	1.962	

T-Test: Paired Two Sample for Means Adult ED

	Adult Pre-CHAP ED	Adult Post-CHAP ED
Mean	2.087	1.591
Variance	9.497	5.835
Standard Deviation	3.082	2.416
Observations	423	423
Pearson Correlation	0.569	
Hypothesized Mean Difference	0	
df	422	
t Stat	3.899	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.648	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.966	

T-Test: Paired Two Sample for Means Adult IP

	Adult Pre-CHAP IP	Adult Post-CHAP IP
Mean	0.345	0.229
Variance	0.516	0.613
Standard Deviation	0.718	0.783
Observations	423	423
Pearson Correlation	0.217	
Hypothesized Mean Difference	0	
df	422	
t Stat	2.533	
P(T<=t) one-tail	0.006	
t Critical one-tail	1.648	
P(T<=t) two-tail	0.012	
t Critical two-tail	1.966	

Group Two: Referred and Not Served

T-Test: Paired Two Sample for Means Child ED

	Child Pre-CHAP ED	Child Post-CHAP ED
Mean	0.591	0.415
Variance	0.970	0.773
Standard Deviation	0.985	0.879
Observations	386	386
Pearson Correlation	0.283	
Hypothesized Mean Difference	0	
df	385	
t Stat	3.093	
P(T<=t) one-tail	0.001	
t Critical one-tail	1.649	
P(T<=t) two-tail	0.002	
t Critical two-tail	1.966	

T-Test: Paired Two Sample for Means Child IP

	Child Pre-CHAP IP	Child Post-CHAP IP
Mean	0.016	0.023
Variance	0.015	0.054
Standard Deviation	0.124	0.232
Observations	386	386
Pearson Correlation	0.168	
Hypothesized Mean Difference	0	
df	385	
t Stat	-0.625	
P(T<=t) one-tail	0.266	
t Critical one-tail	1.649	
P(T<=t) two-tail	0.532	
t Critical two-tail	1.966	

T-Test: Paired Two Sample for Means Adult ED

	Adult Pre-CHAP ED	Adult Post-CHAP ED
Mean	2.316	1.500
Variance	12.485	7.844
Standard Deviation	3.533	2.801
Observations	158	158
Pearson Correlation	0.638	
Hypothesized Mean Difference	0	
df	157	
t Stat	3.700	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.655	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.975	

T-Test: Paired Two Sample for Means Adult IP

	Adult Pre-CHAP IP	Adult Post-CHAP IP
Mean	0.203	0.082
Variance	0.201	0.152
Standard Deviation	0.448	0.390
Observations	158	158
Pearson Correlation	0.123	
Hypothesized Mean Difference	0	
df	157	
t Stat	2.714	
P(T<=t) one-tail	0.004	
t Critical one-tail	1.655	
P(T<=t) two-tail	0.007	
t Critical two-tail	1.975	



**PUBLIC SECTOR
CONSULTANTS**

230 N. Washington Square
Suite 300
Lansing, MI 48933