The Louis de la Parte Florida Mental Health Institute

Evaluation of Florida's Medicaid Managed Mental Health Plans Year 10 Report: Administrative Data Component

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Executive Summary

This report summarizes the results of efforts to use administrative data (Medicaid claims and encounter data) to evaluate the impact of implementing managed behavioral healthcare in AHCA areas 5 and 7. Consistent with previous studies, service penetration, quality of care, and recipient outcomes are the dimensions used in the evaluation.

The focus of the study is on the impact of managed care implementation on adults with a serious mental illness and children with a serious emotional disturbance. These populations are most likely to need mental health services and to be affected by the actions or inactions of their health plans.

The work of four plans is studied in each area: The Florida Health Partnership (FHP), Amerigroup, Healthease, and Staywell. Data related to service penetration and outcomes are gathered and analyzed for each plan in each area for the 6 months immediately before and for 6 months after implementation of managed behavioral healthcare. Data on the services received by enrollees discharged from psychiatric inpatient care after implementation of managed care are used in the study of quality of care. Key research questions addressed by the study are the following:

1. Do the managed care plans serving Areas 5 and 7 differ in terms of the rates at which their enrollees with an SMI and SED penetrate emergency inpatient and ambulatory behavioral healthcare services in the post-implementation period, and are there changes in penetration of these services among enrollees in each of the plans pre- to post-implementation? Are their changes in the outcomes of enrollees in each of the plans pre- to post-implementation? If so, are there differences between the plans in the direction or magnitude of these changes?
2. Are there differences between the plans in the penetration rates and service mix of plan enrollees discharged from a psychiatric inpatient episode during the post-implementation periods? Do these differences affect the risk of short-term re-entry into deep-end services?

Findings

Differences in service penetration were discovered pre- to post-implementation and between plans in their post-implementation periods. The following are the most noteworthy findings:

1. Generally, the penetration rates of community mental health services declined from the pre- to the post-periods. This decline was most dramatic for enrollees in Amerigroup in both areas and for both populations. The one exception to this trend was for FHP enrollees with an SMI in Area 5.

2. In the post-period, FHP enrollees did not consistently have higher penetration of community mental health services than Healthease and Staywell.
3. With one exception, there was a tendency for the HMOs to have higher penetration of psychiatric office visits in the post-implementation periods compared with the FHP.
4. Penetration of the psychiatric office visit category was generally lower for Amerigroup enrollees compared with the other HMOs. However, its enrollees that did access this service did so more frequently than those of the other plans.
5. Contrary to expectations related to the impact of managed behavioral healthcare there was not a consistent decline in the penetration of inpatient services in the post compared with the pre-implementation periods.
6. Penetration of emergency services tended to be higher for Healthease and Staywell compared with Amerigroup and the FHP in the post-implementation periods.

Outcomes

1. There is some evidence of deterioration in the outcomes as measured by rates of BA evaluation of adults with a SMI from the pre- to the post-implementation periods for Healthease in both areas and for Healthease and Staywell in area 7, although the area 7 difference did not reach statistical significance. Rates of BA evaluation for FHP enrollees with an SMI tended to improve pre- to post managed care implementation. Pre- to post differences were significant for area 5. No change was observed for Amerigroup enrollees. No consistent patterns of changes in arrest rates were found among plan enrollees with an SMI.
2. No pattern of changes in the outcomes of children with an SED were observed comparing pre- to post-implementation periods and comparing plans in the post-implementation period.

Quality of Care

1. Only one plan in one area met the 72% HEDIS adjusted Medicaid benchmark for the provision of ambulatory care within 30 days of hospital discharge. The performance of Healthease in area 5 and Amerigroup in both areas are particularly problematic.
2. Amerigroup provided the least diverse array of ambulatory services to enrollees in the 3-6 months after hospital discharge.
3. Readmission rates to deep-end services during the 3-6 months after hospital discharge were high for all plans ranging from a low of 36% to a high of 59%.

Summary

The implementation of managed behavioral healthcare did seem to have an effect on the penetration rates of ER, inpatient, psychiatric office visits and community mental health services.

Outcomes for adults with an SMI, at least as measured by rates of Baker Act evaluation, seem to have improved somewhat pre- to post periods for FHP enrollees and to deteriorate for Healthease and in one of the two areas for Staywell enrollees.

In the early implementation phase we did not find a clear and consistent relationship between service penetration and outcomes. In fact, Amerigroup enrollees fared comparatively well despite the dramatic decline in penetration of community mental health services. This will require ongoing monitoring as plan networks and management strategies mature.

Finally, the performance of the plans in serving enrollees discharged from inpatient care seems to be problematic and should be the focus for follow-up monitoring.

Background

In the last decade, the administrative data component of the managed care evaluation focused on the pilot areas 1 and 6. Last year we explored the usefulness of new approaches to evaluating the performance of the plans using Area 1 historical data. With the implementation of managed behavioral healthcare on a statewide basis beginning in FY 05-06, we have the opportunity to use the new approaches to evaluate the performance of the plans in the early stages of the statewide rollout. Areas 5 and 7 are the subjects of this year's effort. In both cases, a managed behavioral health organization assumed responsibility for the mental health care of Medipass enrollees early in fiscal year 05-06. During the same time interval or in the latter part of the previous fiscal year, several of the large HMOs also assumed responsibility for the mental health care of their members. This allowed us to collect administrative data from the plans through the AHCA for 6 months before managed care and for 6 months during the post-implementation period. Actual implementation dates and therefore the begin and end points of the 6-month baseline and post-implementation periods are different for each of the plans as described in Table 1.

Table 1
Analysis Timeline Based on Implementation Dates for Managed Care: Areas 5 and 7

		Implementation Date*	Baseline Period Begins	Service Post-Implementation Period Begins
Area 5				
Florida Health Partnership (FHP)		8/1/05	2/1/05	10/1/05
Amerigroup		4/1/05	10/1/04	10/1/05
Healthease		5/1/05	11/1/04	7/1/05
Staywell		5/1/05	11/1/04	7/1/05
Area 7				
FHP	All Counties	8/1/05	2/1/05	10/1/05
Amerigroup	Orange, Osceola, Seminole	3/1/05	9/1/05	10/1/05
	Brevard	7/1/05	1/1/05	10/1/05
Healthease	Orange, Osceola, Seminole	4/1/05	10/1/04	7/1/05
	Brevard	9/1/05	3/1/05	10/1/05
Staywell	Orange, Osceola, Seminole	4/1/05	10/1/04	7/1/05
	Brevard	9/1/05	3/1/05	10/1/05

*Outcomes Post-Implementation Period Begins

The service analysis period had to be adjusted several months past the implementation dates for the HMOs because AHCA did not require the plans to begin submitting encounters until the quarter after implementation occurred in all counties in a particular area. To be fair, we started the service analysis for the FHP groups with the same lag time as the HMO plans. The outcomes analysis post-implementation began on the actual implementation date. All analyses examined the administrative records beginning on the start date for

that particular analysis and continuing for 180 days to ensure that all plans had the same number of days in each analysis for baseline and post-implementation periods. Because enrollment was extremely low for United and Citrus, they were excluded from the analysis for this year's study.

The dates of the pre- and post periods for the plans described in Table 1 are proximate enough to assume that the external political, social and economic environments for implementation were approximately the same for all the plans in each of the areas.

Not unlike previous evaluations, this year's effort focuses on the dimensions of service access, outcomes and the quality of care. The comparisons of performance are somewhat more complicated than previous years because we are for the first time studying two AHCA areas, each served by multiple managed care plans. Fortunately, the plans involved in Areas 5 and 7 are the same, allowing us to compare the performance of each plan in two separate locations.

This year's service penetration and outcomes analysis concentrates on the performance of plans in serving adults with a serious mental illness (SMI) and children with a serious emotional disturbance (SED). The operational definitions of these groups are included in the Appendix 1 to this report. They are the populations most likely to need mental health services and supports. They are also the most likely to experience changes in outcomes in response to short term modifications in service access. For this year's evaluation susceptibility to short term changes in care management are particularly important because the study only includes data for 6-month periods that all occurred shortly after the plans assumed responsibility for care. For the long term, a variety of different types of individuals will need to access mental health care from their health plans. Within 6-month transition time frames it is much more likely that adults with an SMI and children with an SED will require such care and be impacted by the actions or inactions of their health plans.

Study Issues

1. Do managed mental health care plans in Areas 5 and 7 differ in terms of the penetration and frequency of inpatient, emergency, psychiatrist, and community mental health services of children meeting SED criteria in the 6 months before implementation compared with the 6 months after managed mental health care implementation?
2. Do managed mental health care plans in Areas 5 and 7 differ in terms of the penetration and frequency of inpatient, emergency, psychiatrist, and community mental health services of adults with SMI diagnoses in the 6 months before implementation compared with the 6 months after managed mental health care implementation?
3. Do managed mental health care plans in Areas 5 and 7 differ in terms of the rate at which children meeting the SED criteria had initiations of a Baker Act examination in the 6 months before implementation compared with the 6 months after managed mental health care implementation?

4. Do managed mental health care plans in Areas 5 and 7 differ in terms of the rate at which adults with an SMI diagnosis had initiations of a Baker Act examination in the 6 months before implementation compared with the 6 months after managed mental health care implementation?
5. Do managed mental health care plans in Areas 5 and 7 differ in terms of the rate at which children meeting the SED criteria had FDLE records of arrests in the 6 months before implementation compared with the 6 months after managed mental health care implementation?
6. Do managed mental health care plans in Areas 5 and 7 differ in terms of the rate at which adults with SMI diagnoses had FDLE records of arrests in the 6 months before implementation compared with the 6 months after managed mental health care implementation?
7. Do managed mental health care plans in Areas 5 and 7 differ in terms of the percentage of inpatient admissions where persons received either psychiatric or community mental health care in the 30 days after discharge?
8. Do managed mental health care plans in Areas 5 and 7 differ in terms of the quality of community-based care received in the 3-6 months after discharge from an inpatient admission?

Methods and Results

Service Penetration and Frequency Analyses

For health plans to effectively serve their recipients, they must first provide access to those needing care. Recipients must be able to engage network providers and receive the services and supports they require. It is therefore relevant to ask if recipients' utilization of mental health services changed from the baseline to the post-implementation periods. It is also reasonable to compare the service utilization of recipients in the different health plans during the post-implementation period. We cannot know for sure that increases or decreases in service utilization over time are the result of plan policies and actions. They could, in fact, reflect changes in the needs of plan enrollees. Large changes in utilization patterns over short periods of time, however, are more likely the result of service access issues than real expressions of changing need.

We use service penetration as the measure of access to mental health services. From a common sense point of view, service penetration is the number of individuals that accessed a service during a particular time interval, in this case, 6 months' baseline and 6 months' post-implementation, divided by the total number of people that could have accessed the service. However, in the context of health plans the number of months individuals are enrolled is important because a service cannot be accessed from a network provider if the individual is not enrolled in the plan. Therefore, we measure penetration as the number of eligible months of enrollees that accessed particular categories of service during the 6-month periods divided by the total number of eligible months of all individuals that could have accessed the same category of service.

Although there likely is a significant overlap in the individuals served by each plan in the two 6 month periods, the analysis does not require them to be the same. We are comparing the service penetration of all individuals meeting the SMI and SED criteria in each of the plans during the baseline and post-implementation periods rather than the behavior of the same individuals over time.

As in last year's Area 1 study, we look at penetration in a variety of different kinds of services including emergency and inpatient care, psychiatric office visits, and community mental health (CMH) services and supports. An innovation in this year's analysis is the use of service frequency as well as service penetration. Frequency refers to the average number of days during 1-month intervals that enrollees actually used a service in a particular category. The concept adds precision to the penetration analysis in that it tells us not only if a service was used in a particular time interval but also how many days out of the total available days it was used among those that penetrated each service category. Frequency rates associated with all of the services and plans are included in the tables in Appendix 2 of the report.

Penetration analyses used logistic regression to test the differences between the groups. For inpatient services, emergency services, and psychiatrist services, information was not available for the HMO plans in the pre-implementation period as those services were part of the HMO plan prior to behavioral health

implementation and before encounter collection began. Two logistic regressions were conducted for these services. First, a logistic regression was conducted that compared each of the HMO groups with the FHP group post-implementation using reference group parameterization with FHP post-implementation as the reference group. This tested the overall difference in the groups for the post-implementation period. No other effects were in this analysis. To assess the change in plans from the pre-implementation period to the post-implementation period, a second logistic regression was conducted that compared all the groups with FHP pre-implementation using reference group parameterization with FHP pre-implementation as the reference group for all groups including FHP post-implementation. Scores of 0 and 1 indicated lack of penetration and penetration for individuals and each individual score was weighted by the number of months eligible in that plan.

For Community Mental Health (included targeted case management services) penetration, a logistic regression was conducted that assessed the time effect (baseline vs. post-implementation periods), group effects, and the group by time interaction. In addition, separate logistic regression assessing the time effect independently for each group were conducted to ensure that any changes over time within plans were detected.

Statistical tests on frequency of service use among those who used each type of service were also conducted using logistic regression using response/trials coding. Here each day of eligibility was considered a trial and each day of service use was considered a response. Responses and trials were calculated for each person as an observation. Except for the response/trials coding and the use of only service users in the analysis, the logistic regressions for frequency were conducted identically to those for penetration.

Service Access

SED Children

The penetration rates for children with an SED for the different plans in Area 5 for the baseline (when available) and post-implementation periods are presented in Table 2.

Table 2

Area 5 – Penetration rates SED children

Plan	ER (1) Post	Inpatient (2) Post	Psych Office (3) Post	CMH (4) Post	CMH Baseline	CMH % Change
FHP	0.98%	6.16%	13.24%	38.63%	42.69%	(10%)
Healthease	1.31%	4.74%	12.27%	31.15%	38.85%	(20)
Staywell	3.59%	5.80%	9.64%	30.50%	35.80%	(15)
Amerigroup	0.57%	3.15%	8.63%	7.52%	37.18%	(80)

1 – PMHP pre-implementation penetration ER 2.68%

2 – PMHP pre-implementation penetration inpatient 2.98%

3 – PMHP pre-implementation penetration psychiatric office visits 12.50%

4 - CMH= community mental health services

Penetration of psychiatric office visits in the post-implementation period was highest for the FHP and lowest for Amerigroup. The differences between FHP and Amerigroup and FHP and Staywell were statistically significant (χ^2=13.9, $p<.001$ for Amerigroup and χ^2=10.20 , $p<.001$ for Staywell). There was not a significant difference between Healthease and the FHP. Comparing baseline to post-implementation periods, FHP enrollees actually penetrated psychiatric office visits slightly more in the post period. No pre-implementation office visit penetration rates are available for the HMOs. In the post-implementation period, Healthease had the highest rate among the HMOs. Amerigroup had the lowest.

The use of psychiatric office visits among Amerigroup enrollees in the post-implementation period warrants further comment. Although penetration rates were lowest for this group, the average frequency of use was one and a half to two times higher than those of the other plans (.87 for Amerigroup, .40, .60 and .63 for the FHP, Healthease and Staywell, respectively). The frequency of office visit use among Amerigroup enrollees penetrating this category of service was significantly greater than FHP enrollees (χ^2=125.8, $p<.001$). On average, Amerigroup enrollees with an SED penetrating the psychiatric office visits category received almost one visit per month. This compares with the FHP, Healthease and Staywell enrollees that on average received about half a visit per month or one visit every 2 months.

The penetration rates for CMH services may partially explain Amerigroup's apparently more intensive outpatient care. CMH penetration rates for its enrollees dropped significantly from 37.2% in the baseline to 7.5% in the post-period (an 80% decline, χ^2=765.1, $p< .001$). Although all pre-post plan changes were significantly different ($p< .001$), the magnitude of the baseline to post-implementation period reductions for the other plans were smaller (10% for the FHP, 15% for Staywell, and 20% for Healthease). CMH service penetration rates for these plans were four times that of Amerigroup's in the post-implementation period. Amerigroup's network served smaller percentages of children with an SED (3.8% of all children, compared with 8.5% for FHP, 4.4% for Healthease and 5.0% for Staywell). Those that did access services appear to have received more frequent office visits and less CMH services.

Penetration of inpatient services almost doubled for FHP enrollees from the baseline to post-implementation periods (χ^2=134.5, $p<.001$). Although no baseline data are available for the HMOs, the inpatient penetration rates for Healthease and Staywell were both significantly above the FHP baseline number. There was not a significant difference between Amerigroup's rate in the post period and the FHP pre-implementation rate. Post-implementation emergency services penetration rates were significantly higher for Staywell and significantly lower for Amerigroup compared with the FHP. The post-implementation penetration rate for Staywell was particularly high relative to the other health plans and to the FHP baseline numbers.

The penetration rates for children with an SED baseline (when available) and post-implementation in Area 7 are presented in Table 3.

Table 3
Area 7 – Penetration rates SED children

Plan	ER (1) Post	Inpatient (2) Post	Psych Office (3) Post)	CMH Post	CMHM Pre	% Change
FHP	1.10%	3.89%	4.42%	34.75%	48.49%	(28%)
Healthease	1.56%	3.41%	10.93%	39.56%	42.07%	(6)
Staywell	1.99%	3.05%	11.51%	34.53%	38.01%	(9)
Amerigroup	0.54%	2.00%	6.63%	26.10%	36.73%	(29)

1 – FHP pre-implementation penetration ER 0.97%
2 – FHP pre-implementation penetration inpatient 2.33%
3 – FHP pre-implementation penetration psychiatric office visits 8.08%

Unlike Area 5, utilization of psychiatric office visits significantly declined baseline to post-implementation for FHP enrollees (χ^2=149.2, p<.001). Penetration of CMH services also declined significantly and more markedly from baseline to post-implementation periods for Area 7 compared with Area 5 (28% decline in Area 7 vs. 10% decline in Area 5). Use of inpatient care increased significantly for FHP enrollees from baseline to post-implementation (χ^2=84.9, p<.001). The slight increase in emergency services penetration was not statistically significant.

Healthease and Staywell had the highest penetration of psychiatric office visits in the post-implementation period. Their penetration rates were significantly higher than the FHPs. CMH service penetration declined in these plans baseline to post-implementation. This change was statistically significant for both plans (Staywell, χ^2=169.5, p<.001; Healthease χ^2=76.5, p<.001).

ER usage in the post-implementation period was significantly higher for Staywell and Healthease compared with FHP (Staywell,χ^2=42.92, p<.001; Healthease χ^2=9.2, p<.01). Post-implementation use of inpatient services for both plans were significantly higher than the FHP baseline penetration rate (Staywell, χ^2=29.9, p<.001; Healthease χ^2=31.9, p<.001). However, they were lower than the FHP's in the post period (Staywell, χ^2=6.9, p<.01; Healthease χ^2=1.3, p>.05).

In Area 7, Amerigroup had the lowest penetration of CMH services in the post-period, (26%) although it was far greater than the 8% in the post-period in Area 5. It also had the lowest penetration of office visits among the HMOs. Nevertheless, its post ER and inpatient penetration rates were significantly lower than the FHP's and lowest of all the plans. Here again, the frequency of office visits among the Amerigroup enrollees that did receive them was higher than the other plans. On average, Amerigroup enrollees penetrating the office visit service category received 1.2 services per month compared with .42 for the FHP, .72 for Healthease, and .62 for Staywell.

Adults with an SMI

Penetration rates for adults with an SMI in Area 5 are presented in Table 4 below.

Table 4
Area 5 Penetration rates for adults with an SMI

Plan	ER (1) Post	Inpatient (2) Post	Psych Office visit (3) Post	CMH Post	CMH Pre	% Change
FHP	4.25%	10.00%	12.20%	53.16%	46.30%	15%
Healthease	12.41%	11.49%	40.26%	49.17%	62.32%	(21)
Staywell	10.31%	11.17%	36.98%	45.87%	61.19%	(25)
Amerigroup	4.10%	11.71%	33.62%	8.60%	75.05%	(86)

1 – FHP pre-implementation inpatient = 11.30%
2 – FHP pre-implementation emergency services = 5.16 %
3 – FHP pre-implementation psychiatric office visits = 26.6%

For the FHP, we see a shift in the nature of the ambulatory care provided. Penetration of psychiatric office visits was cut in half from baseline to post-implementation χ^2=368.54, p<.001), and the frequency of office visits among those using them declined from .70 average days/month in the baseline period to .64 days in the post. On the other hand, penetration of CMH services increased significantly over the base period. The frequency of these services among those using them also increased significantly from the baseline to post-implementation periods from 1.55 days per month to more than 2 days on average per month. (χ^2=224.5, p<.001)

Psychiatric office visit penetration rates for the three HMOs in the post period were approximately three times greater than FHP. All FHP to HMO comparisons were statistically significant. Service frequency was higher for all the HMOs and significantly higher for Staywell compared with the FHP. Unlike the other populations the frequency of office visit use for Amerigroup enrollees with an SMI was not higher for adults with an SMI in Area 5. The use of CMH services declined significantly (by about 25%) for Staywell and Healthease from baseline to post-implementation perhaps reflecting a modest shift from CMH to psychiatric office visits. However, for Healthease and Staywell enrollees accessing CMH services, the frequency of use actually increased although not significantly so. Amerigroup enrollees experienced a dramatic reduction in the penetration of CMH services. In the baseline period, Amerigroup enrollees had the highest penetration of CMH services (75%). In the post-implementation period penetration plunged to 8.6%, the lowest rate of all the plans. The differences in the baseline and post-implementation rates for Amerigroup were significant (χ^2=1336.5, p<.001). In addition, the frequency of use of CMH services among enrollees penetrating this category dropped significantly from .87 service day per month to less than a third of a service day per month or one service day every 3 months. Meanwhile, the use of psychiatric office visits among Amerigroup enrollees was less than for Healthease and Staywell. There were no noticeable differences between the HMOs in the frequency of office visit use among those penetrating the service.

Penetration of emergency services declined slightly for FHP enrollees from baseline to post-implementation, as did the use of inpatient services. Neither change was statistically significant. Emergency service use among Healthease and Staywell enrollees in the post-implementation period were significantly higher than the FHP's, yet there were no significant differences in inpatient service penetration among the plans.

Penetration rates for adults with an SMI for the plans serving Area 7 are presented in Table 5 below.

Table 5
Area 7 – Penetration Rates Adults with SMI

Plan	ER (1) Post	Inpatient (2) Post	Psych Office (3) Post	CMH Post	CMH Pre	%Change
FHP	3.54%	10.38%	15.37%	49.96%	55.45%	(10%)
Healthease	9.78%	11.67%	35.10%	51.03%	67.40%	(24)
Staywell	7.68%	8.80%	28.39%	55.50%	66.98%	(17)
Amerigroup	3.71%	11.01%	30.32%	34.92%	77.51%	(55)

1 – FHP pre-implementation emergency services = 3.0%
2 – FHP pre-implementation inpatient= 8.7%
3 – FHP pre-implementation psychiatric office visits = 18.1%

A shift in the approach to the care of adults with an SMI is less apparent for the FHP in Area 7. Office visit use and CMH penetration rates both declined significantly from the baseline to post-implementation periods. Frequency of use of CMH services among those penetrating this category increased in the post-implementation period from an average of 1.47 to 1.63 days/month (χ^2=29.57, p<.001).

On average, HMO enrollees were about twice as likely as FHP enrollees to access psychiatric office visits in the post-implementation period. There were no significant differences between Healthease and Staywell and the FHP. Among those accessing psychiatric office visits, Amerigroup enrollees used them significantly more often than the other plans. Those in Healthease and Staywell were more likely than FHP enrollees to penetrate CMH services in the post-implementation period. However, the average number of days/month a service was accessed was about 1.04/day/month for these plans compared with 1.5 for the FHP. As in Area 5, Amerigroup enrollees had the lowest penetration of CMH services in the post-period and the largest decline baseline to post-implementation. The frequency of service use for Amerigroup recipients accessing CMH services was almost exactly the same as that of Healthease and Staywell and significantly less than the FHP (χ^2= 16.6, p<.001).

Penetration of emergency services in the post-implementation periods in Area 7 was highest for Healthease and Staywell. The rates of these plans were significantly higher than those of the FHP. There were no significant differences between the plans in penetration of inpatient services with the rates ranging from 8.8 to 11.7.

Outcomes Analyses

Consistent with previous evaluations, we use rates of Baker Act (BA) evaluations and arrests as the primary measures in the evaluation of outcomes. Rates of Baker Act evaluations and arrests per 100 enrollees with an SMI and an SED are calculated for enrollees in the plans for the 6 months before and after each plan assumed responsibility for the behavioral health care of its enrollees. Only enrollees with a full 6 months of eligibility in the baseline period and in the 6 months after the implementation of behavioral health care are included in this analysis. The rates baseline and post-implementation are compared for each of the populations for each plan in Areas 5 and 7.

Baker Act evaluations and arrests are relatively rare events within a single 6-month time interval. Therefore, even changes that seem to be noteworthy sometimes do not reach statistical significance. We will first present the results of the statistical analysis. We will then describe changes and compare rates in some instances in which the differences between plans were not statistically significant but there were some consistent trends. In these analyses, we report the number of individuals in the analysis, the number of individuals with a negative outcome, and the number of negative outcomes associated with the baseline and post-implementation periods. This allows the Agency to identify changes that may warrant closer scrutiny of the plans or follow-up actions. For example, if a plan has 150 adults with a serious mental illness, and their rates of Baker Act evaluations triple from the 6-month baseline to the 6 months post-implementation, the Agency may seek more information even if the change does not reach statistical significance.

The statistical technique used for these analyses is general linear modeling (GLM), a form of regression analysis that, in this case, is used to test the hypothesis that the outcomes of enrollees of the various plans did not change differently from the 6 months baseline to the 6 months post-implementation. In statistical terms, the hypothesis is that the plan by time interaction =0. Differential change could have occurred for example, if the rates of Baker Act evaluations for enrollees in one plan tripled from the baseline to the post-period, whereas those of the other plans remained the same or actually declined. In a similar fashion, the outcomes of all plans could improve or deteriorate but some much more dramatically than others.

Adults with an SMI

The rates of Baker Act evaluations per 100 enrollees for Area 5 recipients with an SMI in each of the plans baseline and post-implementation are presented in Table 6.

Table 6
Area 5 Baker Act Rates/100 Adults with SMI

Plan	Baseline Rate	Post Rate	% Rate change	Baseline Period			Post Period		
				Total N	N with an event	Count of Events	Total N	N with an event	Count of Events
FHP	16.8	11.4	(33%)	861	91	145	833	74	94
HE	5.4	17.2	216%	130	5	7	141	18	24
SW	18.3	17.0	(7%)	153	18	28	159	13	27
Amer.	11.5	11.0	(4%)	262	21	30	272	24	30

Group by Time interaction F= 2.15 (p=. 08)

In Table 6, we see that rates of BA evaluations declined from 16.8/100 to 11.4/100 from baseline to post-implementation for FHP recipients with an SMI. They more than tripled for Healthease recipients going from 5.4/100 to 17.2/100. In the baseline period, 5 of 130 Healthease enrollees generated seven emergency evaluations. In the 6 months after Healthease assumed responsibility for all behavioral health services of their enrollees, 18 of 141 enrollees with an SMI generated 24 emergency evaluations. On the other hand, in the FHP, 91 of 861 enrollees generated 145 BA evaluations in the 6 months before managed care implementation, and 74 of 823 generated 94 BA in the post-implementation period. There was little baseline to post-implementation change for Staywell and Amerigroup in Area 5.

The group by time interaction in Table 6 was not statistically significant (p=. 08), meaning that changes in Baker Act rates among the plans for the baseline and post-implementation periods could have occurred by chance 8 times of 100 if there were actually no plan differences. The convention for statistical significance is p< .05. The change in Baker Act rates from the baseline to the post-implementation periods was significant for the FHP (p=. 03); it was not for Healthease (p=. 07).

The group by time interaction analysis and the results of similar analysis in last year's study in Area 1 suggested there might be significant plan differences in the outcomes of some subcategories of recipients with an SMI. In last year's analysis, we found a similar trend for the overall relationship between plan and outcomes over time for adults with a serious mental illness and pursued it by looking at changes in rates among males and females. A significant difference was found for males but not females. Looking at the relationships by gender also produced significant differences between area plans this year. However, unlike Area 1, in Area 5, we found a significant group by time interaction for females rather than males (p<.05). These results are presented in Table 7.

Table 7
Baker Act Rates/100 for Females with an SMI (Area 5)

Plan	Baseline Rate	Post Impl. Rate	% Rate change	Baseline Period			Post Implementation Period		
				Total N	N with an event	Count of Events	Total N	N with an event	Count of Events
FHP	15.3	9.7	(30%)	602	61	92	559	44	54
HE	4.0	17.7	215%	100	4	4	102	14	18
SW	13.3	14.9	(7%)	113	12	15	121	10	18
Amer.	10.5	10.8	(4%)	209	15	22	214	18	23

F=2.53 (p=.05)

In Table 7, we see that Baker Act rates for females in the FHP dropped baseline to post-implementation from 15.3/100 recipients to 9.7/100 recipients, whereas the rates for Healthease increased from 4/100 to 17.7/100 females enrollees with an SMI. Fourteen out of 102 Healthease enrollees accounted for 18 Baker Act evaluations during the 6-month post-implementation period. The differences in Baker Act rates baseline to post-implementation were significant for FHP and Healthease (p<. 05). As in the overall analysis, there were no noteworthy changes for Staywell or Amerigroup.

The group by time interaction was not significant for Baker Act evaluations of adults with an SMI in Area 7 (see Appendix 2). However, the trends were somewhat similar. Here the FHP and Amerigroup evaluation rates declined modestly from baseline to post-implementation periods. The rates for Healthease increased from 10.0/100 enrollees with an SMI (N=300) in the baseline period to 15.8 (N=323) in the post-implementation period. In Area 7, Staywell's rates also increased from 5.9 (N=392) to 10.7 (N=430). The changes in Baker Act rates for females with an SMI were similar to Area 5 with Healthease and Staywell rates rising baseline to post-implementation from 7.7 to 13.1 for the former and 4.6 to 8.6 for the latter.

There were no significant differences in arrest rates per 100 enrollees with an SMI from baseline to post-implementation periods either in Areas 5 or 7 (see Appendix 3). In Area 5, rates for FHP enrollees declined from 9.1 to 5.8/100 enrollees. In Area 7, there was little change for FHP. The rates for the other plans all increased, but the numbers of arrests were small.

Children with an SED

Not unexpectedly, Baker Act and arrest rates for SED children were lower than for adults with an SMI. There was no significant group by time interactions for either area for the entire SED population or for gender subgroups within each of the areas. In Area 5, arrest rates for Healthease and FHP declined 10.0 to 6.4/100 and 5.9 to 5.0, respectively, whereas there were no changes in the other plans. It is interesting to note that, in Area 7, arrest rates for children increased for all the plans, with the greatest increase associated with the FHP (see Appendix 3).

Quality of Care

In this year's evaluation, we studied the service utilization patterns of individuals who were discharged from inpatient services in an effort to measure and compare the quality of care offered by the different plans servicing Areas 5 and 7. The analysis is based on three assumptions. First, individuals discharged from inpatient care with a psychiatric diagnosis should have at least one follow-up ambulatory care visit within 30 days of discharge. Second, almost everyone discharged from a hospital with a psychiatric diagnosis will require some ambulatory mental health care in the succeeding 6 months.

Third, the nature and severity of problems precipitating a psychiatric hospital admission will generally require an array of community services and supports, one of which is psychiatric office visits, during the 6 months after discharge.

Thus, the three measures of quality we apply to the plans are the following:

1. Recipients received/did not receive a community-based service within 30 days of hospital discharge.
2. Recipients received/did not receive a community-based service in the 6 months after discharge.
3. The number of different kinds of services and supports received by individuals in different plans in the 6 months after discharge.

Service components include assessment, treatment planning, basic outpatient, targeted case management, and intensive outpatient services.

To gather information on plan performance on these measures, we identified enrollees in each of the plans that were discharged from hospital care after the point in time that each plan assumed responsibility for all mental health services of their enrollees. We followed these discharged patients using their service encounter data for the entire period from their hospital discharge to the end of the 6-month follow-up periods. Individuals discharged on the first day of the 6-month encounter data reporting period had 6 months follow-up periods. For those discharged at a later point in time, the follow-up periods were shorter. We include in these analyses only individuals who maintained enrollment and had at least 90 day follow-up periods.

Table 8

Percentages of enrollees receiving services within 30 days of discharge

Group	Enrollees with at least one CMH/TCM Service	Total Number of discharges	Percentage
AMERIGROUP AREA 5	36	82	43.90%
AMERIGROUP AREA 7	22	73	30.14%
FHP AREA 5	153	231	66.23%
FHP AREA 7	141	236	59.75%
HEALTHEASE AREA 5	24	35	68.57%
HEALTHEASE AREA 7	40	91	43.96%
STAYWELL AREA 5	43	64	67.19%
STAYWELL AREA 7	73	126	57.94%

Table 8 presents the data on the question of whether discharged individuals received services within 30 days of discharge.

Looking at the data in Table 8, we see that generally, the plans provided ambulatory services to between 60 and 70% of hospital discharges within 30 days. Amerigroup is the one plan exception serving only 44% of discharges in Area 5 and 30% in Area 7 within 30 days of discharge. Healthease in Area 7 also served only 44% of discharged enrollees within 30 days.

Table 9
Percentages of enrollees receiving no services 6 months after discharge

Plan	% No community based services		Number of Admissions with 3 months of more eligibility post-discharge	
	Area 5	Area 7	Area 5	Area 7
FHP	4.60%	6.2%	88	87
HE	10.50%	0.0%	19	32
SW	7.40%	4.4%	27	45
Amerigroup	8.00%	27.8%	25	18

Table 9 presents the data related to service receipt within 6 months. Looking at the data for Area 5 we see most enrollees in all the plans received some community services post discharge. FHP had the smallest percentage receiving no service and Healthease had the largest, but all were below 11%. In Area 7, we see a similar pattern for FHP, Healthease and Staywell. All had fewer than 10% of discharges receiving no services with Healthease and Staywell performing slightly better than FHP. However, in Area 7, 28% of Amerigroup enrollees discharged from inpatient care received no community based mental health services during the follow-up periods.

Table 10 presents data on the number of different service components received by enrollees that received at least one service component for each of the plans in Areas 5 and 7.

Table 10
Number of service components by plan
Service Provision after hospital discharge (Area 7)

Components	Amerigroup	FHP	Healthease	Staywell
1	8[1] (62)[2]	38 (42)	16 (50)	26 (60)
2	3 (23)	30 (33)	7 (22)	8 (19)
3	1 (8)	17 (19)	5 (16)	6 (14)
4 or 5	1 (7)	6 (6)	4 (12)	3 (7)
Service Provision after hospital discharge (Area 5)				
Components	**Amerigroup**	**FHP**	**Healthease**	**Staywell**
1	22 (96)	20 (24)	8 (47)	13 (52)
2	1 (4)	31 (37)	6 (35)	5 (20)
3	0 (0)	23 (27)	2 (12)	5 (20)
4 or 5	0 (0)	10 (12)	1 (6)	2 (8)

1 Number of individuals
2 Percentages of individuals receiving each # of components

There was a statistically significant difference among the plans in Area 5 in the number of different components hospital discharges received in the 3 to 6 months post discharge ($\chi^2 = 41.1$ $p < .001$). Almost all of Amerigroup patients received a single community based service component. FHP enrollees more often received two or three service components after a discharge than did Healthease and Staywell (76% for FHP vs. 53% for HE and 48% for SW). There was not a statistically significant difference among the plans in Area 7. The most noteworthy difference between Areas 5 and 7 is that 62% of Amerigroup discharges received one component in Area 7 compared with 95% in Area 5. Although more FHP enrollees received 2 or 3 components than Healthease or Staywell enrollees, the differences were not as large as in Area 5 (58% for FHP, 50% for Healthease and 40% for Staywell).

One of the goals of service delivery after hospital discharge is to reduce the frequency of readmission to an inpatient or other deep-end service. In an effort to determine if the varying quality of post-discharge services of the plans had an impact on outcomes we took a look at the percentages of hospital discharges in each plan that were readmitted to a deep-end service during their follow-up periods. These results are presented in Table 11.

Table 11

Readmissions to deep-end services for hospital discharges

Plan	Area 5 % Admitted to Deep-End Service	Area 7 % Admitted to Deep-End Service
FHP	44%	42%
Healthease	58%	47%
Staywell	59%	44%
Amerigroup	36%	56%

FHP enrollees had the lowest "readmit rate" in Area 7; Amerigroup was the lowest in Area 5. Healthease and Staywell had the highest rates in Area 5, Healthease in Area 7. Despite the lack of follow-up care experienced by Amerigroup enrollees, their readmission rate was the lowest in Area 5. It was comparatively high in Area 7 but still below Healthease which seemed to do much better follow-up service delivery. We need to consider if these findings are the result of underreporting of encounter data on the part of Amerigroup.

Discussion and Conclusions

The results of the service penetration and service frequency analysis are somewhat inconsistent with what one would expect. As health systems move from unmanaged fee-for-service systems to managed capitated arrangements, we would generally expect a decrease in the use of emergency and inpatient mental health care and an increase, or at least maintenance, of the levels of ambulatory services designed to prevent the use of more expensive acute care services. Such an expectation is consistent with the underlying philosophy of managed care to use the least intensive appropriate service, and with its financial incentives. Managed care systems usually move quickly to reduce emergency and inpatient services because they are generally the most expensive. Comparing the use of inpatient services for the 6 months before and after managed care implementation we find the FHP's penetration of inpatient services actually increased for children with an SED in both Areas 5 and 7. There were also increases in inpatient penetration for adults with an SMI in Area 7 and a slight decrease in Area 5.

We do not have inpatient penetration data for the HMO enrollees before the implementation of managed care. However, because in this analysis we are exclusively studying adults with an SMI and children with an SED, we would expect the clinical characteristics and service needs of HMO enrollees to be similar to those in the FHP. Their inpatient penetration should therefore be roughly comparable. In addition, use of inpatient mental health care was managed for HMO enrollees in the 6 months before managed behavioral health care implementation because the HMOs had always been capitated for psychiatric inpatient care. We would therefore expect inpatient penetration rates for the HMOs before behavioral health implementation to be as low or lower than the rates in an unmanaged environment like that of FHP enrollees in the pre-implementation period. If this is a reasonable assumption, we can use the FHP baseline as a conservative estimate of HMO baseline inpatient penetration rates. Doing so leads to the conclusion that inpatient usage did not consistently decline in the post-implementation periods. In fact, usage for children with an SED in Areas 5 and 7 increased significantly for Healthease and Staywell pre- to post-implementation. They also increased slightly for Healthease adults with a SMI in Area 5 and significantly for this group in Area 7.

The high use of emergency services for Healthease and Staywell seems to be particularly problematic. In Area 5, Staywell had a higher ER penetration rate for children with an SED than the FHP baseline rate. In Area 7, Healthease and Staywell did. For adults with an SMI, Healthease had higher ER penetration rate in Area 5. All plans were higher than the FHP baseline in Area 7.

The picture for ambulatory services is less clear. With regard to CMH services nearly all plans had declines in penetration rates pre- to post-implementation periods. The FHP did not have consistently higher CMH penetrations rates than the HMOs in the post-implementation periods. Psychiatric office visits penetration rates were generally lower for the FHP pre- to post-implementation periods with one exception. We do not have office visit penetration for the

HMOs in the pre- implementation periods but would expect based on the comparatively high rates compared with the FHP in both the pre- and post-implementation periods that rates increased in the post-implementation periods as some CMH services were replaced with office visits.

It would appear that the shifting mix of services offered to recipients with the implementation of managed care did not have the effect of reducing the use of emergency and inpatient care. This may be a function of the time intervals included in the study. It may be unrealistic to expect to see major changes in the use of acute care services during the early months of managed care implementation.

The results of the outcomes analysis related to the rate of emergency Baker Act evaluations for adults with a SMI suggest some plan differences. In both areas, Baker Act evaluations increased for Healthease and decreased for FHP. Amerigroup and Staywell rates were largely unchanged in both areas. In the Area 5 analyses, there was a significant group by time interaction for women with an SMI with the FHP evaluations declining in the post-implementation period and Healthease's increasing. Differences in Baker Act evaluations for adults with an SMI are consistent with the previously reported data on ER penetration rates for Healthease. Healthease recipients penetrated ER services significantly more often than those of FHP.

The conclusions of the outcomes analysis are less clear for arrest rates. There was no significant plan by time interactions in these analyses. Arrest rates declined for adults with an SMI served by the FHP in both areas, although the decrease in Area 7 was marginal. They increased for all the HMOs in Area 7 and for two of the three groups in Area 5. Although the numbers are small, the increase in arrest rates for Staywell and Amerigroup in Area 7 may warrant ongoing monitoring. The outcomes analyses for children with an SED did not yield any significant group by time interactions. Furthermore, there was no pattern of change favoring any of the plans.

It is difficult to conclude that there is any consistent connection between the mix and frequency of ambulatory services delivered by the plans networks and outcomes of enrollees, at least in the early post-implementation periods. In fact, this cannot be done for Amerigroup because its encounter data reporting began after the end of the outcomes analysis time frame in most of the counties it served. For the remaining plans there is a 4-month overlap between the encounter data reporting and outcomes analysis time periods. It is tempting to attribute the reductions in Baker Act (BA) evaluations experienced by FHP adults with an SMI in Area 5 because the plan seems to have consciously reduced the use of psychiatric office visits and increased reliance on the more diverse and potentially supportive CMH services. The slight declines in ER and inpatient service among FHP enrollees are consistent with this speculation. So, too, are the reductions in CMH services provided by Healthease and Staywell enrollees and their comparatively high rates of ER usage in the post-implementation periods. However, two observations require that we be cautious in making such a leap. First, although Healthease and Staywell both significantly lower penetration of

CMH services and had higher ER penetration in the post-period, only Healthease enrollees with a SMI experienced an increase in rates of BA evaluations. If there was a direct link between shifts in penetration and outcomes, it is not clear why Staywell enrollees did not experience the same deterioration in outcomes.

In Area 7 we also see a consistent, although not statistically significant, trend with both Healthease and Staywell enrollees with an SMI generating increases in BA evaluations while FHP's decline pre- to post-implementation. We also see higher ER penetration rates for these plans in the post-implementation periods, although the penetration of CMH and outpatient services was higher than the FHPs for these plans in the post-period. Clearly, there is not a simple relationship between penetration of ambulatory services and the use of ER or inpatient services or the incidence of BA evaluations.

The case of Amerigroup requires additional comment. Despite lower penetration rates for ambulatory care, Amerigroup had generally lower rates of ER usage and lower rates of BA evaluations. There are several possible explanations for these apparently anomalous findings.

First, the lack of connection between ambulatory care and ER/inpatient penetration may be the result of underreporting of encounter data. Amerigroup's penetration of all services is comparatively low. If the plan consistently underreported all types of encounters, it would produce the results just cited—low ambulatory service penetration and low ER and inpatient penetration.

Second, Amerigroup's lower ER and inpatient rates may be the result of a reporting period that was different from those of the other plans. For Amerigroup, there was a 6-month lag between beginning managed care operations and reporting of encounter data in Area 5. In Osceola, Seminole, and Orange counties in Area 7, the lag was 8 months. The remaining plans had only a 2-month lag between assuming responsibility for care and the reporting of encounter data. If there tends to be turmoil in the early implementation of managed care resulting in short-term up tics in ER and inpatient usage, these would have been missing in Amerigroup's encounter data because of its later start in reporting encounter data.

It should be pointed out that neither of the above explains the outcomes of Amerigroup enrollees. Although we do not know what service penetration and frequency Amerigroup enrollees had in the 6 to 8 months immediately after its managed care implementation, it is quite possible the plan was doing something well. In fact, Amerigroup may have been successful in identifying enrollees most at risk for acute care and involuntary evaluations and assuring they received adequate services. The plan in the immediate post-implementation period may have been to provide more intensive psychiatrist office visits and less CMH services, as Amerigroup's later encounter data seem to indicate. The plan may have worked during the short term. However, one wonders about the well-being of individuals with serious mental illnesses covered by Amerigroup that do not penetrate any ambulatory services. This question will be addressed by next year's evaluation.

Finally, in last year's study in Area 1, and in this year's study, we assumed there were no differences between the plans in the characteristics of enrollees

with a SMI and those with an SED that would affect our penetration and outcomes analysis. The Amerigroup findings led us to question this assumption. If Amerigroup enrollees were less likely to need or to access services than those in the other plans, this could explain the apparent lack of connection between penetration of ambulatory services and ER and inpatient use. We compared the diagnoses of SMI adults and SED children in the plans and found they had somewhat different diagnostic distributions. We then developed a preliminary diagnosis-based service utilization prediction model and applied them to the service penetration analysis. The findings seem to indicate differences in the characteristics of enrollees may help explain differences in service penetration and, at a minimum, would make them more precise. The diagnostic analysis is included in Appendix 4. This preliminary case-mix adjustment requires further development and refinement. Our plan is to accomplish this during the summer so that we have an approach ready for next year's managed care evaluation and for our evaluation of Medicaid reform in which we also plan to focus on adults with an SMI and children with an SED.

The transition to managed care had just begun during the time periods covered by this evaluation. Trends and patterns of service penetration and outcomes described are therefore provisional and may look very different 12 to 18 months post-implementation. Nevertheless, the analyses do suggest several areas for follow-up by the plans and by the Agency.

First, the penetration rates of emergency care, especially for Healthease and Staywell adults with a SMI in the post-implementation period, suggest that the transition to managed care was not seamless. The analysis of Baker Act rates reinforces this conclusion, at least for Healthease.

Second, the increased use of inpatient care by FHP enrollees is a cause for concern. The reduction in Baker Act rates in the post-implementation period would seem to indicate an increase in voluntary hospitalizations. Nevertheless, one would expect to see declines in inpatient penetration as managed care implementation continues.

Third, Amerigroup enrollees consistently experienced the largest reductions in penetration and diversity of ambulatory services. No evidence of deterioration in outcomes was detected in Amerigroup's 6-month follow-up period. This requires follow-up analyses as previously discussed as well as careful monitoring to see if negative outcomes begin to emerge.

The description of services for enrollees discharged from hospital care also raises some concerns. Most of the plans engaged discharged patients within 30 days between 60% and 70% of the time. This is below the adjusted HEDIS benchmark for Medicaid plans of 72% and indicates that plans have more coordination work to do. Amerigroup in Areas 5 and 7 and Healthease in Area 7 have a long way to go, with more than half of hospital discharges failing to have any ambulatory contact in the 30-day time frame (as indicated by plan-reported encounter data).

The performance of Amerigroup on the services within the 6-month indicator is also problematic. The percentage of Amerigroup discharges not receiving any ambulatory services in Area 7 was 4 times greater than any of the other plans. The FHP did the best on this indicator in Area 5, and Healthease did the worst. In Area 7, Healthease did the best and FHP the worst, setting aside Amerigroup's performance, which has already been discussed.

Of the three indicators of quality, the one most subject to debate is the component analysis. The underlying theory is that patients with a psychiatric problem serious enough to require a hospital admission need a variety of services and supports during the 6-month period after discharge. If this is true, then once again the performance of Amerigroup is the most problematic. Almost all of its discharged enrollees in Area 5 received only one service component in the periods after discharge. Its service offerings were somewhat more diverse in Area 7. The FHP offered the most diverse array of services to discharged patients in both areas. Healthease and Staywell followed them in descending order.

The analysis of readmission rates among discharges from inpatient care seems to indicate room for improvement for all the plans. During the follow-up periods of 6 months or less, the average deep-end readmission rates were more than 50% for both areas. The rates for Healthease and Staywell in Area 5 are especially problematic and may indicate a need to improve discharge planning and follow-through.

Appendix A: Definitions

Enrollees

1. All Medicaid enrollees who met the following conditions for the time periods in which all the numbered conditions were true during the baseline and post-implementation periods:
2. Age between 1 and 64 years.
3. Be in TANF, SSI, or SOBRA. We have adopted the following algorithm for determining the eligibility program based on eligibility code that remains constant across all analyses:
   a. TANF='MA I', 'MA R', 'MA U', 'ME C', 'ME I', 'ME T', 'MN', 'MO A', 'MO D', 'MO P', 'MO S', 'MO T', 'MO U', 'MO Y', 'MP C', 'MP N', 'MP U'
   b. SSI='MI A', 'MS', 'MT A', 'MT C', 'MT D', 'MT S', 'MT W'
   c. SOBRA='MM C', 'MM I' while younger than 21 years.
4. Met any of the following enrollment criteria:
   a. Were assigned to an Amerigroup, Healthease, or Staywell HMO in one of the counties in Area 5 and Area 7 based on the Medicaid HMO enrollment file OR
   b. Period was baseline and were enrolled in Medipass in Area 5 or Area 7 counties based on the Medicaid Medipass enrollment file OR
   c. Period was post-implementation and were enrolled in Florida Health Partners Area 5 or Area 7 based on the Medicaid PMHP enrollment file
5. Enrollment in each plan for each month was confirmed by the presence of a capitation payment claim matching the characteristics of the enrollment plan with a reimbursed amount greater than zero for each month of plan eligibility.

Diagnostic Groups for Analyses

1. Bipolar Disorder (ICD-9 diagnosis in range from 296.4-296.99 or 296-296.19)
2. Schizophrenia and Psychoses (ICD-9 diagnosis in range from 295-295.99 or 297-298.99)
3. Major Depression (ICD-9 diagnosis in range from 296.2-296.39)
4. Hyperkinetic Disorder (ICD-9 diagnosis in range from 314-314.99)
5. Conduct Disorder ICD-9 diagnosis in range from 312-312.99)
6. Anxiety Disorder (ICD-9 diagnosis in range from 300-300.99
7. Depressive Disorder (ICD-9 diagnosis in range from 311-311.99))
8. Childhood Emotional Disturbance (ICD-9 diagnosis in range from 313-313.99))
9. Specific Developmental Delays ((ICD-9 diagnosis in range from 315-315.99)).

Definition of Child SED

Meet any of Definitions A-C and be younger than 21 years old:

10. Be classified as SED or PSMI in the IDS admissions file for any admission from July 1 1995-June 30 2003[1] while younger than 18 years and be Medicaid eligible at some point during the time period for the study.
11. Not meet Condition A but have at least 2 claims on different days in one of the following diagnostic categories:
    a. Bipolar Disorder (as above)
    b. Schizophrenic Disorders (as above)
    c. Major Depressive Disorder (as above)
    d. Personality Disorder (ICD-9 diagnosis in range from 301-301.99)

1 Date range for current IDS file.

12. Not meet conditions A or B but have at least 2 claims on different days in at least 2 of the following 7 conditions (there must be at least 2 claims for each condition met):
    e. ADHD (as above)
    f. Conduct/Oppositional Disorder (as above or 313.81)
    g. Anxiety Disorder (ICD-9 diagnosis in range from 300-300.99, or 308-308.99, or 313-313.99 or in (309.81,309.89,309.21)) but not in (300.40,300.15,300.16,300.19))
    h. Depressive Disorder (ICD-9 diagnosis in range from 311-311.99 or in ('300.40', '301.13'))
    i. Antipsychotic medication (total claims must total to at least a 60-day supply of medication, generic names for pharmaceuticals include ARIPIPRAZOLE, CLOZAPINE, OLANZAPINE, QUETIAPINE FUMARATE, RISPERIDONE, ZIPRASIDONE HCL, CHLORPROMAZINE HCL, FLUPHENAZINE DECANOATE, FLUPHENAZINE HCL, HALOPERIDOL, HALOPERIDOL DECANOATE, HALOPERIDOL LACTATE, LOXAPINE SUCCINATE, MESORIDAZINE BESYLATE, MOLINDONE HCL, PERPHENAZINE, THIORIDAZINE HCL, THIOTHIXENE, and TRIFLUOPERAZINE HCL).
    j. Antidepressant medication (total claims must total to at least a 60-day supply of medication, generic names for pharmaceuticals include CITALOPRAM HYDROBROMIDE, FLUOXETINE HCL, FLUVOXAMINE MALEATE, PAROXETINE HCL, SERTRALINE HCL, BUPROPION HCL, MIRTAZAPINE, NEFAZODONE HCL, TRAZODONE HCL, and VENLAFAXINE HCL).
    k. Mood Stabilizers (total claims must total to at least a 60-day supply of medication, generic names for pharmaceuticals include CARBAMAZEPINE, CLONAZEPAM, DIVALPROEX SODIUM, GABAPENTIN, LAMOTRIGINE, LITHIUM CARBONATE, LITHIUM CITRATE, OXCARBAZEPINE, TOPIRAMATE, VALPROATE SODIUM, and VALPROIC ACID).

Definition of Adult SMI

Have at least 1 claim in one of the following diagnostic or pharmacy use categories:

a. Bipolar Disorder (ICD-9 diagnosis in range from 296.4-296.99' or 296-296.19)
b. Schizophrenic Disorders (ICD-9 diagnosis in range from 295-295.99 or 297-298.99)
c. Major Depressive Disorder (ICD-9 diagnosis in range from 296.-296.39)
d. Antipsychotic medication (total claims must total to at least a 60-day supply of medication, generic names for pharmaceuticals include ARIPIPRAZOLE, CLOZAPINE, OLANZAPINE, QUETIAPINE FUMARATE, RISPERIDONE, ZIPRASIDONE HCL, CHLORPROMAZINE HCL, FLUPHENAZINE DECANOATE, FLUPHENAZINE HCL, HALOPERIDOL, HALOPERIDOL DECANOATE, HALOPERIDOL LACTATE, LOXAPINE SUCCINATE, MESORIDAZINE BESYLATE, MOLINDONE HCL, PERPHENAZINE, THIORIDAZINE HCL, THIOTHIXENE, and TRIFLUOPERAZINE HCL)[2].

2 Condition D was not used for the HMO groups because we did not have pharmacy data for the baseline and July 1, 2005, through September 20, 2005, time periods. We felt that including recipients based on pharmacy in one HMO plan but not in others would lead to unfair comparisons because those persons who did not have SMI diagnoses were less likely to have service penetration than those who did have diagnoses from the service files.

Service Definitions

All Medicaid claims that met one of the following criteria were included in the analysis as long as the first date of service was in the eligibility period as determined above.

General requirements for MH definition:

1. Any encounter reported by Florida Health Partners, Amerigroup, Healthease, and Staywell to AHCA
2. Any Specialty Mental Health procedure code as defined by the CPT manual or the AHCA Community Mental Health or Targeted Case Management Handbooks OR
3. Has a diagnosis between 290. And 314.99 OR
4. Service provided by MH practitioner OR
5. Has a MH appropriations code

Carve-Out Mental Health Services[3]

1. Level 1: Inpatient MH with Carve-Out Diagnoses[4]
    a. Provider Type is Hospital (only AHCA FFS claims have this information).
    b. Type of bill is Inpatient Hospital for AHCA FFS claims or Service Type=Inpatient for Managed Care Encounters
    c. UB92 has a Revenue Codes of 114, 124, 134, 144, 154, or 204. If encounters are missing revenue codes but have a service type of Inpatient, the encounters are included.
    d. For managed care, additional procedure codes for CSU and Residential services are included here.
    e. Primary Diagnosis is in Carve Out range (information available in all datasets and all claims must meet this condition)
2. Level 1: Outpatient Hospital with Carve-Out Diagnoses
    a. Provider Type is Hospital (only AHCA FFS claims have this information)
    b. Type of bill is Outpatient Hospital for AHCA FFS or Service Type=Outpatient Hospital for managed care encounters
    c. UB92 has Revenue Center codes of 450, 513, 901, 914, or 918 or both revenue code and procedure code is missing for managed care encounters.
    d. Primary Diagnosis is in Carve-Out range (information available in all datasets and all claims must meet this condition)
3. Level 1: Psychiatric Physician's Specialty Services
    a. Provider Type is Physician for AHCA FFS claims or Service Type is Physician for managed care encounters
    b. Provider Specialty is Psychiatry, Child Psychiatry, and Psychoanalysis. Only AHCA FFS claims have this information so this information is not required for managed care encounters
    c. For managed care encounters, psychiatric or physician CPT-procedure codes also indicate psychiatrist claims
    d. Primary Diagnosis is in Carve Out range (information available in all datasets and all claims must meet this condition)(1. OR
    e. Advance Nurse Practitioner Services
        i. Provider Type is Advanced Nurse Practitioner for AHCA FFS or Service Type is Advanced Nurse Practitioner for managed care encounters
        ii. Provider Specialty is Clinical Nurse Specialist for AHCA FFS claims only
        iii. Diagnosis is in range of section 1d above

3 Service must meet all of the qualifications under each level.

4 Carve-Out diagnoses are for those people with claims with the following primary diagnoses (ICD-9): 290-290.43; 293-298.9; 300-301.9; 302.7; 306.51-312.4; 312.81-314.9; 315.3; 315.31; 315.5; 315.8; 315.9.

4. Level 2: Community Mental Health Services
    a. Provider Type is Community Mental Health Center for AHCA FFS claims. Although managed care claims have a service type of Community Mental Health Center, this information was considered redundant as many CMH codes were given other service types. For consistency, service type was ignored in the presence of the following procedure codes.
    b. Procedure codes indicates one of the following services (code 7/1/03-10/15/03; code 10/16/03-10/1/04; code 10/1/04 until present if applicable) :
        i. Basic Outpatient: Office and Outpatient Visits (W1037 or W1038; H0002), Psychiatric Services (W1050; H2010; T1015, H2010HO, H2010HQ, H2010HE, H2010HF, T1023HE, T1023 HF), Clinic Visit (W1070; H0046HE; H0046, T1015HE, T1015HF), Individual Behavioral Therapy (W1074; H0004; H2019HR), Group Behavioral Therapy (W1075; H0004HQ; H2019HQ).
        ii. Intensive Outpatient: Mental Health Day Treatment including any clubhouse or supported employment (W1023; H2012; H2012), Rehabilitation Day Treatment (W1064; H2017), Intensive Therapeutic On-Site Services (W1071; H2021; H2019HO), Home and Community Based Rehabilitative Services (W1072;H2021HM; H2019HN),
        iii. Assessment: Biopsychosocial Evaluation (W1027;H0031HN; H0031HN), Psychiatric Evaluation (W1030; H2010HP; H2000 HP), Interpretation of Results of Psychiatric Exam (W1031; H2010HN; H2000), Limited Functional Assessment (W1039; H0031HM; H0031), In-depth Mental Health Assessment (W1048; H0031HO; H0031HO), Psychological Testing (W1073; H0031; H2019)
        iv. Treatment Planning: Treatment Plan Development (W1067 or W1068; H0032; H0032), Treatment Plan Review (W1069; H0032TS; H0032TS)
        v. Other CMH: Basic Living Skills Training (W1044; H2014; H2017), Social Rehabilitation and Counseling (W1046; H2014; H2017).
    c. Managed Care claims that have indicated a behavioral health service do not require the modifier in post-HIPAA implementation data. (applicable to only managed care claims as use of the modifier was inconsistent).
    d. Primary Diagnosis is in Carve-Out range (information available in all datasets and all claims must meet this condition)
5. Level 2: Targeted and Intensive Targeted Case Management
    a. Provider Type is Case Management Agency (only AHCA FFS claims have this information).
    b. Procedure Code indicates Targeted Case Management for Chronically Mentally Ill Children (W9891; T1017HA; T1017HA) or Adults (W9892; T1017; T1017), or Intensive Case Management (W9899; T1017HK; T1017HK). For managed care after the date of HIPAA implementation, the code T1017 without any modifier is assumed to be Targeted Case Management. For PMHP, Specialized Case Management services (F0001 or F0002 or F0054, T1017HE, H0043, T1017HH) are included in Carve-Out Case Management.
6. Level 2: approved services—other services listed by PMHP providers assumed to be in Carve-Out
    a. Psychoeducational Services for Client and Family (F0030 or F0031 or F9805, H2027).
    b. Other procedural codes for special services as defined by PMHP provider.
    c. Procedural codes listed in the approved codes but not in the above with carve-out diagnoses were considered in this category.

7. Mental Health Services Outside of Carve-Out[5]
8. Level 3: Other Inpatient Hospital Claims or Encounters.
    a. Provider Type is Hospital for AHCA FFS claims or Service Type is Inpatient or CSU or managed care claims
    b. Type of bill is Inpatient Hospital
    c. UB92 has a Revenue Codes of 114, 124, 134, 144, 154, 204 with a secondary diagnosis in MH range (290-314) or a primary diagnosis in MH range but not in Carve-Out range OR.
    d. UB92 has other inpatient hospital bed day revenue codes with any MH diagnosis.
9. Level 3: Other Outpatient Hospital Claims or Encounters
    a. Provider Type is Hospital for AHCA FFS claims or Service Type is Outpatient Hospital for managed care claims
    b. Type of bill is Outpatient Hospital
    c. UB92 has Revenue Center codes of 450, 513, 901, 914, or 918
    d. Primary Diagnosis is in MH range but not in Carve-Out range or secondary diagnosis in MH range.
10. Level 3: Psychiatric Services
    a. Provider Type is Physician
    b. Provider Specialty is Psychiatry, Child Psychiatry, and Psychoanalysis
    c. Primary Diagnosis is in MH range but not in Carve-Out range or secondary diagnosis in MH range.
11. Level 3: Nonpsychiatric physician or nursing services for behavioral health
    a. Provider Type is Physician or Advanced Nurse Practitioner
    b. Provider Specialty is not Psychiatry, Child Psychiatry, and Psychoanalysis.
    c. Primary or Secondary diagnosis in the MH range.
12. Level 3: Medical Services
    a. Any other services covered under the HMO Health Plan.
13. Level 4: Community Mental Health Services not covered in Carve-Out (Note that these services are only found in AHCA FFS files and, if found in managed care file, are not counted).
    a. Excluded services such as Behavioral Health Overlay (W1040 or W1041; H2022H or H2022; H2020HA or H2020 HK), Comprehensive Assessment (W1059; H0031HA; H0031HA), Specialized Therapeutic Group Care (W1080; H0019; H0019), and Specialized Therapeutic Foster Care (W1058-W1061;S5145, S5145HE, S5145HE;S5145, S5145HE, S5145HE)
    b. Non-excluded services with a MH primary diagnosis in the Carve-Out range or any MH secondary diagnosis
14. Level 4: Other services for behavioral health
    a. Primary diagnosis is in the MH range
    b. Provider and service type not listed above
    c. Service is commonly found in AHCA records for HMO clients.

5 These services are not reimbursable under the Prepaid Behavioral Health Plan as currently defined. They are included to adequately describe all services provided for behavioral health problems. These services are not analyzed for the HMO plans because these are not required to be reported in the encounter system. However, these services were used when available for diagnostic and SED/SMI classifications.

Service Penetration

Recipients have penetrated a service type if they have received at least one service in a 6-month time period , while eligible within plan, eligibility type, and age group. The numerator is the number of eligible months for recipients that penetrated service category while eligible in plan eligibility type and age group. The denominator is the number of eligible months for all eligible recipients within a plan, eligibility type, gender, race, and age group.

Service Frequency

For those persons who have penetrated a given service, frequency is the number of days of service that a person has received that service category per month of eligibility.

Enrollment: Outcomes Analysis

Meets all enrollment qualifications as outlined in enrollment definition AND has 6 months eligibility in time period.

Arrest

1. FDLE Arrest record has at least an 80% score for SSN matched to Enrollee's SSN as listed in AHCA Medicaid Enrollment files on 9/26/06.
2. Any other FDLE arrest record on the same day for the same person is considered the same arrest.

Baker Act

1. Any Baker Act initiation record that contained an SSN that matched to enrollee's SSN, as shown in AHCA Medicaid records on 9/26/06.
2. PSRDC defines any Baker Act initiation that occurs within 3 days of another initiation for the same SSN as a duplicate initiation. We eliminated all duplicate initiations.
3. In addition, we eliminated any Baker Act initiation not previously eliminated that had the same date of initiation on the record for the same enrollee. This was primarily a check.

Appendix B: Service Penetration and Frequency Analyses

SED Penetration Analysis

Table 1
Comparison of Inpatient Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 26.42$, df=3, $p<= .001$
FHP Baseline Penetration= 2.98%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	6.16%	n/a	$\chi 2= 134.48$, df=1, $p<= .001$
Amerigroup Area 5	3.15%	$\chi 2= 23.35$, df=1, $p<= .001$	$\chi 2= 8.51$, df=1, $p= .004$
Healthease Area 5	4.74%	$\chi 2= 2.61$, df=1, $p= .106$	$\chi 2= 19.52$, df=1, $p<= .001$
Staywell Area 5	5.80%	$\chi 2= 0.22$, df=1, $p= .640$	$\chi 2= 64.66$, df=1, $p<= .001$

Table 2
Comparison of Emergency Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 115.72$, df=3, $p<= .001$
FHP Baseline Penetration= 2.68%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	0.98%	n/a	$\chi 2= 79.11$, df=1, $p<= .001$
Amerigroup Area 5	0.57%	$\chi 2= 2.06$, df=1, $p= .151$	$\chi 2= 39.14$, df=1, $p<= .001$
Healthease Area 5	1.31%	$\chi 2= 2.30$, df=1, $p= .129$	$\chi 2= 7.93$, df=1, $p= .005$
Staywell Area 5	3.59%	$\chi 2= 95.30$, df=1, $p<= .001$	$\chi 2= 12.10$, df=1, $p<= .001$

Table 3
Comparison of Psychiatrist Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 21.26$, df=3, $p<= .001$
FHP Baseline Penetration= 12.5%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	13.24%		$\chi 2= 4.59$, df=1, $p= .032$
Amerigroup Area 5	8.63%	$\chi 2= 13.92$, df=1, $p<= .001$	$\chi 2= 5.79$, df=1, $p= .016$
Healthease Area 5	12.27%	$\chi 2= 0.01$, df=1, $p= .937$	$\chi 2= 0.92$, df=1, $p= .337$
Staywell Area 5	9.64%	$\chi 2= 10.20$, df=1, $p<= .001$	$\chi 2= 4.33$, df=1, $p= .038$

Table 4
Level 2 Service Penetration: Comparison of Area 5 Plans Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	$\chi 2= 20.63$, df=1, $p<= .001$
Main Effect of Plan	$\chi 2= 4.00$, df=3, $p= .261$
Time by Plan Interaction	$\chi 2= 592.88$, df=3, $p<= .001$

	Baseline Penetration	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP (df=1)	Simple Effect of Time for Each Plan (df=1)
FHP Area 5	42.69%	38.63%	n/a	$\chi 2= 20.63$, $p<= .001$
Amerigroup Area 5	37.18%	7.52%	$\chi 2= 0.81$, $p= .367$	$\chi 2= 765.05$, $p<= .001$
Healthease Area 5	38.85%	31.15%	$\chi 2= 3.20$, $p= .074$	$\chi 2= 32.09$, $p<= .001$
Staywell Area 5	35.80%	30.50%	$\chi 2= 0.09$, $p= .769$	$\chi 2= 23.80$, $p<= .001$

Table 5

Comparison of Inpatient Service Penetration among Area 7 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 30.39$, df=3, p<= .001
FHP Baseline Penetration= 2.33%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	3.89%	n/a	χ2= 84.88, df=1, p<= .001
Amerigroup Area 7	2.00%	χ2= 28.42, df=1, p<= .001	χ2= 0.24, df=1, p= .624
Healthease Area 7	3.41%	χ2= 1.31, df=1, p= .252	χ2= 31.91, df=1, p<= .001
Staywell Area 7	3.05%	χ2= 6.86, df=1, p= .009	χ2= 29.86, df=1, p<= .001

Table 6

Comparison of Emergency Service Penetration among Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 70.63$, df=3, p<= .001
FHP Baseline Penetration= 0.97%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP post	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	1.10%	n/a	χ2= 3.26, df=1, p= .071
Amerigroup Area 7	0.54%	χ2= 9.21, df=1, p= .002	χ2= 4.12, df=1, p= .042
Healthease Area 7	1.56%	χ2= 9.20, df=1, p= .002	χ2= 20.53, df=1, p<= .001
Staywell Area 7	1.99%	χ2= 42.93, df=1, p<= .001	χ2= 71.90, df=1, p<= .001

Table 7

Comparison of Psychiatrist Service Penetration among Plans in the Post-implementation Period

Overall Effect of Plan (Post-Implementation Only) $\chi2= 560.67$, df=3, p<= .001
FHP Baseline Penetration= 8.08%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	4.42%	n/a	χ2= 149.22, df=1, p<= .001
Amerigroup Area 7	6.63%	χ2= 81.64, df=1, p<= .001	χ2= 0.02, df=1, p= .898
Healthease Area 7	10.93%	χ2= 315.04, df=1, p<= .001	χ2= 76.49, df=1, p<= .001
Staywell Area 7	11.51%	χ2= 505.07, df=1, p<= .001	χ2= 169.53, df=1, p<= .001

Table 8

Comparison of Area 7 Level 2 Service Penetration: Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	χ2= 353.82, df=1, p<= .001
Main Effect of Plan	χ2= 46.17, df=3, p<= .001
Time by Plan Interaction	χ2= 70.80, df=3, p<= .001

	Baseline Penetration	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP (df=1)	Simple Effects of Time for Each Plan (df=1)
FHP Area 7	48.49%	34.75%	n/a	χ2= 353.80, p<= .001
Amerigroup Area 7	36.73%	26.10%	χ2= 27.36, p<= .001	χ2= 125.73, p<= .001
Healthease Area 7	42.07%	39.56%	χ2= 0.36, p= .546	χ2= 15.65, p<= .001
Staywell Area 7	38.01%	34.53%	χ2= 28.17, p<= .001	χ2= 46.35, p<= .001

SMI Penetration Analysis

Table 9

Comparison of Inpatient Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 20.35, df=3, p<= .001$
FHP Baseline Penetration= 11.30%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	9.88%	n/a	χ2= 3.00, df=1, p= .083
Amerigroup Area 5	11.71%	χ2= 20.07, df=1, p<= .001	χ2= 10.85, df=1, p<= .001
Healthease Area 5	11.49%	χ2= 2.29, df=1, p= .130	χ2= 0.28, df=1, p= .597
Staywell Area 5	11.17%	χ2= 1.58, df=1, p= .209	χ2= 0.04, df=1, p= .833

Table 10

Comparison of Emergency Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 140.32, df=3, p<= .001$
FHP Baseline Penetration= 5.16%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	4.20%	n/a	χ2= 4.08, df=1, p= .043
Amerigroup Area 5	4.10%	χ2= 1.30, df=1, p= .253	χ2= 0.05, df=1, p= .828
Healthease Area 5	12.41%	χ2= 104.17, df=1, p<= .001	χ2= 80.25, df=1, p<= .001
Staywell Area 5	10.31%	χ2= 69.48, df=1, p<= .001	χ2= 49.28, df=1, p<= .001

Table 11

Comparison of Psychiatrist Service Penetration among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 767.89, df=3, p<= .001$
FHP Baseline Penetration= 26.60%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	12.15%	n/a	χ2= 305.35, df=1, p<= .001
Amerigroup Area 5	33.62%	χ2= 541.45, df=1, p<= .001	χ2= 108.17, df=1, p<= .001
Healthease Area 5	40.26%	χ2= 422.81, df=1, p<= .001	χ2= 80.74, df=1, p<= .001
Staywell Area 5	36.98%	χ2= 379.29, df=1, p<= .001	χ2= 54.95, df=1, p<= .001

Table 12

Level 2 Service Penetration: Comparison of Area 5 Plans Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	χ2= 54.65, df=1, p<= .001
Main Effect of Plan	χ2= 491.32, df=3, p<= .001
Time by Plan Interaction	χ2= 974.62, df=3, p<= .001

	Baseline Penetration	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP (df=1)	Simple Effect of Time for Each Plan (df=1)
FHP Area 5	46.30%	52.68%	n/a	χ2= 54.65, p<= .001
Amerigroup Area 5	75.05%	8.60%	χ2= 408.18, p<= .001	χ2= 869.09, p<= .001
Healthease Area 5	62.32%	49.17%	χ2= 121.68, p<= .001	χ2= 45.63, p<= .001
Staywell Area 5	61.19%	45.87%	χ2= 128.77, p<= .001	χ2= 69.96, p<= .001

Table 13

Comparison of Inpatient Service Penetration among Area 7 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2$= 15.50, df=3, p<= .001
FHP Baseline Penetration= 8.68%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	10.15%	n/a	$\chi2$= 17.05, df=1, p<= .001
Amerigroup Area 7	11.01%	$\chi2$= 1.31, df=1, p= .253	$\chi2$= 16.19, df=1, p<= .001
Healthease Area 7	11.65%	$\chi2$= 1.56, df=1, p= .211	$\chi2$= 19.34, df=1, p<= .001
Staywell Area 7	8.79%	$\chi2$= 8.22, df=1, p= .004	$\chi2$= 0.17, df=1, p= .679

Table 14

Comparison of Emergency Service Penetration among Area 7 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2$= 141.95, df=3, p<= .001
FHP Baseline Penetration= 3.03%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	3.46%	n/a	$\chi2$= 4.53, df=1, p= .033
Amerigroup Area 7	3.70%	$\chi2$= 0.31, df=1, p= .579	$\chi2$= 4.14, df=1, p= .042
Healthease Area 7	9.76%	$\chi2$= 114.32, df=1, p<= .001	$\chi2$= 157.27, df=1, p<= .001
Staywell Area 7	7.67%	$\chi2$= 67.35, df=1, p<= .001	$\chi2$= 103.14, df=1, p<= .001

Table 15

Comparison of Psychiatrist Service Penetration among Area 7 Plans in the Post-Implementation Period

Overall Effect of Plan (Post-Implementation Only) $\chi2$= 396.21, df=3, p<= .001
FHP Baseline Penetration= 18.10%

	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	15.19%	n/a	$\chi2$= 6.47, df=1, p= .011
Amerigroup Area 7	30.31%	$\chi2$= 200.98, df=1, p<= .001	$\chi2$= 157.48, df=1, p<= .001
Healthease Area 7	35.04%	$\chi2$= 315.30, df=1, p<= .001	$\chi2$= 260.53, df=1, p<= .001
Staywell Area 7	28.36%	$\chi2$= 175.58, df=1, p<= .001	$\chi2$= 129.86, df=1, p<= .001

Table 16

Level 2 Service Penetration: Comparison of Area 7 Plans Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	$\chi2$= 5.51, df=1, p= .019
Main Effect of Plan	$\chi2$= 308.83, df=3, p<= .001
Time by Plan Interaction	$\chi2$= 282.15, df=3, p<= .001

	Baseline Penetration	Post-Implementation Penetration	Post-hoc Test: Plan Compared with FHP (df=1)	Simple Effect of Time for Each Plan (df=1)
FHP Area 7	55.45%	49.32%	n/a	$\chi2$= 5.51, p= .019
Amerigroup Area 7	77.51%	34.90%	$\chi2$= 186.63, p<= .001	$\chi2$= 363.88, p<= .001
Healthease Area 7	67.40%	51.12%	$\chi2$= 129.52, p<= .001	$\chi2$= 121.08, p<= .001
Staywell Area 7	66.98%	55.45%	$\chi2$= 148.54, p<= .001	$\chi2$= 97.76, p<= .001

SED Service Frequency Analysis

Table 17

Comparison of Inpatient Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 69.02, df=3, p<= .001$
FHP Baseline Density= 0.49

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	0.24	n/a	$\chi2= 44.60, df=1, p<=.001$
Amerigroup Area 5	0.70	$\chi2= 67.56, df=1, p<=.001$	$\chi2= 7.54, df=1, p= .006$
Healthease Area 5	0.28	$\chi2= 0.36, df=1, p= .549$	$\chi2= 6.48, df=1, p= .011$
Staywell Area 5	0.37	$\chi2= 7.74, df=1, p= .005$	$\chi2= 3.30, df=1, p= .069$

Table 18

Comparison of Emergency Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 1.12, df=3, p= .772$
FHP Baseline Density= 0.26

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	0.27	n/a	$\chi2= 0.01, df=1, p= .904$
Amerigroup Area 5	0.17	$\chi2= 0.78, df=1, p= .377$	$\chi2= 0.76, df=1, p= .383$
Healthease Area 5	0.19	$\chi2= 0.40, df=1, p= .527$	$\chi2= 0.37, df=1, p= .542$
Staywell Area 5	0.23	$\chi2= 0.30, df=1, p= .584$	$\chi2= 0.29, df=1, p= .588$

Table 19

Comparison of Psychiatrist Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 130.97, df=3, p<=.001$
FHP Baseline Density= 0.42

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 5	0.40	n/a	$\chi2= 1.18, df=1, p= .278$
Amerigroup Area 5	0.87	$\chi2= 125.75, df=1, p<=.001$	$\chi2= 112.10, df=1, p<=.001$
Healthease Area 5	0.60	$\chi2= 17.07, df=1, p<=.001$	$\chi2= 12.66, df=1, p<=.001$
Staywell Area 5	0.63	$\chi2= 24.24, df=1, p<=.001$	$\chi2= 18.58, df=1, p<=.001$

Table 20

Comparison of Area 5 Level 2 Service Frequency: Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	$\chi2= 190.48, df=1, p<= .001$
Main Effect of Plan	$\chi2= 352.87, df=3, p<= .001$
Time by Plan Interaction	$\chi2= 304.67, df=3, p<= .001$

	Baseline Frequency	Post-Implementation Frequency	Post-hoc Plans Compared with FHP (df=1)	Simple Effects Time for Each Plan (df=1)
FHP Area 5	2.10	1.71	n/a	$\chi2= 298.75, p<= .001$
Amerigroup Area 5	1.56	0.70	$\chi2= 215.88, p<= .001$	$\chi2= 953.64, p<= .001$
Healthease Area 5	1.41	1.82	$\chi2= 154.45, p<= .001$	$\chi2= 15.15, p<= .001$
Staywell Area 5	1.70	2.13	$\chi2= 69.35, p<= .001$	$\chi2= 6.70, p= .010$

Table 21

Comparison of Inpatient Service Frequency among Area 7 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 62.08, df=3, p<= .001$
FHP Baseline Density= 0.51

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	0.57	n/a	χ2= 2.15, df=1, p= .142
Amerigroup Area 7	0.78	χ2= 7.40, df=1, p= .007	χ2= 12.83, df=1, p<= .001
Healthease Area 7	0.28	χ2= 25.58, df=1, p<= .001	χ2= 16.10, df=1, p<= .001
Staywell Area 7	0.34	χ2= 23.57, df=1, p<= .001	χ2= 11.78, df=1, p<= .001

Table 22

Comparison of Emergency Service Frequency among Area 7 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 0.48, df=3, p= .923$
FHP Baseline Density= 0.19

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post- Implementation	Post-hoc Test: Plan Compared with FHP Pre- Implementation
FHP Area 7	0.22	n/a	χ2= 0.43, df=1, p= .510
Amerigroup Area 7	0.24	χ2= 0.06, df=1, p= .805	χ2= 0.41, df=1, p= .524
Healthease Area 7	0.21	χ2= 0.05, df=1, p= .816	χ2= 0.10, df=1, p= .755
Staywell Area 7	0.24	χ2= 0.22, df=1, p= .640	χ2= 1.33, df=1, p= .249

Table 23

Comparison of Psychiatrist Service Frequency among Area 7 Plans in the Post-Implementation Period

Overall Effect of Plan (Post-Implementation Only) $\chi2= 222.70, df=3, p<= .001$
FHP Baseline Density= 0.53

	Post-Implementation Frequency	Post-hoc Test: Plan Compared with FHP Post-Implementation	Post-hoc Test: Plan Compared with FHP Baseline
FHP Area 7	0.42	n/a	χ2= 12.15, df=1, p<= .001
Amerigroup Area 7	1.18	χ2= 198.66, df=1, p<= .001	χ2= 192.24, df=1, p<= .001
Healthease Area 7	0.72	χ2= 51.96, df=1, p<= .001	χ2= 26.13, df=1, p<= .001
Staywell Area 7	0.62	χ2= 32.38, df=1, p<= .001	χ2= 8.97, df=1, p= .003

Table 24

Level 2 Service Frequency: Comparison of Area 7 Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	χ2= 2167.62, df=1, p<= .001
Main Effect of Plan	χ2= 232.20, df=3, p<= .001
Time by Plan Interaction	χ2= 460.54, df=3, p<= .001

	Baseline Frequency	Post-Implementation Frequency	Post-hoc Plans Compared with FHP (df=1)	Simple Effects Plan by Time Compared with FHP (df=1)
FHP Area 7	2.38	1.29	n/a	χ2= 3526.15, p<= .001
Amerigroup Area 7	2.08	1.53	χ2= 83.82, p<= .001	χ2= 526.57, p<= .001
Healthease Area 7	2.06	1.56	χ2= 99.56, p<= .001	χ2= 467.84, p<= .001
Staywell Area 7	2.05	1.67	χ2= 153.44, p<= .001	χ2= 678.39, p<= .001

SMI Frequency Analysis

Table 25

Comparison of Inpatient Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) $\chi2= 37.88$, df=3, p<= .001
FHP Baseline Density= 0.92

	Post-Implementation Frequency	Post-hoc test: Plan Compared with FHP post	Post-hoc test: Plan Compared with FHP Baseline
FHP Area 5	0.59	n/a	χ2= 46.12, df=1, p<= .001
Amerigroup Area 5	0.68	χ2= 2.43, df=1, p= .119	χ2= 12.16, df=1, p<= .001
Healthease Area 5	1.03	χ2= 30.57, df=1, p<= .001	χ2= 1.40, df=1, p= .236
Staywell Area 5	0.89	χ2= 16.15, df=1, p<= .001	χ2= 0.16, df=1, p= .691

Table 26

Comparison of Emergency Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) χ2= 12.45, df=3, p= .006
FHP Baseline Density= 0.26

	Post-Implementation Frequency	Post-hoc test: Plan Compared with FHP post-Implementation	Post-hoc test: Plan Compared with FHP Baseline
FHP Area 5	0.25	n/a	χ2= 0.10, df=1, p= .753
Amerigroup Area 5	0.21	χ2= 0.41, df=1, p= .523	χ2= 0.74, df=1, p= .390
Healthease Area 5	0.19	χ2= 1.13, df=1, p= .288	χ2= 1.81, df=1, p= .179
Staywell Area 5	0.40	χ2= 6.34, df=1, p= .012	χ2= 5.68, df=1, p= .017

Table 27

Comparison of Psychiatrist Service Frequency among Area 5 Plans

Overall Effect of Plan (Post-Implementation Only) χ2= 15.59, df=3, p<= .001
FHP Baseline Density= 0.70

	Post-Implementation Frequency	Post-hoc test: Plan Compared with FHP post-Implementation	Post-hoc test: Plan Compared with FHP Baseline
FHP Area 5	0.64	n/a	χ2= 2.76, df=1, p= .097
Amerigroup Area 5	0.73	χ2= 3.77, df=1, p= .052	χ2= 0.40, df=1, p= .528
Healthease Area 5	0.73	χ2= 2.99, df=1, p= .084	χ2= 0.29, df=1, p= .593
Staywell Area 5	0.84	χ2= 15.59, df=1, p<= .001	χ2= 9.42, df=1, p= .002

Table 28

Comparison of Area 5 Level 2 Service Frequency: Baseline vs. Post-Implementation

Wald Chi-Square
Main Effect of Time χ2= 220.16, df=1, p<= .001
Main Effect of Plan χ2= 496.71, df=3, p<= .001
Time by Plan Interaction χ2= 108.82, df=3, p<= .001

	Baseline Frequency	Post-Implementation Frequency	Post-hoc Plans Compared with FHP (df=1)	Simple Effects of Time for Each Plan (df=1)
FHP Area 5	1.55	2.06	n/a	χ2= 647.30, p<= .001
Amerigroup Area 5	0.87	0.27	χ2= 357.50, p<= .001	χ2= 398.60, p<= .001
Healthease Area 5	0.92	1.08	χ2= 148.98, p<= .001	χ2= 23.66, p<= .001
Staywell Area 5	0.98	1.07	χ2= 138.57, p<= .001	χ2= 63.82, p<= .001

Table 29

Comparison of Inpatient Service Frequency among Area Plans

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 69.62$, df=3, $p<= .001$
FHP Baseline Frequency= 0.69

	Post-Implementation Frequency	Post- hoc test:Plan Compared with FHP post-Implementation	Post- hoc Compared with FHP Baseline
FHP Area 7	0.84	n/a	χ2= 9.49, df=1, p= .002
Amerigroup Area 7	1.19	χ2= 22.09, df=1, p<= .001	χ2= 48.19, df=1, p<= .001
Healthease Area 7	0.57	χ2= 18.59, df=1, p<= .001	χ2= 4.07, df=1, p= .044
Staywell Area 7	0.63	χ2= 10.93, df=1, p<= .001	χ2= 0.85, df=1, p= .357

Table 30

Comparison of Emergency Service Frequency among Plans

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 6.36$, df=3, $p= .095$
FHP Baseline Density= 0.24

	Post-Implementation Frequency	Post-hoc test: Plan Compared with FHP post-Implementation	Post-hoc test: Plan Compared with FHP Baseline
FHP Area 7	0.23	n/a	χ2= 0.01, df=1, p= .907
Amerigroup Area 7	0.27	χ2= 0.28, df=1, p= .598	χ2= 0.19, df=1, p= .662
Healthease Area 7	0.36	χ2= 5.95, df=1, p= .015	χ2= 5.07, df=1, p= .024
Staywell Area 7	0.28	χ2= 1.02, df=1, p= .313	χ2= 0.75, df=1, p= .387

Table 31

Comparison of Psychiatrist Service Frequency among Plans in the Post-Implementation Period

Overall Effect of Plan (Post-Implementation Only) $\chi 2= 50.79$, df=3, $p<= .001$
FHP Baseline Density= 0.60

	Post-Implementation Frequency	Post-hoc test: Plan Compared with FHP post-Implementation	Post-hoc test: Plan Compared with FHP Baseline
FHP Area 7	0.76	n/a	χ2= 22.20, df=1, p<= .001
Amerigroup Area 7	0.96	χ2= 17.33, df=1, p<= .001	χ2= 71.57, df=1, p<= .001
Healthease Area 7	0.68	χ2= 4.65, df=1, p= .031	χ2= 4.76, df=1, p= .029
Staywell Area 7	0.66	χ2= 7.36, df=1, p= .007	χ2= 3.02, df=1, p= .082

Table 32

Comparison of Area 7 Level 2 Service Frequency: Baseline vs. Post-Implementation

	Wald Chi-Square
Main Effect of Time	χ2= 25.83, df=1, p<= .001
Main Effect of Plan	χ2= 372.83, df=3, p<= .001
Time by Plan Interaction	χ2= 38.64, df=3, p<= .001

	Baseline Frequency	Post-Implementation Frequency	Post-hoc Plans Compared with FHP (df=1)	Simple Effects Plan by Time Compared with FHP (df=1)
FHP Area 7	1.47	1.62	n/a	χ2= 54.04, p<= .001
Amerigroup Area 7	0.95	1.06	χ2= 195.21, p<= .001	χ2= 152.86, p<= .001
Healthease Area 7	0.99	1.02	χ2= 193.18, p<= .001	χ2= 117.83, p<= .001
Staywell Area 7	1.09	0.96	χ2= 147.89, p<= .001	χ2= 227.16, p<= .001

Appendix C: Outcomes Analysis

Table 1

Area 5: Comparison of SED Baker Act Rates between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 0.00, df=(1,5378), p= 0.969
Main Effect of Plan	F= 3.56, df=(3,5378), p= 0.014
Time by Plan Interaction	F= 0.79, df=(3,5378), p= 0.497

	Baseline Frequency	Post-Implementation Frequency	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP DF=(1,5378)
FHP Area 5	7.01	8.85	n/a	F= 2.30, p= .129
Amerigroup Area 5	5.18	3.70	Diff= -3.41, p<= .05	F= 0.58, p= .445
Healthease Area 5	6.55	5.88	Diff= -1.63, ns	F= 0.04, p= .836
Staywell Area 5	5.37	5.48	Diff= -2.44, ns	F= 0.00, p= .964

Table 2

Area 7: Comparison of SED Baker Act Rates between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 2.36, df=(1,11081), p= 0.1243
Main Effect of Plan	F= 1.37, df=(3,11081), p= 0.2494
Time by Plan Interaction	F= 0.93, df=(3,11081), p= 0.4245

	Baseline Frequency	Post-Implementation Frequency	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df=(1,11081)
FHP Area 7	3.66	4.01	n/a	F= 0.26, p= .607
Amerigroup Area 7	3.71	2.06	Diff= -0.92, ns	F= 2.05, p= .152
Healthease Area 7	4.43	3.36	Diff= 0.11, ns	F= 0.83, p= .361
Staywell Area 7	3.30	2.62	Diff= -0.85, ns	F= 0.62, p= .432

Table 3

Area 5: Comparison of SED FDLE Arrest Rates between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 0.58, df=(1, 5378), p= .448
Main Effect of Plan	F= 1.31, df=(3, 5378), p= .271
Time by Plan Interaction	F= 0.48, df=(3, 5378), p= .693

	Baseline Frequency	Post-Implementation Frequency	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df=(1, 5378)
FHP Area 5	5.93	4.99	n/a	F= 0.58, p= .447
Amerigroup Area 5	6.47	7.07	Diff= 1.27, ns	F= 0.09, p= .760
Healthease Area 5	10.04	6.37	Diff= 2.82, ns	F= 1.25, p= .263
Staywell Area 5	7.06	7.42	Diff= 1.74, ns	F= 0.02, p= .893

Table 4

Area 7: Comparison of SED FDLE Arrest Rates between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 4.16, df=(1,11081), p= .041
Main Effect of Plan	F= 4.98, df=(3,11081), p= .002
Time by Plan Interaction	F= 0.01, df=(3,11081), p= .999

	Baseline Frequency	Post-Implementation Frequency	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df=(1,11081)
FHP Area 7	3.66	5.30	n/a	F= 2.23, p= .136
Amerigroup Area 7	4.87	6.55	Diff= 1.28, ns	F= 0.83, p= .362
Healthease Area 7	6.18	7.89	Diff= 2.58, p<= .05	F= 0.83, p= .363
Staywell Area 7	6.98	8.41	Diff= 3.27, p<= .05	F= 1.08, p= .300

Table 5

Area 5 Comparison of SMI Baker Act Rates Between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 0.18, df=(1,2803), p= .669
Main Effect of Plan	F= 1.21, df=(3,2803), p= .304
Time by Plan Interaction	F= 2.21, df=(3,2803), p= .085

	Baseline Rate Per 100	Post-Implementation Rate Per 100	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df==(1,2803)
FHP Area 5	16.84	11.28	n/a	F= 4.76, p= .029
Amerigroup Area 5	11.45	11.03	Diff= -2.87, ns	F= 0.01, p= .926
Healthease Area 5	5.38	17.02	Diff= -2.67, ns	F= 3.34, p= .068
Staywell Area 5	18.30	16.98	Diff= 3.52, ns	F= 0.05, p= .824

Table 6

Area 7 Comparison of SMI Baker Act Rates Between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 1.28, df=(1, 3842), p= .257
Main Effect of Plan	F= 1.29, df=(3, 3842), p= .276
Time by Plan Interaction	F= 1.61, df=(3, 3842), p= .185

	Baseline Rate Per 100	Post-Implementation Rate Per 100	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df=(1, 3842),
FHP Area 7	11.86	10.38	n/a	F= 0.51, p= .475
Amerigroup Area 7	11.16	9.82	Diff= -0.66, ns	F= 0.09, p= .760
Healthease Area 7	10.00	15.79	Diff= 1.86, ns	F= 2.47, p= .116
Staywell Area 7	5.87	10.70	Diff= -2.75, ns	F= 2.27, p= .132

Table 7

Area 5 Comparison of SMI FDLE Arrest Rates Between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 0.29, df=(1, 2803), p= .592
Main Effect of Plan	F= 1.46, df=(3, 2803), p= .225
Time by Plan Interaction	F= 0.42, df=(3, 2803), p= .742

	Baseline Rate Per 100	Post-Implementation Rate Per 100	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df=(1, 2803)
FHP Area 5	9.06	5.76	n/a	F= 3.56, p= .059
Amerigroup Area 5	5.73	5.15	Diff= -2.01, ns	F= 0.03, p= .853
Healthease Area 5	3.08	3.55	Diff= -4.12, ns	F= 0.01, p= .915
Staywell Area 5	8.50	8.18	Diff= 0.90, ns	F= 0.01, p= .937

Table 8

Area 7 Comparison of SMI FDLE Arrest Rates Between Baseline and First Six Months Post-Implementation

	Analysis of Variance
Main Effect of Time	F= 1.28, df=(1, 3842), p= .257
Main Effect of Plan	F= 1.29, df=(3, 3842), p= .276
Time by Plan Interaction	F= 1.61, df=(3, 3842), p= .185

	Baseline Rate Per 100	Post-Implementation Rate Per 100	Overall Plan Means Minus Overall FHP Mean	Simple Effects Plan by Time Compared with FHP Df =(1, 3842)
FHP Area 7	4.99	4.78	n/a	F= 0.03, p= .864
Amerigroup Area 7	0.93	3.57	Diff= -2.61, ns	F= 1.06, p= .304
Healthease Area 7	3.00	3.41	Diff= -1.67, ns	F= 0.04, p= .851
Staywell Area 7	1.28	3.02	Diff= -2.69, p<= .05	F= 0.87, p= .352

Appendix D: Diagnostic Analysis

The distribution of the high-frequency diagnoses among SED children who used any mental health service in the post-implementation period is shown in Table 3.

Table 1

Percentages of Area 5 SED Children within High-Frequency Diagnostic Groups in the Post-Implementation Period

Diagnostic Groups	AMERIGROUP AREA 5 (N=269)	FHP AREA 5 (N=1338)	HEALTHEASE AREA 5 (N=172)	STAYWELL AREA 5 (N=228)	Significance of Chi-square
Hyperkinetic Disorder (N=1052)	30.9%	57.0%	50.6%	52.2%	p<.001
Conduct Disorder (N= 347)	28.3%	15.8%	11.1%	17.5%	p<.001
Spec. Develop. Delay (N= 388)	25.7%	19.8%	10.5%	15.8%	p<.001
Bipolar Disorder (N= 265)	7.4%	14.3%	15.7%	11.8%	p<. 01
Adj/Stress Disorder (N= 231)	8.2%	10.6%	16.3%	17.1%	p <.001
Child Emotional Dist. (N= 204)	8.2%	9.9%	11.6%	13.2%	ns
Anxiety Disorder (N= 166)	4.8%	9.3%	6.4%	7.9%	p< .10
Depressive Disorder (N= 124)	3.0%	6.7%	7.0%	6.6%	ns
Major Depression (N= 115)	8.2%	4.7%	8.7%	6.6%	p<. 05

Amerigroup has the lowest percentage of children among the four plans for hyperkinetic disorder, bipolar disorder, and adjustment/stress disorders. They have the highest percentage of children among the plans for conduct disorder and specific developmental delays.

To show how these differences might affect the penetration rates, we calculated the odds of SED children in both Areas 5 and 7 penetrating each service in a diagnostic group compared with the SED children penetrating the service without that diagnosis. If a number if greater than 1, then the children in that diagnostic group are more likely to penetrate that service category. These odds are shown in Table 4.

For Amerigroup, the low frequency of children in diagnostic groups that are more likely to use services, coupled with the high frequency of children in diagnostic groups that were less likely to use services, may have partially contributed to the observed differences. However, the differences in penetration rates are much more pronounced than would be expected by diagnostic differences alone. Community mental health services are less affected by diagnosis than the other categories, but the greatest difference between groups was seen in the penetration of CMH services.

Table 2

Odds of an SED Child Receiving a Service Given Membership in Diagnostic Groups

Diagnostic Group	Inpatient Odds	Emergency Odds	Psychiatrist Odds	CMH Odds
Bipolar Disorder	2.81	3.70	2.08	1.08
Major Depression	2.22	2.00	1.90	1.06
Anxiety Disorder	3.00	6.71	2.13	0.96
Adjustment Disorder	1.65	1.96	1.33	1.29
Depressive Disorder	2.31	3.22	1.14	1.12
Conduct Disorder	1.59	2.07	0.99	1.07
Child Emotional Disorder	2.11	2.21	1.06	1.42
Hyperkinetic Disorder	0.76	0.29	1.07	1.19
Specific Developmental Delays	0.57	0.51	0.63	0.64

The distribution of the high-frequency diagnoses among SED children who used any mental health service in the post-implementation period is shown in Table 6 below.

Unlike in Area 5, Amerigroup has fairly high percentages of SED children in each of the diagnostic groups as compared with the other groups. In contrast, FHP has a significantly lower percentage of children with bipolar disorder, childhood emotional disturbance, adjustment and stress disorders, and major depression diagnoses among service users than the other plans, and significantly more children with hyperkinetic disorder and developmental delay diagnoses. The distribution of diagnoses among SED children who used services does not explain the differences in penetration seen in this area.

Table 3

Percentages of Area 7 SED Children within High-Frequency Diagnostic Groups in the Post-Implementation Period

Diagnostic Group	AMERIGROUP AREA 7 (N=433)	FHP AREA 7 (N=1739)	HEALTHEASE AREA 7 (N=565)	STAYWELL AREA 7 (N=964)	Significance of Chi-square
Hyperkinetic Disorder (N=1787)	41.3%	51.2%	44.4%	48.4%	p<.001
Bipolar Disorder (N=565)	15.0%	11.3%	19.1%	20.3%	p<.001
Conduct Disorder (N=555)	13.4%	14.8%	17.0%	14.9%	ns
Child Emotional Dist. (N=475)	15.9%	10.8%	15.0%	13.8%	p< .01
Developmental Delays (N=468)	6.5%	18.3%	7.3%	8.3%	p<.001
Adj./Stress Disorders (N=327)	8.1%	6.7%	12.6%	10.9%	p<.001
Major Depression (N=245)	8.1%	4.7%	8.8%	8.2%	p<.001
Anxiety Disorder (N=213)	5.3%	6.4%	6.0%	4.7%	ns
Depressive Disorder (N=196)	5.5%	4.8%	6.9%	5.2%	ns

Table 4

Percentages of Area 7 SMI Adults within High-Frequency Diagnostic Groups in the Post-Implementation Period

	AMERIGROUP AREA 7 (N=275)	FHP AREA 7 (N=870)	HEALTHEASE AREA 7 (N=361)	STAYWELL AREA 7 (N=516)	Significance of Chi-square
Schizophrenic Disorder (N=608)	23.3%	36.6%	24.1%	26.9%	p<.001
Bipolar Disorder (N=589)	34.9%	23.4%	34.6%	31.8%	p<.001
Major Depression (N=754)	46.2%	27.9%	42.7%	44.6%	p<.001
Anxiety Disorder (N=206)	8.7%	11.0%	11.1%	8.9%	ns

In Area 7, as in Area 5, FHP had a significantly higher percentage of schizophrenic disorder diagnoses in the SMI adult population compared with the other plans, and a significantly lower percentage of bipolar and major depression diagnoses. Amerigroup, Healthease, and Staywell had about the same diagnostic distribution.

As with the Area 7 SED child analysis, differences in the distribution of diagnoses does little to explain the differences in the penetration or frequency of services in this area.

Table 5
Percentages of Area 5 SMI Adults within High-Frequency Diagnostic Groups in the Post-Implementation Period

	AMERIGROUP AREA 5 (N=212)	FHP AREA 5 (N=874)	HEALTHEASE AREA 5 (N=171)	STAYWELL AREA 5 (N=209)	Significance of Chi-square
Schizophrenic Disorder (N=410)	20.7%	31.9%	20.5%	24.9%	p<.001
Bipolar Disorder (N=598)	37.3%	38.6%	50.3%	45.9%	p< .01
Major Depression (N=419)	42.0%	23.0%	34.5%	33.5%	p<.001
Anxiety Disorder (N=176)	5.7%	12.4%	14.0%	15.3%	p< .05

Amerigroup had a significantly higher proportion of SMI service users who had major depression compared with the other groups, and a significantly lower proportion of SMI service users with anxiety disorder diagnoses in the post-implementation period. FHP had a significantly higher proportion of SMI service users who had a Schizophrenic Disorder diagnosis compared with the other plans. Healthease and Staywell had a significantly higher proportion of SMI service users who had a Bipolar Disorder diagnosis compared with the other plans.

Table 6
Odds of an SMI Adult Receiving a Service Given Membership in Diagnostic Groups

Diagnostic Group	Inpatient Odds	Emergency Odds	Psychiatrist Odds	CMH Odds
Schizophrenia and Psychoses	2.89	2.35	0.83	1.24
Bipolar Disorder	1.43	1.41	1.27	1.08
Major Depression	0.75	0.87	1.56	0.92
Anxiety Disorder	2.43	5.44	1.63	0.88

According to the odds table, schizophrenia and anxiety disorder increase the probability of inpatient and emergency penetration, whereas major depression decreases the probabilities of these services. Major depression and anxiety disorders increase the probability of psychiatrist office visits and decreases the probability of CMH services. Bipolar disorder slightly increases the probability of inpatient, emergency, and psychiatrist services and has almost no effect on CMH probability of service.

The differences in the distribution of diagnoses seen in Area 5 were modest compared with the differences in penetration seen in the groups, although it may be speculated that some of the differences in plans were related to the differential diagnostic distributions within the groups. In particular, it could be argued that the high percentage of adults with major depression in Amerigroup partially contributed to the emphasis on psychiatrist office visits and the low penetration of CMH services.