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The Relationship between Service Utilization and Medicaid Enrollees' Trust in Health Care Providers

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The Relationship Between Service Utilization and Medicaid Enrollees' Trust in Health Care Providers

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Executive Summary

Based on findings from 1990 National Co-morbidity Survey, it is estimated that nearly 20% of the U.S. population is affected by mental disorders during a given year. Approximately 5.4% of adults are considered to have a serious mental illness that interferes with their social function, and half of them suffer from severe and persistent mental illness (SMI). Mental illness imposes a high socioeconomic burden that is second only to cardiovascular disease (Kessler, Berglund, Zhao et al., 1996; Kessler, McGonagle, Zhao et al., 1994).

Among individuals with SMI, 40% do not seek any treatment from either general medical or specialty mental health providers (Regier, Narrow, Rae et al., 1993). In addition, persons with SMI tend to have more co-morbid health and/or substance abuse conditions. They also have higher mortality rates for both natural and unnatural causes compared to the general population (Bazemore, 1996; Berren, Hill, Merikle et al., 1994; Black, Warrack, & Winoker, 1995; Newman & Bland, 1991). However, among individuals with co-morbid physical and mental health conditions, only one-third of them receive mental health treatment from either general health or mental health care providers. In Florida, evaluation results of Medicaid health services indicate between 15% and 20% of individuals with SMI did not use any mental health services. These findings lead us to question why individuals who likely should be receiving services do not use them. One theory is that the level of trust a person has in his or her provider is an important factor associated with disabled individuals' use of health/mental health services.

Valey and his colleagues found that trust, honesty, and respect are essential ingredients for successful treatment (Valey, Krone, & Gerbino, 1998). Other investigators have found that people's trust in their health care providers has an important influence on various health care outcomes including, adherence to treatment, satisfaction with the services received, continuation of relationships with service providers, and remaining in the same health plan (Chen, 2001; Kao, Green, David et al., 1998a; Kao, Green, Zaslavsky et al., 1998b; Thom & Campbell, 1997). These results suggest that people's trust in their health care providers is an important factor associated with their health service utilization behaviors.

The purpose of this study was to examine the relationships among Medicaid recipients' trust in their health care providers and their service use. Using mail survey and administrative claims data to answer the following specific questions:

1. What are characteristics of enrollees of the four health care financing arrangements?
2. What is the relationship between enrollees' level of trust in their health care providers and their service use?
3. What is the prevalence of enrollees discontinuing service use? To what extent is their discontinuation of services related to their trust in their health care professionals?
4. To what extent is trust associated with the use of high or low cost treatment modalities?

The results of this analysis show that adult HMO and HMO/FFS enrollees were significantly younger than adults enrolled in either the FFS or PMHP plan. Adult and child enrollees in the HMO and HMO/FFS plans were more likely to be African-American compared to adult and child enrollees in both the FFS or PMHP plans.

With respect to health status, adult HMO/FFS enrollees were in significantly poorer physical health compared to adults enrolled in the FFS and PMHP plans. Adult HMO/FFS enrollees also experienced significantly more psychiatric symptoms compared to adults in the PMHP plan. No significant differences were found in children's psychiatric symptoms across the four health care plans.

Enrollees' level of trust in their health care providers was significantly related to the use of services among both adults and children. Adults service users and the caregivers of children who used services during the year preceding the mail survey reported significantly higher levels of trust in their health care providers compared to enrollees who did not use service. In addition, the type of health care plan (i.e., managed versus non-managed) in which individuals were enrolled was also a significant predictor related to trust in health care professionals among adult enrollees. Adults enrolled in a managed physical health plan had significantly lower levels of trust in their health care providers and were less likely to use services compared to adults enrollees in a non-managed plan. However, this finding did not hold for children. Rather, a child's age was a significant predictor of caregivers' levels of trust in their children's health care providers. Caregivers with younger children were significantly more likely to trust their children's health care providers compared to caregivers with older children.

Approximately 18% to 20% of enrollees in the FFS and PMHP plans stopped using services for a period of six months or longer during year preceding the mail survey. A substantially higher proportion of the HMO and HMO/FFS enrollees discontinued services, more than 70%. These disproportionate rates of stopping service use are likely attributable to lack of managed care encounter data. Therefore, additional data is required to more comprehensively examine the effects of different health arrangements on discontinuation of services and its relationship to enrollees' trust in their health care providers.

Examination of termination of service use and the use of high cost services in relation to the FFS enrollees trust in their health care providers, revealed no significant relationships. However, only including enrollees from one health plan in the analysis limits our ability to assess whether managed care impacts service utilization and its relationship with trust. Trust remains a primary concern of many scholars, researchers, and health care providers (Blumenthal, 1996; Mechanic, 1996, 1997; Mechanic & Schlesinger, 1996). Further study including managed care service utilization data is needed to more fully understand the relationship between enrollees' trust in their health care providers and their service utilization patterns.

Background

Based on findings from 1990 National Co-morbidity Survey, it is estimated that nearly 20% of the U.S. population is affected by mental disorders during a given year. Approximately 5.4% of adults are considered to have a serious mental illness that interferes with their social function, and half of them suffer from severe and persistent mental illness (SMI). Mental illness imposes a high socioeconomic burden that is second only to cardiovascular disease (Kessler, Berglund, Zhao et al., 1996; Kessler, McGonagle, Zhao et al., 1994).

Among individuals with SMI, 40% do not seek any treatment from either general medical or specialty mental health providers (Regier, Narrow, Rae et al., 1993). In addition, persons with SMI tend to have more co-morbid health and/or substance abuse conditions. They also have higher mortality rates for both natural and unnatural causes compared to the general population (Bazemore, 1996; Berren, Hill, Merikle et al., 1994; Black, Warrack, & Winoker, 1995; Newman & Bland, 1991). However, among individuals with co-morbid physical and mental health conditions, only one-third of them receive mental health treatment from either general health or mental health care providers. In Florida, evaluation results of Medicaid health services indicate between 15% and 20% of individuals with SMI did not use any mental health services. These findings lead us to question why individuals who likely should be receiving services do not use them. One theory is that the level of trust a person has in his or her provider is an important factor associated with disabled individuals' use of health/mental health services.

Valey and his colleagues found that trust, honesty, and respect are essential ingredients for successful treatment (Valey, Krone, & Gerbino, 1998). Other investigators have found that people's trust in their health care providers has an important influence on various health care outcomes including, adherence to treatment, satisfaction with the services received, continuation of relationships with service providers, and remaining in the same health plan (Chen, 2001; Kao et al., 1998a; Kao et al., 1998b; Thom & Campbell, 1997). These results suggest that people's trust in their health care providers is an important factor associated with their health service utilization behaviors.

Literature Review

Regular and consistent care is important for both patients and providers. Studies have found that a good therapeutic relationship can increase both patients' and providers' satisfaction, decrease hospitalization, and lower costs (Bostrom, Tisnado, Zimmerman, & Lazar, 1994; Ettner, 1996; Weiss & Blustein, 1996). Trust is the cornerstone for developing this therapeutic relationship. Direct health care providers, such as physicians and nurses, serve as agents for their patients within the health care system. Patients rely on their health care providers to advocate and prioritize their health needs and services. This is particularly true when patients are disadvantaged. Few studies have investigated the effects of people's trust in their providers on their health care outcomes. Kao and his colleagues (1998a) found that individuals with higher levels of trust in their health care providers were more likely to maintain their relationships with these providers and less likely to switch health care plans compared to individuals with lower levels of trust.

In their study on the effect of professional relationships on health care outcomes in primary care settings, Thom and Campbell (1997) found that individuals with higher levels of trust in their providers were more likely to follow treatment recommendations and expressed greater satisfaction with the services they received. Similar results regarding the importance of trust have been found among disabled individuals (Chen, 2001). Using mail survey techniques she examined the relationship between adult Medicaid recipients' trust in their health care providers and their health outcomes. Chen (2001) found that individuals who were more trusting of their health care providers were less likely to discontinue prescribed medication without consulting their health professionals and reported greater satisfaction with the services they received compared to individuals with lower levels of trust in their providers. These findings document the importance that a trusting relationship may have on individuals' health service utilization, and suggest that trust may also be indirectly related to their health care costs. However, the studies conducted to date have been primarily cross sectional and only focused on individuals who used services. Therefore, these studies provide limited empirical evidence to draw conclusions about whether trust has a direct impact on individuals' service utilization patterns and costs.

Cost containment is a major goal of today's health care systems. Many health care organizations attempt to control cost by implementing various management strategies such as gate keeping, utilization management, and financial incentives. These efforts have raised concerns among some investigators, regarding the effect these strategies may have on patients' therapeutic relationships with their health professionals and subsequently on their access to and quality of health care received. These concerns are heightened among vulnerable populations (Blumenthal, 1996; Mechanic, 1996, 1997; Mechanic & Schlesinger, 1996). However, there is limited understanding regarding what impact patients' trust in health professional has on patients' health service utilization behaviors and health care cost.

Purpose

The purpose of this study was to examine the relationships among Medicaid recipients' trust in their health care providers, their service utilization, and health care costs. Using mail survey and administrative claims data collected as part of the evaluation of the Florida Agency of Health Care Administration's (AHCA) 1915b demonstration waiver, researchers at the Louis de la Parte Florida Mental Health Institute had an opportunity to examine the extent to which Medicaid recipients trust in their health care providers was associated with their service utilization behaviors. The specific questions addressed included:

5. What are characteristics of enrollees of the four health care financing arrangements?
6. What is the relationship between enrollees' level of trust in their health care providers and their service use?
7. What is the prevalence of enrollees discontinuing service use? To what extent is their discontinuation of services related to their trust in their health care professionals?
8. To what extent is trust associated with the use of high or low cost treatment modalities?

Design and Method

Data Sources

Three existing data sources were used to conduct these analyses. First, data from Medicaid recipients in AHCA areas 1, 3, 5, 6, and 8 who responded to the 2001 population-based mail survey conducted as part of the evaluation of AHCA's prepaid mental health plan evaluation were identified. As part of this survey, respondents completed a scale assessing their trust in their health care providers.

The mail survey responses were then linked to two administrative data sources, Medicaid claims data obtained from AHCA (fee-for-service claims only; no managed care encounter data were used) and Integrated Data System (IDS) data obtained from the Department of Children and Families (DCF). Service utilization from both data sources was obtained for survey respondents for the year prior to completion of the survey. (Even though we do not have Medicaid managed mental health care data for these analyses, providers who are state-funded by DCF/ADM are supposed to submit all services to IDS. Therefore we should have all services in these analyses that were provided by state-funded providers.) These data sources were used to examine the relationship of service utilization and respondents' trust in their health professionals.

Analytic Approach

The ultimate analytic plan was designed to examine the effect of Medicaid enrollees' trust in their health care professionals on their service utilization by comparing changes in service use from the year prior to the year after responding to the 2001 mail survey. The survey was conducted between March 2001 and June 2001, although some participants did not respond until several months after they received the survey. Given that the administrative claims currently available at FMHI are only inclusive through June 30, 2002 and that the claims data needed to conduct the one-year post survey service utilization analysis requires that data be available through the latter part of 2002, the analyses summarized in this report focus exclusively on respondents' service utilization in the year prior to completing the mail survey and relates this to respondents' levels of trust in their health care providers.

In the first phase of the analysis, physical health, mental health, and substance abuse service claims were categorized into the five defined domains:

1. hospice/nursing home care
2. day treatment,
3. emergency services,
4. inpatient service, and
5. outpatient care,

based on catcaid¹ codes and the DCF pamphlet-152 service definitions. For this analysis, day treatment and outpatient services were considered to be low cost treatment options while hospice/nursing home, inpatient services, and emergency services were considered to be high cost treatment modalities. Individuals who did not use any defined services for a continuous period of six-month or more are considered to be discontinuing service use.

Mail survey respondents' levels of trust in their health professionals were treated as outcome variables. Three service utilization variables were used to predict respondents' level of trust. These variables included: service use, stopping service use, and using high or low cost treatment services. Other covariates including individual demographic characteristics, type of health care plan (i.e., managed care versus non-managed care), length of enrollment during the previous year, and number of plan changes in the year preceding completion of the mail survey.

The type of health care plan was coded as two dichotomous variables, either under managed (1) or unmanaged (0) conditions for physical or mental health service as shown in the table below.

Management of Services Among the Four Plans

	Physical	Mental Health
FFS	Unmanaged	Unmanaged
PMHP	Unmanaged	Managed
HMO	Managed	Managed
HMO/FFS	Managed	Unmanaged

Case-mix adjustment procedures based on the demographic distribution of participants were used to control for the selection bias among enrollees across the four plans. t-tests and analyses of variance were used to examine differences across plans in physical and mental health functioning of enrollees. A regression model was used to examine the relationship between service utilization behaviors and respondents' trust in their health care providers.

Sample

Individuals included in this analysis were selected from among Medicaid recipients who responded to the 2001 mail survey and also met the following inclusive criteria:

1. Maintained Medicaid eligibility throughout the year preceding the survey,
2. Lived in the same geographic area throughout the year preceding the survey,
3. Received Supplemental Security Income (SSI) due to a disability condition other than head injury or mental retardation.

There were 1330 adult survey respondents who met the above inclusion criteria, 40.6% were enrolled in a fee-for-service (FFS) plan, 15.0% were enrolled in a prepaid mental health plan (PMHP), 14.7% were enrolled in a HMO plan for both physical and mental health services; and

¹ Catcaid is a health service categorical code based on IDC-9 that was generated to capture common type of services. It was developed by the Policy & Services Research Data Center in the department of mental health law & policy at Louis de la Parte Florida Mental Health Institute. Please see Attachment A for detail description.

29.8% were enrolled in a HMO plan for physical health services and a FFS plan for mental health services (HMO/FFS). Among these individuals, 18.7% lived in AHCA area 1, 11.9% lived in AHCA area 4, 19.5% lived in area AHCA 5, 29.6% lived in area AHCA 6, and 20.3% lived in area AHCA 8.

Nearly 70% of the respondents were female. Respondents' ages ranged from 21 to 69 years old, with an average age of 47.2 (SD = 11.8). No significant difference was found in the gender distribution of enrollees across the four health care plans. Concerning age, however, it was found that enrollees in the FFS and PMHP plans were significantly older than enrollees in the HMO and HMO/FFS plans ($p < .05$) (Table 1 in Appendix B).

With respect to race/ethnicity 54.3% of these adults were Caucasian, 25.2% African-American, and 20.4% were Hispanic or from other cultural groups. Enrollees in the FFS and PMHP plans were significantly more likely to be Caucasian and less likely to be African-American compared to enrollees in the HMO and HMO/FFS plans ($p < .05$).

Responses were also available from the caregivers of 946 children who met the sample inclusion criteria previously noted. Among these children, 43.7% were enrolled in FFS, 14.8% were enrolled in the PMHP, 13.0% were enrolled in an HMO, and 28.5% were enrolled in a HMO/FFS. About a third (31.4%) of the children were girls. Children's ages ranged from 5 to 21 years old and they averaged 13.5 years old (SD = 3.8). There were no significant differences in the children's gender or age across the four health plans. (Table 2 in Appendix B). Nearly one in five children (19.5%) resided in AHCA area 1, 15.2% lived in AHCA area 4, 19.6% lived in AHCA area 5, 27.8% lived in AHCA area 6, and 18.0% lived in AHCA area 8.

In terms of race/ethnicity, 29.7% of the children were Caucasian, 34.8% African-American, and 35.5% were Hispanic or from other minority groups. Children in the FFS and PMHP plans were significantly more likely to be Caucasian compared to children in the HMO and HMO/FFS plans, while children in the HMO and HMO/FFS were significantly more likely to be African-American compared to children enrolled in the FFS plan (Table 2 in Appendix B).

Approximately 10% of child and adult respondents had changed health plans during the year preceding completion of the mail survey. No significant differences were found across the four plans with respect to rate at which enrollees' switched health care plans.

Instruments

Five previously developed and psychometrically tested measures were used to collect information regarding respondents' level of trust in their health care provider, health status, and mental health status. Each of these measures is briefly described below.

Trust: The Trust in Health Care Provider Scale (TIHCPS) is a 10-item, self-report measure designed to assess respondents' level of trust in their health care providers. The measure was specifically adapted for use with a disabled population (Chen, 1999). The measure has high internal consistency ranging between .85 and .90 (Chen, 1999). Higher scores on the TIHCPS indicate respondents have a greater level of trust in their health professionals.

Health Status: For adult respondents, the SF-12, a widely used 12-item self-report measure, was used to assess their physical and mental health functional status. This measure has a high level of test-retest reliability and validity (Brazier, Jones, & Kind, 1993; McHorney, Ware, & Raczek, E., 1993; Ware, Bayliss, Rogers, & Kosinski, 1996; Ware, Kosinski, & Keller, 1995, 1996). A higher score on the SF-12 reflects a greater level of functioning. For child respondents, a subset of items from the Child Health Questionnaire (Landgraf, Abetz, & Ware, 1999) was used to measure their physical health functioning as reported by their caregivers.

Mental Health Status: For adult respondents the Colorado Symptom Index (CSI) was used to assess mental health status. The CSI is a 14-item self-report measure of psychiatric symptoms with a high level of internal consistency (Alpha = .87) (Shern, Lee, & Coen, 1997). Children’s mental health status was assessed using the Pediatric Symptom Checklist (Jellinek, Murphy, & Burns, 1986), a 35-item caregiver self-report measure.

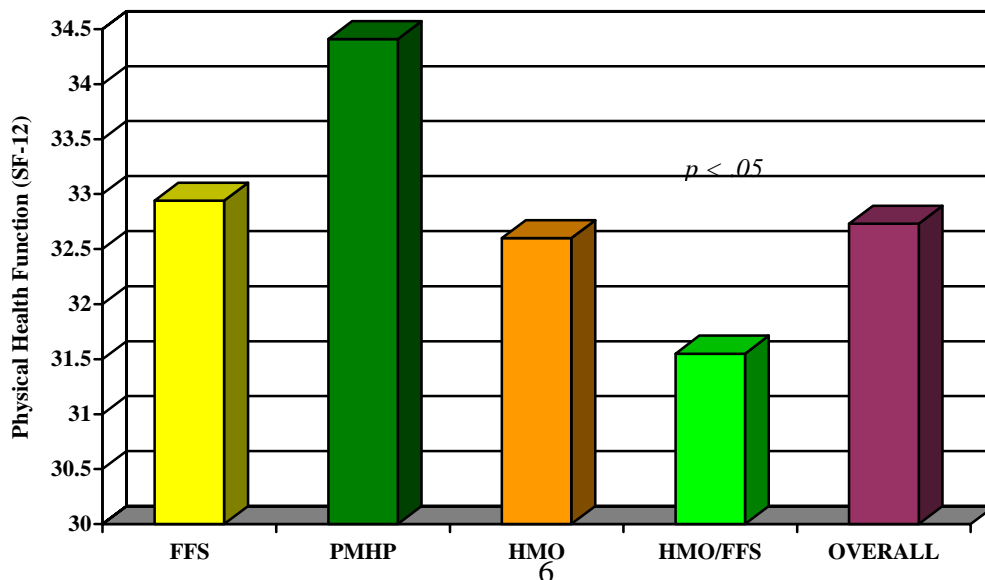
Results

I. What are the Characteristics of Enrollees in the Four Health Care Plans

A. Physical Health Condition

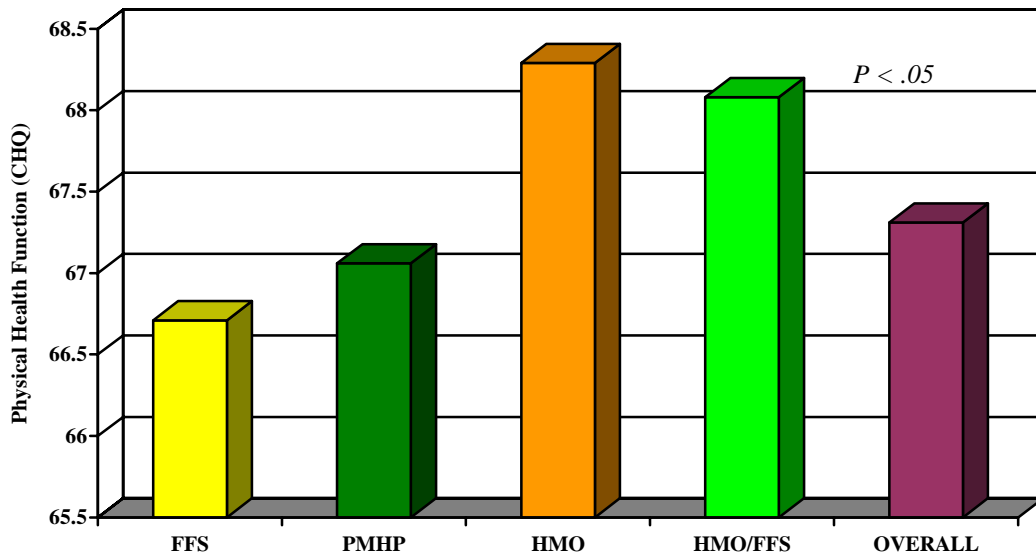
A detailed comparison of enrollees’ physical health functioning across the four is provided in Table 4-a in Appendix B. Significant differences were found in the physical health of adults enrolled in the four health plans ($p < .05$). Adult FFS and PMHP enrollees had significantly higher levels of physical health functioning than enrollees in the HMO and HMO/FFS plans (Figure 2-a).

Figure 2-a. Physical Functioning of Adults Enrolled in the Four Health Plans – Case Mix Adjusted



Significant differences were also found in the physical health status of children enrolled in the four different plans. In contrast to adults, however, children enrolled in the HMO and HMO/FFS plans had significantly higher levels of physical health functioning compared to children enrolled in the FFS plan (Figure 2-b). No significant differences were found in the physical health function of children enrolled in the PMHP plan compared to children enrolled in the other three plans.

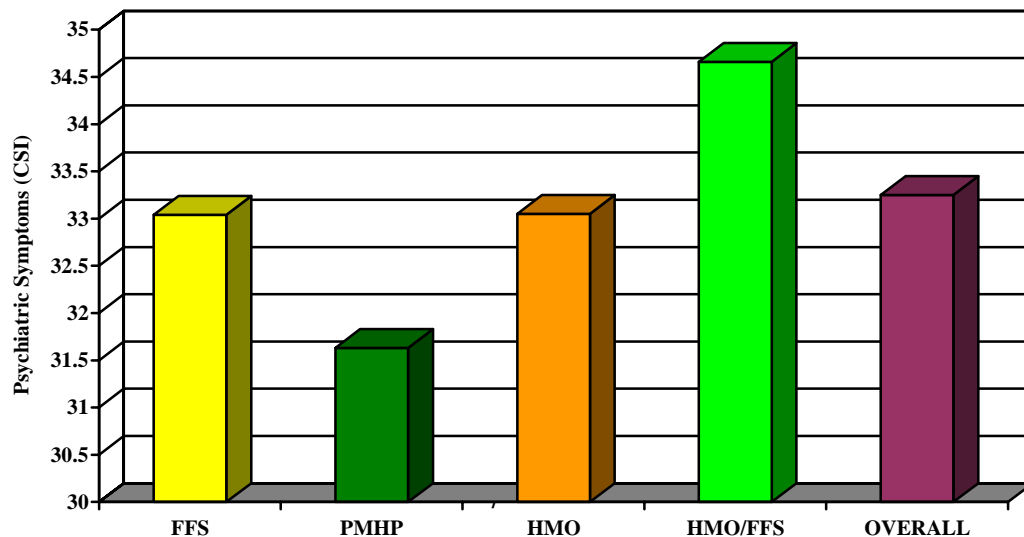
Figure 2-b. Physical Functioning of Children Enrolled in the Four Health Plans – Case Mix Adjusted



B. Mental Health Condition

Adults enrolled in the HMO/FFS plan had significantly more psychiatric symptoms than adults enrolled in the other three plans (Figure 3-a).

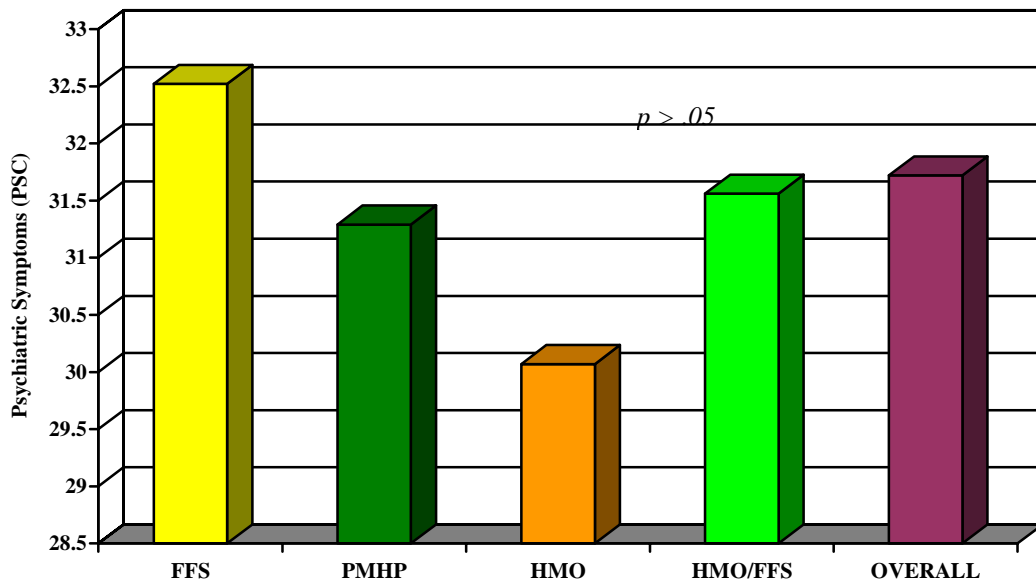
Figure 3-a. Psychiatric Symptoms of Adults Enrolled in the Four Health Plans – Case Mix Adjusted



Additionally, adults in the PMHP plan experienced significantly fewer psychiatric symptoms compared to HMO and FFS enrollees (Figure 3-a). No other comparisons among plans were statistically significant. A detailed summary of these comparisons is presented in Table 5-a in Appendix B.

No significant differences were found across the four health care plans regarding children’s psychiatric symptoms (Figure 3-b).

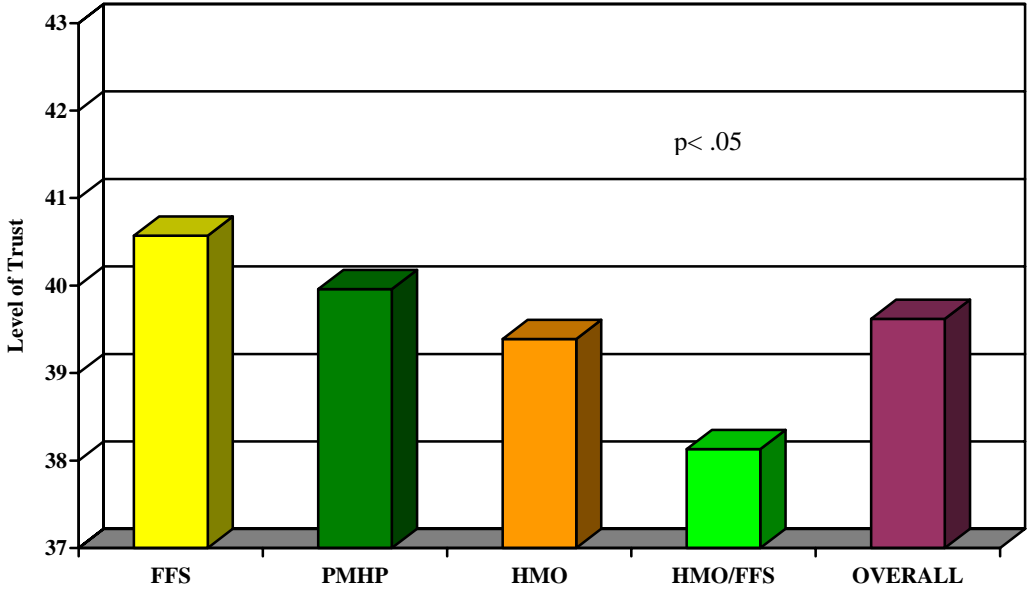
Figure 3-b. Psychiatric Symptoms of Children Enrolled in the Four Health Plans – Case Mix Adjusted



C. Level of Trust in Health Care Providers

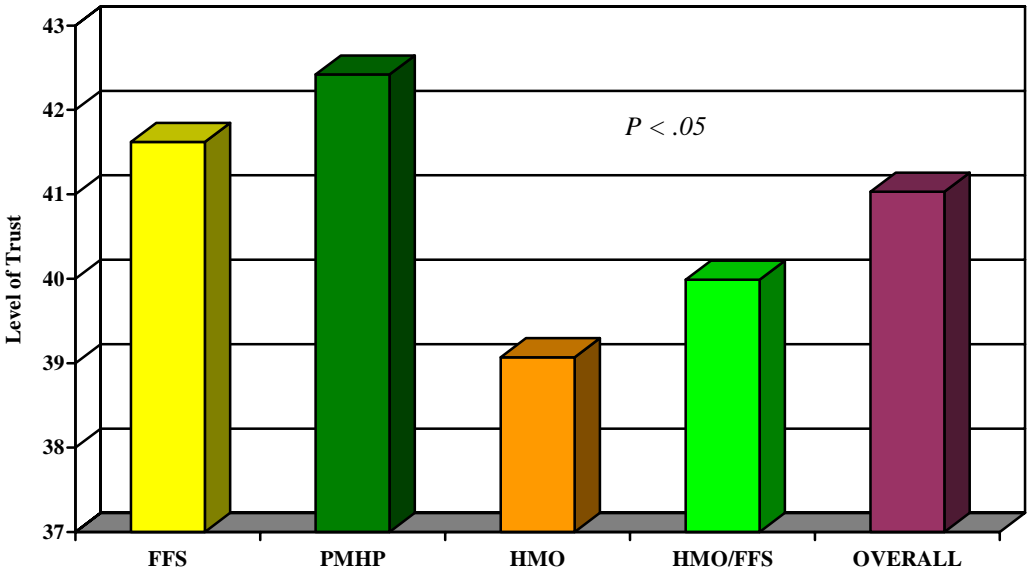
A total of 959 adult survey respondents rated their level of trust in their health care providers. The results of analysis of variance revealed significant differences in enrollees’ trust in their health care providers across the four health care plans. FFS enrollees reported the highest levels of trust in their health care providers followed by PMHP enrollees. HMO/FFS enrollees reported the lowest level of trust in their health care providers (Figure 4-a). Detailed comparisons are summarized in Table 6-a in Appendix B.

Figure 4-a. Level of Trust Among the Four Health Plans' Adult Enrollees – Case Mix Adjusted



There were 769 caregivers who rated their level of trust in their children's health care providers. The results of analysis of variance revealed significant differences in caregivers' level of trust in their children's health care providers across the four health care plans (Figure 4-b). Caregivers of children enrolled in the FFS and PMHP plans had similar and significantly higher levels of trust in their children's health care providers compared to caregivers of children enrolled in the HMO and HMO/FFS plans.

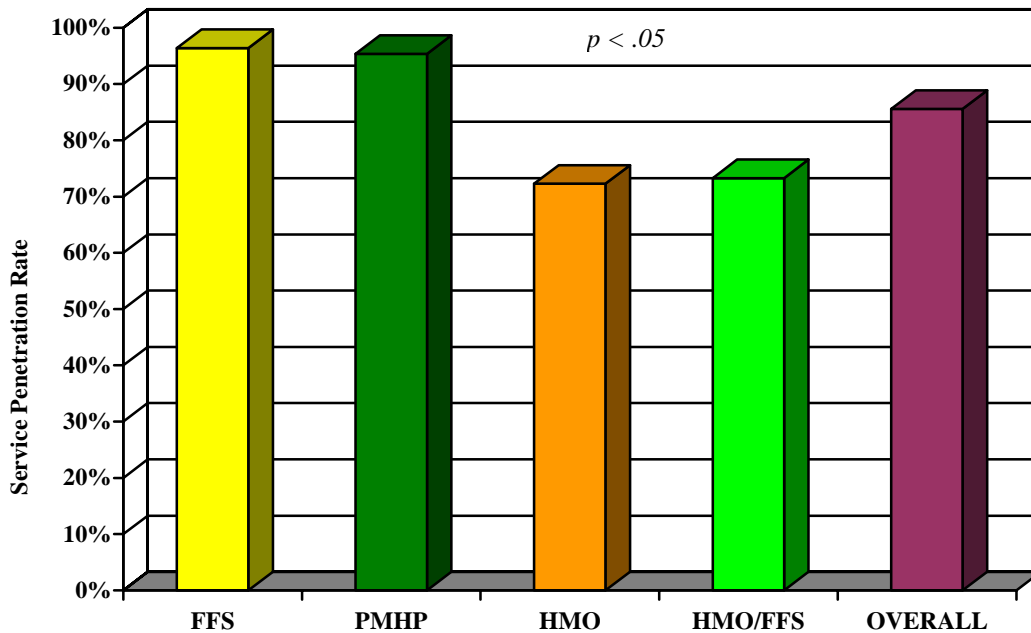
Figure 4-b. Level of Trust Among Caregivers of Children Enrolled in the Four Health Plans – Case Mix Adjusted



II. Service Use and Enrollees' Trust in Their Health Professionals

Based on a combination of self-report service use and Medicaid and IDS claims data, 14.4% (192/1330) adult survey respondents did not use any physical, mental health or substance abuse services during the year preceding the mail survey. Adult FFS and PMHP enrollees had similar and significantly higher service penetration rates compared to HMO and HMO/FFS enrollees (Figure 5-a).

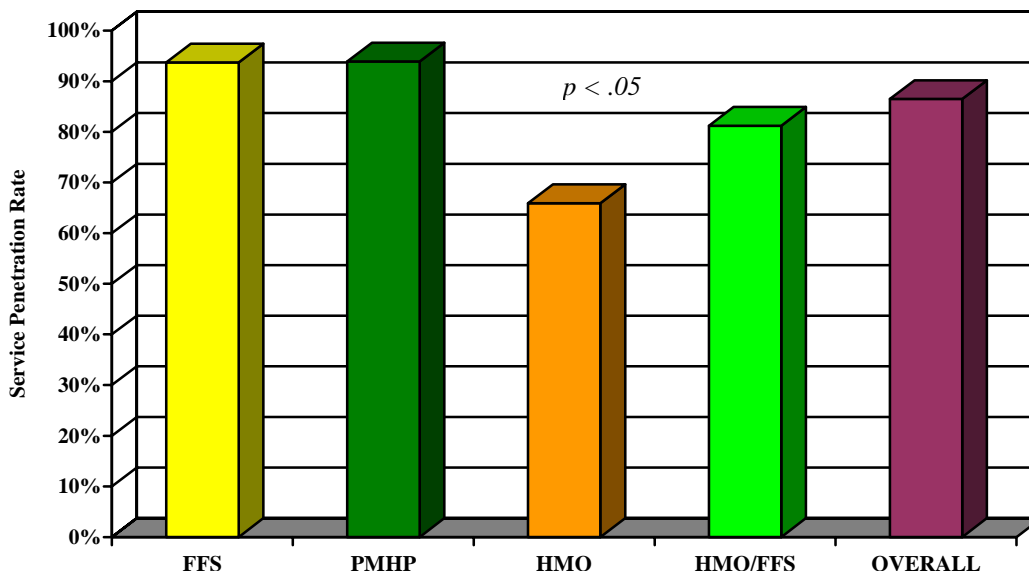
Figure 5-a. Service Penetration Rates of Adults Enrolled in the Four Health Plans – Case Mix Adjusted



Among child Medicaid SSI recipients, 13.5% did not use any services based on a combination of caregiver self reports and Medicaid and IDS claims data. Significant differences were found in the service penetration rates among children enrolled in the four health care plans (Figure 5-b).

Children enrolled in the FFS and PMHP plans had similar and significantly higher service penetration rates compared to children enrolled in the HMO and HMO/FFS plans. Children enrolled in the HMO plan also had a significantly lower service penetration rates than children enrolled in any of the other three plans. A detailed summary of children's service penetration among the four health care plans is provided in Table 7-b in Appendix B.

Figure 5-b. Service Penetration Rates of Children Enrolled in the Four Health Plans – Case Mix Adjusted



Analysis of the relationship between adult enrollees' service use and their trust in their health care providers indicates that those who used services had significantly higher levels of trust in their health professionals while controlling for other factors. A respondent's age and being enrolled in a managed physical health plan were also significantly related to the level of trust among adults Medicaid SSI recipient. Older adults enrolled in a non-managed physical health care plans that used health services had significantly higher levels of trust in their health care providers compared to younger adults enrolled in managed physical health care plans (Table 8-a in Appendix B).

Caregivers' levels of trust in their children's health care providers were significantly related to children's use of services, their children's ages ($p < .05$) and to a lesser extent type of health care plan ($p = .10$) (Table 8-b in Appendix B). Caregivers reported higher levels of trust in their children's health care providers when their children were younger, enrolled in a non-managed physical health plan, and had used health services in the year preceding the mail survey compared to caregivers whose children were older, in a managed care plan, and had not used services during this time period.

III. Who Stops Using Services? Is It Related to Trust?

Based on Medicaid and IDS claim data only, 39.7% (452/1138) of adult service users stopped receiving services for a continuous period of six months or longer during the year preceding the mail survey. HMO and HMO/FFS enrollees had substantial higher rates of service discontinuation compared to adults enrolled in either the FFS or PMHP plans (71% and 78% versus 18% and 21%, respectively) (Table 8-a). Some of this difference may be accounted for by the absence of managed care encounter data.

In order to reduce this potential bias associated with the administrative data stated above, an analysis using only FFS participants with complete claims data was conducted to examine the relationship between discontinuing service use and enrollees' trust in their health care provider. The results of this analysis indicate that discontinuation of service use was not significantly related to adults' or caregivers' levels of trust in health care professionals (Table 9-a and Table 9-b in Appendix B). Among adults, the length of time enrolled in the plan was the only significant predictor related to their levels of trust in their health care providers. Respondents enrolled for longer periods of time had higher levels of trust compared to adults with shorter durations.

Among children, caregivers' levels of trust in their children's providers were significantly related to the children's ages. Discontinuation of services was not related to caregivers' trust in the children's health care providers. Caregivers with older children had significantly lower levels of trust in their children's health care providers compared to caregivers of younger children (Tables 9-c in Appendix B).

IV. Is the Use of High Cost Services Related to Trust?

As noted earlier, given the substantially lower penetration rates noted among enrollees in the HMO and HMO/FFS plans (about one tenth of the FFS and PMHP enrollees) and the belief that these differences may be largely attributed to the absence of managed care encounter data, only FFS participants with complete claims data were used to examine if trust in one's health care provider is associated with the use of high cost services (Table 10-a and Table 10-b in Appendix B).

For both adult and child Medicaid recipients, trust was not found to be significantly related to the use of high cost services. Age was found as the only significant predictor related to the level of trust. Older adults are more likely to have a higher level of trust in their health care providers. Meanwhile, caregivers of older children tend to have less trust in their children's health care providers.

Summary

In terms of the characteristics of enrollees in the four health plans, adult HMO and HMO/FFS enrollees were significantly younger than adults enrolled in either the FFS or PMHP plan. Adult and child enrollees in the HMO and HMO/FFS plans were more likely to be African-American compared to adult and child enrollees in both the FFS or PMHP plans.

With respect to health status, adult HMO/FFS enrollees were in significantly poorer physical health compared to adults enrolled in the FFS and PMHP plans. Adult HMO/FFS enrollees also experienced significantly more psychiatric symptoms compared to adults in the PMHP plan. No significant differences were found in children's psychiatric symptoms across the four health care plans.

Enrollees' level of trust in their health care providers was significantly related to the use of services among both adults and children. Adults service users and the caregivers of children who

used services during the year preceding the mail survey reported significantly higher levels of trust in their health care providers compared to enrollees who did not use service. In addition, the type of health care plan (i.e., managed versus non-managed) in which individuals were enrolled was also a significant predictor related to trust in health care professionals among adult enrollees. Adults enrolled in a managed physical health plan had significantly lower levels of trust in their health care providers and were less likely to use services compared to adults enrollees in a non-managed plan. However, this finding did not hold for children. Rather, a child's age was a significant predictor of caregivers' levels of trust in their children's health care providers. Caregivers with younger children were significantly more likely to trust their children's health care providers compared to caregivers with older children.

Approximately 18% to 20% of enrollees in the FFS and PMHP plans stopped using services for a period of six months or longer during year preceding the mail survey. A substantially higher proportion of the HMO and HMO/FFS enrollees discontinued services, more than 70%. These disproportionate rates of stopping service use are likely attributable to lack of managed care encounter data. Therefore, additional data is required to more comprehensively examine the effects of different health arrangements on discontinuation of services and its relationship to enrollees' trust in their health care providers.

Examination of termination of service use and the use of high cost services in relation to the FFS enrollees trust in their health care providers, revealed no significant relationships. However, only including enrollees from one health plan in the analysis limits our ability to assess whether managed care impacts service utilization and its relationship with trust. Trust remains a primary concern of many scholars, researchers, and health care providers (Blumenthal, 1996; Mechanic, 1996, 1997; Mechanic & Schlesinger, 1996). Further study including managed care service utilization data is needed to more fully understand the relationship between enrollees' trust in their health care providers and their service utilization patterns.

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APPENDIX A

PSRDC CATCAID DOCUMENTATION

Background

The PSRDC catcaids were originally developed in an attempt to identify and categorize mental health services provided by the Florida Agency for Health Care Administration (AHCA) through Medicaid. Prior to 2002, catcaids were named catcodes. The decision to change the name came in response to the acquisition of Medicare claims data, and the subsequent need to identify and categorize Medicare mental health services. It was decided to rename the Medicaid catcodes, “catcaids” and to name the new Medicare catcodes, “catcares”.

In evaluating the Medicaid claims service utilization data, the PSRDC recognized the need to create logical groupings of services in order to describe broad service delivery patterns to AHCA. The development of mental health catcaids has been an ongoing process that began in 1996. Other catcaids were also created to categorize services in the Managed Care Encounter data, which were not applicable to services in the Medicaid claims data.

The existence of thousands of procedure codes used in claims billing necessitated the aggregation of procedure codes into large groups of services. Because procedure codes did not exist on every claim, other variables had to be employed in developing the categorization scheme. The variables that were used in the Medicaid catcaid scheme included the following: procedure code, diagnosis code, record type, claim form, appropriations code, treatment provider type, treatment provider specialty, pay to provider type and age.

The mental health catcaids began as several large, inclusive groups that were defined as integer codes and later were split into more detailed categories that were defined as integer + decimal codes. A list of the mental health catcaids, the label, a description of the category and the source variables used to construct the category (current as of 01/09/2002) is included in Table 1. Many services were separated into distinct categories based on where they were received, i.e. as an inpatient in a hospital, as an outpatient at a hospital, in an office/clinic or in a Community Mental Health Center. Then they were further divided into procedures performed at the different locations.

In 1999, the need to develop physical health catcaids in addition to the existing mental health catcaids became apparent. The physical health catcaids were developed as broad categories of services based on the groupings of procedure codes in the American Medical Association’s (AMA) Common Procedural Terminology (CPT) manual. The medical record type claims (which record data collected on the HCFA 1500 form) used the three levels of codes in the Health Care Financing Administration Common Procedure Coding System (HCPCS). Level I included CPT codes, level II included other national HCPCS codes, and Level III included codes reserved for assignment by the local authority. The institutional record type claims (which record data collected on the HCFA 1450 form, a.k.a. UB92 form) used ICD-9-CM procedure code, but this variable was not recorded on approximately 80% of the claims. Because of the incompleteness of the procedure code variable, the institutional claims were broadly categorized

based on the claim form variable. A list of the physical health catcaids, the label, a description of the category and the source variables used to construct the category (current as of 01/09/2002) is included in Table 2.

Steps in Mental Health Catcaid Assignment

Step 1 (All Mental Health Catcaids 01.00 – 20.50)

Understanding the hierarchical algorithm used to assign the catcaids is very important for interpreting the results of categorical analyses using the catcaids. The first step in catcaid assignment is to select claims that are either medical or institutional record type, non-capitation claims. For the analyses performed on Medicaid claims data by the PSRDC, only these record types are examined. The pharmacy and capitation claims are not currently included in PSRDC analyses using catcaids.

Step 2 (All Mental Health Catcaids 01.00 – 20.50)

The next step is to select and “bookmark” all of the mental health claims. A claim is selected as a mental health claim if *any one* of the following variables suggests it is a mental health service: procedure code, primary or secondary diagnosis code, appropriations code, treatment provider type, treatment provider specialty, pay to provider type and claim form. If a claim is selected as a mental health service based on any of the above variables, then it continues through the hierarchical algorithm (using if-then-else statements) to assign its mental health catcaid.

Step 3 (Catcaids 01.00 – 03.50)

Next, the mental health claims (institutional and medical) are broadly categorized into substance abuse claims (X=03.), child (age < 21 years) claims (X=02.) and adult claims (X=01.), in that order. For instance, the substance abuse claims are selected, including both children and adults, and then the remaining claims are separated by age. Then, if certain coding conditions are met, the broadly categorized claims are assigned into inpatient hospital bed days (X.00), ancillary inpatient hospital services (X.05) and hospice/respite services (X.20). By this step, all inpatient and some medical record type claims have been assigned to catcaids 01.00 through 03.50, if the claim was not yet assigned a catcaid, it continues through the remaining catcaid assignment algorithm.

Step 4 (Catcaids 04.00 – 18.00)

The remaining mental health catcaid assignment only applies to the medical record type claims. Catcaids 04.00 through 18.00 are well-defined categories assigned to the mental health claims if specific criteria regarding their source variables are met. For a list of source variables used to assign these catcaids, refer to Table 1.

Step 5 (Catcaids 20.00 – 20.50)

The final step involves collecting the remaining mental health claims into the “catch-all” categories 20.00 through 20.50. Catcaid 20.00 is assigned to claims with general mental procedures that are not categorized above. Catcaids 20.10 through 20.50 are categories that describe the claims that were selected as mental health claims by meeting some criterion other than a known, mental health procedure code. These claims most likely have a mental health diagnosis; however, they may have been selected based on any of the following variables: primary or secondary diagnosis code, appropriations code, treatment provider type, treatment provider specialty or pay to provider type.

Steps in Physical Health Catcaid Assignment

Step 1 (All Physical Health Catcaids 51.00 – 99.99)

All non-capitation, institutional and medical record type claims, which were not selected as mental health claims and subsequently assigned a mental health catcaid, are then run through an algorithm for assigning a physical health catcaid. The physical health catcaids are based on claim forms and groupings of procedure codes within the AMA’s CPT manual.

Step 2 (Catcaids 63.00 – 66.00)

First, all physical health inpatient claims, institutional care claims, outpatient claims, and hospice claims are assigned a catcaid based on claim form.

Step 3 (Catcaids 51.00 – 62.00)

Next, the medical record type claims with known procedure codes are run through the remaining physical health catcaid algorithm.

Step 4 (Catcaids 98.00 – 99.00)

Next, the claims with national codes temporarily defined to a service while awaiting reassignment in the CPT manual are categorized into catcaid 98.00. And finally, all other physical health services with unknown or missing procedure codes will be coded as 99.99. Claims that end up in this catcaid should be examined every new project year to search for new codes that should be included in the algorithm.

Table 1.

CATCAID	LABEL	DESCRIPTION OF CATEGORY	SOURCE VARIABLE(S)
01.00	Adult Inpatient Care	Bed days and ICD-9-CM procedures in a hospital for an adult, non-substance abuse, institutional claims only	Record type, age, claim form
01.10*	Adult Residential	Managed care services received in a residential facility for an adult, non-substance abuse, PMHP/HMO	
01.20	Adult Hospice/Respite	Hospice/Respite services received for an adult, non-substance abuse, institutional and medical claims	Record type, age, claim form, procedure code
01.50	Adult ancillary inpatient services	Ancillary services received while admitted in a hospital for an adult, non-substance abuse, medical claims only	Record type, age, procedure code
02.00	Child Inpatient Care	Bed days and ICD-9-CM procedures in a hospital for a child, non-substance abuse, institutional claims only	Record type, age, claim form
02.10*	Child Residential	Managed care services received in a residential facility for a child, non-substance abuse, PMHP/HMO	
02.20	Child Hospice/Respite	Hospice/Respite services received for a child, non-substance abuse, institutional and medical claims	Record type, age, claim form, procedure code
02.50	Child ancillary inpatient services	Ancillary services received while admitted in a hospital for a child, non-substance abuse, medical claims only	Record type, age, procedure code
03.00	Substance Abuse Inpatient Care	Bed days and ICD-9-CM procedures in a hospital for substance abuse, institutional claims only	Record type, diagnosis code, claim form
03.10*	Substance Abuse Residential	Managed care services received in a residential facility for substance abuse, PMHP/HMO	

03.20	Substance Abuse Hospice/Respite	Hospice/Respite services received for substance abuse, institutional and medical claims	Record type, diagnosis code, claim form, procedure code
03.50	Substance Abuse ancillary inpatient services	Ancillary services received while admitted in a hospital for substance abuse, medical claims only	Record type, diagnosis code, procedure code
04.00	Emergency MH Treatment	Acute MH care received in the emergency room	Record type, procedure code and treatment provider specialty
04.50	Hospital Outpatient MH Services	Outpatient mental health services provided in a hospital setting	Record type, claim form, appropriations code
05.00	Physician Services – clinic or outpatient	Periodic office visits, treatment/management of mental health problem received in a clinic or as an outpatient in a physician’s office	Record type, procedure code
05.25	Home-based or prolonged physician’s services	Home-based or prolonged physician’s services, not defined by location of service, formerly 14.00	Record type, procedure code
05.50	CMH: Physician Services	Periodic office visits, treatment/management of mental health problem as defined by the Florida CMH manual	Record type, procedure code
06.00	CMH: Treatment Planning & Review	Treatment Planning & Review of care as defined by the Florida CMH manual (treatment plan developed jointly between patient and treatment team)	Record type, procedure code
07.00	Evaluation and Testing Services	Evaluation and Testing services	Record type, procedure code, appropriations code
07.50	CMH: Evaluation and Testing Services	Evaluation and Testing services as defined by the Florida CMH manual	Record type, procedure code
08.00	Counseling, Therapy, & Treatment Services	Ongoing Counseling, Therapy, & Treatment services	Record type, procedure code
09.00**	Counseling, Therapy, & Treatment Services by Behavioral Health Specialist	Ongoing Counseling, Therapy, & Treatment services provided by a Behavioral Health Specialist (has been incorporated into 08.00)	

10.00	Rehabilitative Services	Living skills training, as defined by the Florida CMH manual	Record type, procedure code
11.00	CMH: Children's Behavioral Health	Children's behavioral health services as defined by the Florida CMH manual	Record type, procedure code
11.50	CMH: Behavioral Health Overlay for Department of Juvenile Justice Residential Facilities	Specific program provided in for behavioral health in residential facilities as defined by the Florida CMH manual	Record type, procedure code
12.00	CMH: Day Treatment Services	Intense services (Partial Hospitalization) as defined by the Florida CMH manual	Record type, procedure code
13.00	Targeted Case Management	General (traditional) and Intensive (surrogate family member) management as defined by the Florida Targeted Case Management manual, section 1-2	Record type, procedure code
14.00**	Physician's services not listed above	Home-based or prolonged physician's services, not defined by location of service, incorporated into 05.25	Record type, procedure code
14.10*	HMO/FHP Employment Services	F-codes, services provided under managed care that are not provided by Medicaid	
14.20*	HMO/FHP Drop-In Centers	F-codes, services provided under managed care that are not provided by Medicaid	
14.30*	HMO/FHP Housing Services	F-codes, services provided under managed care that are not provided by Medicaid	
14.50*	Clinical On-site services	F-codes, services provided under managed care that are not provided by Medicaid	
14.90*	HMO/FHP Other Special Services	F-codes, services provided under managed care that are not provided by Medicaid	
15.00**	Other Assessment	Incorporated into 07.00	
16.00	Therapeutic Foster Care I & II	Foster care services	Record type, procedure code
17.00**	EPSDT Screening	Incorporated into 20.00	
18.00	MH Drug Injection	Drug injection to treat mental health problem	Record type, procedure code

18.10*	Pharmacy-related revenue codes	Managed Care revenue codes	
20.00	Other MH – does not fit into above categories	General mental health procedure codes, Electric Shock Therapy or other claims with mental health criterion other than procedure code met	Record type, procedure code
20.10	Lab/Pathology with MH diagnosis	Lab/Pathology service with mental health criterion other than procedure code met	Record type, procedure code
20.20	Speech/Language Therapy with MH diagnosis	Speech/Language Therapy service with mental health criterion other than procedure code met	Record type, procedure code, treatment provider specialty
20.30	Occupational Therapy with MH diagnosis	Occupational Therapy service with mental health criterion other than procedure code met	Record type, procedure code, treatment provider specialty
20.40	Physical Therapy with MH diagnosis	Physical Therapy service with mental health criterion other than procedure code met	Record type, procedure code, treatment provider specialty
20.50	MH Ambulance Services	Ambulance services with mental health criterion other than procedure code met	Record type, treatment provider type

*Code is specific to the Managed Care Encounter (PMHP/HMO) data and not used in the Statewide Medicaid Claims data

**Code is obsolete

Table 2.

CATCAID	LABEL	DESCRIPTION OF CATEGORY	SOURCE VARIABLE(S)
51.01	Office or Other Outpatient Evaluation and Management Services	Office visits, evaluation and management services	Record type, claim form, procedure code
51.02	Hospital Observation/Inpatient Evaluation and Management Services	Hospital visits, inpatient evaluation and management services	Record type, claim form, procedure code
51.03	Consultation Evaluation and Management	Consultation with other providers for evaluation and management of care	Record type, claim form, procedure code
51.04	Emergency/Critical/Intensive Care Evaluation and Management Services	Acute care evaluation and management services	Record type, claim form, procedure code
51.05	Nursing Facility, Custodial Care, Home, or Prolonged Care Evaluation and Management Services	Long-term care evaluation and management services	Record type, claim form, procedure code
51.06	Case Management or Care Plan Evaluation and Management	Case management, care plan oversight or supervisory evaluation and management	Record type, claim form, procedure code
51.07	Preventive Medicine Evaluation and Management Services	Preventive evaluation and management services (i.e. history and physical)	Record type, claim form, procedure code
51.08	Newborn Care Evaluation and Management Services	Evaluation and management services for newborn care	Record type, claim form, procedure code
51.09	Family Planning Evaluation and Management Services	Evaluation and management services for family planning services	Record type, claim form, procedure code
51.99	Special/Other Evaluation and Management Services	Disability, other screening evaluation and management services	Record type, claim form, procedure code
52.00	Anesthesia	All anesthesia services	Record type, claim form, procedure code
53.00	Surgery	All surgical services	Record type, claim form, procedure code
54.01	Diagnostic Radiology	Diagnostic radiology, imaging, ultrasound services	Record type, claim form, procedure code
54.02	Radiology Oncology	Radiology treatment of cancers/diseases	Record type, claim form, procedure code
55.01	Pathology/Laboratory	Laboratory and Pathology panels, drug tests	Record type, claim form, procedure code

	Testing/Assays	and assays	
55.02	Pathology	Microbiology, clinical pathology	Record type, claim form, procedure code
55.03	Pathology/Laboratory Transfusion Medicine	Services related to blood/serum transfusion	Record type, claim form, procedure code
55.99	Other Pathology/Laboratory Procedures	Other pathology/laboratory procedures	Record type, claim form, procedure code
56.01	Immunizations and Therapeutic/Diagnostic Infusions/Injections	Immunizations and Therapeutic/Diagnostic Infusions/Injections	Record type, claim form, procedure code
56.02	Tests/Medical Procedures	Tests/Medical Procedures	Record type, claim form, procedure code
56.03	Physical/Rehabilitation/Nutrition/Osteopathic/Chiropractic Medicine	Physical/Rehabilitation/Nutrition/Osteopathic/Chiropractic Medicine	Record type, claim form, procedure code
56.04	Medical Supplies/Devices	Medical Supplies/Devices	Record type, claim form, procedure code
56.05	Vision Procedures	Vision Procedures	Record type, claim form, procedure code
56.06	Hearing Procedures	Hearing Procedures	Record type, claim form, procedure code
56.99	Other Medical Services	Other medical procedures	Record type, claim form, procedure code
57.01	Early Intervention/Antepartum Care	Early intervention, support services for pregnant women	Record type, claim form, procedure code
57.02	Developmental Disability Waiver	Services provided under the Medicaid Developmental Disability Waiver	Record type, claim form, procedure code
57.03	Assisted Living/Community/Home Support Services	Activities of daily living, community and home support services	Record type, claim form, procedure code
57.04	Aged/Disabled Waiver Services	Physical health services provided under the Medicaid aged/disabled Waiver	Record type, claim form, procedure code
57.05	Care for Medically Complex or Chronically Mentally Ill Child	Living assistance and other services for chronically ill/complex cases	Record type, claim form, procedure code
58.00	Dental Procedures	Dental procedures	Record type, claim form, procedure code
59.00	Pharmacy Procedures	Physical health pharmacy procedures	Record type, claim form, procedure code
60.00	Physical/Occupational/Speech Therapy	PT, OT, and Speech therapy for physical health claims	Record type, claim form, procedure code
61.00	Transportation Services	All transportation services for physical health claims	Record type, claim form, procedure code

62.00	AIDS Waiver Services	Services provided under Medicaid AIDS Waiver	Record type, claim form, procedure code
63.00	Inpatient Claims	Inpatient physical health claims	Record type, claim form
64.00	Institutional Care Claims	Home Health or SNF physical health claims	Record type, claim form
65.00	Outpatient Claims	Outpatient physical health claims	Record type, claim form
66.00	Hospice Care Claims	Hospice physical health claims	Record type, claim form
98.00	Temporary National Codes Awaiting Reassignment in CPT	Several G-codes, all Q-codes, and all S-codes awaiting CPT code assignment by AMA	Record type, claim form, procedure code
99.99	Other/Unknown Services	“Catch-all” for the rest of the physical health claims	Record type, claim form

Appendix B

Table 1. Demographic Characteristics of Adult Enrollees in the Four Health Care Plans

			FFS	PMHP	HMO	HMO/FFS	Total	<i>P</i>	
			N	539	199	195	397	1330	
GENDER	Female	%	69.02	72.86	74.36	67.25	69.85	>.05	
		N	539	199	195	397	1330		
AGE	Mean		48.3	48.3	46.5	45.6	47.2	< .05	
	SD		11.84	12.24	11.45	11.52	11.80		
	Minimum		21.76	21.56	21.67	21.48	21.48		
	Maximum		66.25	67.92	68.54	66.18	68.54		
RACE	Caucasian	%	62.90	53.30	41.00	49.60	54.30	< .05	
		N	339	106	80	197	722		
	African American	%	18.70	21.10	35.90	31.00	25.30	< .05	
		N	101	42	70	123	336		
	Others	%	18.40	25.60	23.10	19.40	20.50		
		N	99	51	45	77	272		
Length in the Plan			Mean	358.4	360.1	362.7	352.3	357.5	< .05
			S.D.	27.90	21.27	18.63	39.36	30.13	
			Minimum	170	196	213	185	170	
			Maximum	366	366	366	366	366	

Table 2. Demographic Characteristics of Child Enrollees in the Four Health Care Plans

			FFS	PMHP	HMO	HMO/FFS	Total	<i>P</i>	
			N	413	140	123	270	946	
GENDER	Female	%	33.2	29.3	28.5	31.1	31.4	>.05	
		N	137	41	195	397	297		
AGE	Mean		13.6	13.4	13.9	13.2	13.5	> .05	
	SD		3.96	3.83	3.56	3.64	3.80		
	Minimum		5.76	5.81	6.1	6.19	5.76		
	Maximum		21.4	21.32	21.34	21.18	21.4		
RACE	Caucasian	%	38.5	25.0	23.6	21.5	29.7	< .05	
		N	159	41	35	84	297		
	African American	%	25.7	33.6	43.9	45.2	34.8	< .05	
		N	101	42	54	122	329		
	Others	%	35.8	41.4	32.5	33.3	35.5		
		N	148	48	40	90	336		
Length in the Plan (Days)									
Mean			356.8	356.3	360.5	357.1	357.29	> .05	
S.D.			33.51	33.24	21.52	32.35	31.80		
Minimum			185	157	206	188	157		
Maximum			366	366	366	366	366		

Table 4-a. Physical Functioning (SF-12) of Adult Enrollees in the Four Health Care Plans – Case Mix Adjusted

Adult's Physical Health Functioning – SF-12*						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	3.15	2	1119 < .05
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	494	188	164	277	1123	FFS vs. HMO	0.21	656	0.84
Mean	32.94	34.41	32.76	31.55	32.73	FFS vs. HMO/FFS	1.96	769	0.05
S.E.	0.46	0.78	0.73	0.54	0.29	PMHP vs. HMO	1.54	350	0.12
Minimum	14.2	15.3	15.52	15.89	14.21	PMHP vs. HMO/FFS	3.02	463	0.00
Maximum	63.8	58.7	61.54	59.73	63.76	HMO vs. HMO/FFS	1.34	439	0.18

*A higher SF-12 score indicates a higher level of functioning.

Table 4-b. Physical Functioning (CHQ) of Child Enrollees in the Four Health Care Plans – Case Mix Adjusted

Children's Physical Health Functioning – CHQ*						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	1.97	3	741 >.05
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	330	108	98	209	745	FFS vs. HMO	-2.13	426	0.03
Mean	66.71	67.06	68.29	68.08	67.31	FFS vs. HMO/FFS	-2.01	537	0.04
S.E.	0.43	0.80	0.60	0.53	0.27	PMHP vs. HMO	-1.23	204	0.22
Minimum	42	44.8	50	40.3	40.3	PMHP vs. HMO/FFS	-1.07	315	0.29
Maximum	85	82	83.5	81	85	HMO vs. HMO/FFS	0.27	305	0.79

*A higher CHQ score indicates a higher level of functioning.

Table 5-a. Psychiatric Symptoms (CSI) of Adult Enrollees in the Four Health Care Plans – Case Mix Adjusted

Adult's Mental Health Functioning - CSI						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA			2.00
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	494	186	164	275	1119	FFS vs. HMO	0.00	656	1.00
Mean	33.04	31.63	33.05	34.66	33.25	FFS vs. HMO/FFS	-1.62	767	0.11
S.E.	0.60	0.95	1.09	0.80	0.39	PMHP vs. HMO	-0.97	348	0.33
Minimum	14	14	14	14	14	PMHP vs. HMO/FFS	-2.43	459	0.02
Maximum	70	70	70	70	70	HMO vs. HMO/FFS	-1.19	437	0.23

*A higher CSI score indicates more psychiatric symptoms.

Table 5-b. Psychiatric Symptoms (PSC) of Child Enrollees in the Four Health Care Plans – Case Mix Adjusted

Children's Mental Health Functioning - PSC						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA			1.04
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	409	138	122	268	937	FFS vs. HMO	1.70	529	0.09
Mean	32.52	31.29	30.07	31.56	31.72	FFS vs. HMO/FFS	0.87	675	0.38
S.E.	0.72	1.21	1.25	0.84	0.45	PMHP vs. HMO	0.70	258	0.48
Minimum	2	0	2	0	0	PMHP vs. HMO/FFS	-0.18	404	0.86
Maximum	69	65	68	67	69	HMO vs. HMO/FFS	-0.99	388	0.32

* A higher PSC score indicates more psychiatric symptoms.

Table 6-a. The Level of Trust in Health Care Providers (TIHPS) of Adult Enrollees in the Four Health Care Plans - Case Mix Adjusted

Adults' Level of Trust – TIHCPS*						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	3.36	2	955
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	427	163	132	237	959	FFS vs. HMO	1.27	557	0.20
Mean	40.57	39.96	39.39	38.13	39.62	FFS vs. HMO/FFS	3.09	662	0.00
S.E.	0.47	0.75	0.80	0.64	0.31	PMHP vs. HMO	0.52	293	0.60
Minimum	11	13	17	11	11	PMHP vs. HMO/FFS	1.86	398	0.06
Maximum	55	55	55	55	55	HMO vs. HMO/FFS	1.23	367	0.21

*A higher TIHCPS score indicates a higher level of trust.

Table 6-b. Caregivers' Level of Trust in Their Children's Health Care Providers in the Four Health Care Plans - Case Mix Adjusted

Caregivers' Level of Trust – TIHCPS*						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	2.94	2	765
						t-test	<i>t</i>	<i>df</i>	
						Plan	FFS	PMHP	HMO
N	339	111	98	221	769	FFS vs. HMO	1.73	435	0.08
Mean	41.62	42.42	39.70	39.99	41.03	FFS vs. HMO/FFS	2.12	558	0.03
S.E.	0.51	0.88	0.99	0.58	0.33	PMHP vs. HMO	2.06	207	0.04
Minimum	11	20	11	15.4	11	PMHP vs. HMO/FFS	2.32	330	0.02
Maximum	55	55	55	55	55	HMO vs. HMO/FFS	-0.25	317	0.80

*A higher TIHCPS score indicates a higher level of trust.

Table 7-a. Service Penetration Rates of Adult Enrollees in the Four Health Care Plans – Case Mix Adjusted

Adult's Service Penetration Rates						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	49.68	2	1326
						t-test	<i>t</i>	<i>df</i>	
						FFS vs. PMHP	0.59	736	0.56
Plan	FFS	PMHP	HMO	HMO/FFS	Overall	<i>FFS vs. HMO</i>	6.96	732	0.00
N	539	199	195	397	1330	<i>FFS vs. HMO/FFS</i>	9.40	934	0.00
Mean	0.96	0.95	0.72	0.74	0.86	<i>PMHP vs. HMO</i>	6.20	392	0.00
S.E.	0.01	0.02	0.03	0.02	0.01	<i>PMHP vs. HMO/FFS</i>	7.82	594	0.00
						<i>HMO vs. HMO/FFS</i>	-0.35	590	0.73

Table 7-b. Service Penetration Rates of Child Enrollees in the Four Health Care Plans – Case Mix Adjusted

Children's Service Penetration Rates						<i>F</i>	<i>df</i>	<i>p</i>	
						ANOVA	25.76	2	942
						t-test	<i>t</i>	<i>df</i>	
						FFS vs. PMHP	-0.12	551	0.91
Plan	FFS	PMHP	HMO	HMO/FFS	Overall	<i>FFS vs. HMO</i>	6.03	534	0.00
N	413	140	123	270	946	<i>FFS vs. HMO/FFS</i>	4.55	681	0.00
Mean	0.94	0.94	0.66	0.81	0.8647	<i>PMHP vs. HMO</i>	5.70	261	0.00
S.E.	0.01	0.02	0.04	0.02	0.01	<i>PMHP vs. HMO/FFS</i>	3.94	408	0.00
						<i>HMO vs. HMO/FFS</i>	-3.03	391	0.00

Table 8-a. Relationship Between Adult Enrollees' Service Use and Trust in Their Health Care Providers

N = 959		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	28.80	4.23		6.81	0	20.50	37.10
	<i>Use of services</i>	2.54	1.05	0.08	2.42	0.01	0.48	4.61
	<i>Age</i>	0.11	0.03	0.13	4.20	0	0.06	0.17
	Female	0.52	0.68	0.03	0.77	0.44	-0.81	1.85
	Caucasian	-0.77	0.63	-0.04	-1.23	0.22	-2.00	0.46
	<i>Managed physical health plan</i>	-1.33	0.68	-0.07	-1.96	0.05	-2.67	0.01
	Managed mental health plan	0.19	0.67	0.01	0.28	0.78	-1.13	1.51
	Duration of enrollment	.01	0.01	0.03	0.99	0.32	-0.01	0.03

Dependent Variable: Level of Trust

Table 8-b. Relationship Between Children's Service Use and Caregivers' Trust in Their Children's Health Care Providers

N = 768		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	42.72	3.93		10.86	0.00	35.00	50.44
	<i>Use of services</i>	3.90	1.07	0.14	3.64	0.00	1.80	6.01
	<i>Age</i>	-0.32	0.09	-0.13	-3.47	0.00	-0.51	-0.14
	Female	0.68	0.72	0.03	0.94	0.35	-0.73	2.09
	Caucasian	0.14	0.75	0.01	0.18	0.86	-1.34	1.62
	Duration of enrollment	0.00	0.01	-0.01	-0.22	0.83	-0.02	0.02
	Managed physical health plan	-1.28	0.69	-0.07	-1.86	0.06	-2.64	0.07
	Managed mental health plan	0.77	0.74	0.04	1.04	0.30	-0.68	2.22

Dependent Variable: Level of Trust

Table 9-a. Proportion of Adult Enrollees Discontinuing Service Use – Case Mix Adjusted

Adult's Service Discontinuation Rates						<i>F</i>	<i>df</i>	<i>p</i>
						ANOVA	173.01	2
Plan	FFS	PMHP	HMO	HMO/FFS	Overall	t-test	<i>T</i>	<i>df</i>
N	519	190	138	291	1138	FFS vs. PMHP	-0.73	707
Mean	0.18	0.21	0.71	0.78	0.40	FFS vs. HMO	-12.07	655
S.E.	0.02	0.03	0.04	0.02	0.01	FFS vs. HMO/FFS	-20.43	808
						PMHP vs. HMO	-9.94	326
						PMHP vs. HMO/FFS	-14.83	479
						HMO vs. HMO/FFS	-1.59	427

Table 9-b. Relationship Between Adults' Discontinuation of Service Use and Trust In Their Health Care Providers (FFS Enrollees Only).

N = 417		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B		
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
	(Constant)	23.89	7.45		3.21	0.00	9.24	38.54
	Stop using of services	-1.92	1.30	-0.07	-1.47	0.14	-4.48	0.64
	Age	0.07	0.04	0.09	1.73	0.09	-0.01	0.16
	Female	-0.12	1.06	-0.01	-0.11	0.91	-2.21	1.96
	Caucasian	-0.91	0.99	-0.05	-0.92	0.36	-2.87	1.04
	Duration of enrollment	0.04	0.02	0.10	1.95	0.05	0.00	0.08

Dependent Variable: Level of Trust

Table 9-c. Relationship Between Children's Discontinuation of Service Use and Trust In Their Health Care Providers (FFS Enrollees Only)

N = 323		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B		
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
	(Constant)	50.91	5.89		8.65	0.00	39.33	62.49
	Stop using of services	-0.74	1.22	-0.03	-0.61	0.54	-3.14	1.66
	Age	-0.49	0.15	-0.20	-3.30	0.00	-0.77	-0.20
	Female	-0.16	1.11	-0.01	-0.14	0.89	-2.34	2.03
	Caucasian	0.88	1.16	0.05	0.76	0.45	-1.41	3.16
	Duration of enrollment	-0.01	0.02	-0.03	-0.51	0.61	-0.04	0.02

Dependent Variable: Level of Trust

Table 10-a. Relationship Between Adults' Use of High Cost Services and Trust in Their Health Care Providers (FFS Enrollees Only)

N = 417	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
(Constant)	23.72	7.47		3.18	0.00	9.05	38.40
Use of high cost services	-0.87	0.97	-0.04	-0.90	0.37	-2.77	1.03
<i>Age</i>	0.09	0.04	0.10	2.02	0.05	0.00	0.17
Female	0.14	1.07	0.01	0.13	0.90	-1.96	2.23
Caucasian	-0.90	1.00	-0.04	-0.90	0.37	-2.86	1.06
<i>Duration of enrollment</i>	0.04	0.02	0.09	1.89	0.06	0.00	0.08

Dependent Variable: Level of Trust

Table 10-b. Relationship Between Children's Use of High Cost Services and Caregivers' Trust in Their Children's Health Care Providers (FFS Enrollees Only)

N = 323	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
(Constant)	50.90	5.89		8.64	0.00	39.31	62.48
Use of high cost services	-0.28	1.07	-0.02	-0.26	0.79	-2.40	1.83
<i>Age</i>	-0.49	0.15	-0.20	-3.36	0.00	-0.78	-0.20
Female	-0.14	1.11	-0.01	-0.12	0.90	-2.33	2.05
Caucasian	0.98	1.15	0.05	0.85	0.40	-1.29	3.25
Duration of enrollment	-0.01	0.02	-0.03	-0.51	0.61	-0.04	0.02

Dependent Variable: Level of Trust