



Evaluation of Florida's Sub-Acute Inpatient Psychiatric Program (SIPP) Report 2 — June 2001

Submitted to the
Agency for Health Care Administration

By the
**Louis de la Parte
Florida Mental Health Institute**

**University of
South Florida
USF**



Evaluation of Florida's Sub-Acute Inpatient Psychiatric Program (SIPP) Report 2 — June 2001

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Suggested APA Citation:

Armstrong, M. I., Dailey, K.A., Spittle, R., (2001). *Evaluation of Florida's Sub-Acute Inpatient Psychiatric Program (SIPP): Report 2 — June 2001*. Tampa, FL: Louis de la Parte Florida Mental Health Institute, University of South Florida. [available online: <http://www.fmhi.usf.edu/institute/pubs/bysubject.html>]

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Executive Summary

With the approval of a 1915(b) waiver by the Health Care Financing Administration (HCFA), in the spring of 1999 the State of Florida implemented the Sub-Acute Inpatient Psychiatric Program (SIPP) in two regions of the state. The waiver allowed the state to offer an alternative, sub-acute treatment program for clinically eligible children under the age of 18 who are high utilizers of inpatient psychiatric services. The objective of SIPP is to provide an intermediate level of care for high-risk youth and to reduce the utilization and costs of inpatient psychiatric care in general hospitals for children under the age of 18. HCFA's waiver approval required that the state arrange for an independent evaluation of SIPP; the Agency for Health Care Administration requested that the Louis de la Parte Florida Mental Health Institute conduct the evaluation.

This report covers the final component of the evaluation of the original SIPP program and model. This study is designed to describe the impact of the SIPP model on post-discharge treatment patterns by comparing the post-discharge patterns of care and cost of SIPP enrollees with a comparable sample of high-risk youth statewide that were discharged from a general hospital inpatient program. The study compares individuals discharged from SIPP with youth discharged from an inpatient psychiatric program in terms of their rates of psychiatric inpatient readmissions, inpatient lengths of stay, patterns of post-discharge utilization of community mental health services, and cost of post-discharge services. The study also provides demographic and diagnostic information regarding the SIPP enrollees. An analysis of Medicaid claims data for 72 SIPP enrollees and a matched comparison group of similar youth statewide was conducted to address these evaluation questions. In order to control for the amount of time that youth in the SIPP and comparison samples received services post-discharge, participants were grouped into three follow-up intervals of 6 months, 3-6 months, and 0-3 months beginning with their discharge dates.

The first question addressed by the evaluation was what are the demographic and diagnostic characteristics of the children admitted to SIPP. Children enrolled in SIPP were more likely to be male (67%) than female (33%), more likely to be white than to be found in any other racial category, and their average age was approximately 11 years. The most common admitting diagnoses included bipolar and depressive disorders. Other frequent admitting diagnoses were attention deficit/hyperactivity disorder, adjustment disorders, and conduct disorders. The second question concerned the patterns of inpatient readmissions post-discharge for SIPP youth and the comparison group. The proportion of youth readmitted for



psychiatric inpatient care is more than twice as high for the comparison youth as it is for the SIPP enrollees. The average post-discharge readmission rates are .26 readmissions per person for SIPP youth and 1.3 readmissions per person for the comparison group. For those youth who were readmitted to inpatient care post-discharge from either SIPP or a general hospital inpatient program, the average length of stay for SIPP youth is slightly more than 7 days and the average length of stay for the comparison high-risk youth is 19 days.

The study also addressed what were the patterns of community mental health service utilization post-discharge for youth in both groups. Service utilization patterns were contrasted for targeted case management, community-based services and outpatient services. The differences in average levels of targeted case management for SIPP enrollees compared with the high-risk youth in the comparison group were not statistically significant. In general, substantially more outpatient and community-based services were used by the comparison group youth within each case interval than by the SIPP enrollees. The differences in average levels of community-based services for SIPP enrollees were statistically significant lower compared with their high-risk matches. The differences in average levels of outpatient services between the two groups were not statistically significant.

Finally, the evaluation examined the average post-discharge costs per user for targeted case management and community mental health services. Patterns of post-discharge expenditures for targeted case management and community mental health for SIPP enrollees and the matched group of high users are consistent with the service utilization trends described above. Overall, the comparison group enrollees incurred more costs for targeted case management across all follow-up intervals than did youth in the SIPP group. Costs per person per month for community mental health services are more than twice as high for the comparison group than for the SIPP enrollees.

In summary, the findings of this report indicate that the SIPP program met its goals of providing an alternative sub-acute inpatient program and reducing utilization of inpatient care in general hospitals. In addition, rates of targeted case management post-discharge are comparable for SIPP youth and comparison group youth. The average levels of community-based services used by SIPP youth were statistically significantly lower compared with the high-risk youth and no significant difference was found in average levels of utilization of outpatient services.

Background

In March 1998, the Health Care Financing Administration (HCFA) approved a 1915(b) waiver for the State of Florida to implement the Sub-Acute Inpatient Psychiatric Program (SIPP) for children under the age of 18. The waiver allowed the state to offer, in two areas of the state, an alternative, sub-acute treatment program for clinically eligible children who are high utilizers of inpatient psychiatric services. High utilizers are defined as children who have a history of two or more psychiatric hospitalizations in a year or a number of days of inpatient care above the state average. For the period under study in this report, the state average is defined as 8 days for children and adolescents under the age of 18.

The objective of the SIPP is to provide an intermediate level of care for high-risk youth and to reduce the utilization and costs of inpatient psychiatric care in general hospitals for children under the age of 18. Toward this end, First Mental Health, Inc., provides utilization management to insure appropriateness of SIPP admissions, length of stay, and quality of care and to insure that aftercare services and/or linkages with appropriate community services are offered upon discharge.



Both the waiver application and the Request for Proposal for SIPP require that treatment be active, aggressive, focused and oriented around aftercare planning from the time of admission. The treatment goals are defined as twofold:

1. Stabilization of presenting symptoms to allow for a safe return to the community, and
2. Design of a treatment plan that can be appropriately implemented in the child's home and community.

HCFA's waiver approval required that the state arrange for an independent evaluation of the waiver program. The Agency for Health Care Administration (AHCA) requested that the Louis de la Parte Florida Mental Health Institute (FMHI) conduct the evaluation. This report represents the final component of the evaluation of the original SIPP model approved by HCFA in March 1998.

The SIPP model was implemented in the spring of 1999 in two regions of the state: **AHCA Area 4** covering **Jacksonville** and **Daytona Beach** on the east coast, and **AHCA Area 8** covering **Fort Myers** and the **surrounding rural area** on the west coast. Selected population and demographic characteristics of these areas are summarized in **Table 1** (below).

	Area 4	Area 8
Estimated 1999 Area Population	1,504,136	1,103,798
Percentage of Children in Area Population	24%	19%
Percentage of Minority Representation in Area Population	18%	7%
Percentage of Minority Representation within Child Population for Area	25%	12%

Scope of the Evaluation

The first SIPP evaluation report (Snyder, K., Gomez, A., Armstrong, M., Dailey, K., & Massey, T., 2000) was designed to address the following questions:

- What are the characteristics of the children enrolled in SIPP?
- What were the patterns and cost of psychiatric inpatient utilization among high-risk youth in Areas 4 and 8 for the three years prior to implementation of SIPP?
- How did the program sites implement the SIPP model and build systems for family involvement in policy development, quality assurance and improvement, grievance procedures, and treatment teams?
- How satisfied are families with the implementation of the SIPP program?



This final phase of the evaluation of the original SIPP program is designed to describe the impact of the SIPP model on the post-discharge treatment patterns for youth who were high utilizers of psychiatric inpatient services by comparing their post discharge patterns of care and cost with a comparable sample of youth who were discharged from a general hospital acute care psychiatric inpatient program.

Purpose of the Evaluation

The research questions to be addressed in this phase of the evaluation of the initial SIPP model involve comparing individuals discharged from the SIPP program with youth who were discharged from an inpatient psychiatric program in terms of their

- Rates of psychiatric inpatient readmission
- Inpatient lengths of stay
- Patterns of post-discharge service utilization
- Cost of post-discharge services

Using administrative datasets provided by AHCA, a comparison analysis was conducted of youth enrolled in SIPP and a matched sample of high-risk youth within the State of Florida who have patterns of inpatient utilization and clinical profiles that are comparable to the SIPP enrollees. Given that the objective of SIPP is to reduce inpatient admissions and lengths of stay in general hospital psychiatric care, proper implementation of the SIPP model should lead to fewer inpatient readmissions and shorter lengths of stay for youth discharged from SIPP than for the comparison group of high-risk youth. Since both the SIPP youth and the comparison sample are youth with serious and chronic psychiatric disabilities, it was not anticipated that the rate of utilization of targeted case management or community mental health services would differ between the two groups.

Method

An analysis of Medicaid claims data for 72 SIPP enrollees at two SIPP sites and for a matched comparison group of similar youth who were high utilizers of inpatient mental health services statewide was conducted to address these evaluation questions. We were unable to locate three SIPP enrollees in the Medicaid files. The remaining 69 SIPP enrollees were matched on demographic and diagnostic information to 69 individuals from a statewide group of 1727 clinically eligible, high-risk children who were high utilizers of inpatient psychiatric services. Comparisons focused on patterns of inpatient readmissions and length of stay, service utilization patterns, and cost patterns within follow-up intervals of comparable length.

Children who were high utilizers of inpatient psychiatric services were identified from the Medicaid claims records provided by AHCA to form a comparison group for this analysis. Like the SIPP enrollees, these 1727 youth and adolescents were selected using the following criteria

- Between the ages of 5 and 18
- With a history of two or more psychiatric hospitalizations in a year or
- With an inpatient stay greater than the state average of eight days.

The individuals in the comparison group were matched to the SIPP enrollees using gender, race, age, and inpatient diagnostic category. Diagnoses were grouped for matching as follows: Schizophrenia (295), Bipolar/Depression (296), Psychosis NOS (298), Anxiety Disorders (300), Adjustment Disorder (309), Depressive Disorder NOS (311), Conduct Disorders (312), Oppositional Defiant Disorder (313), Attention-Deficit/Hyperactivity Disorder



(314) and no diagnosis (000). After all the possible matches for each SIPP enrollee from the comparison group on gender, race, age, and inpatient diagnostic category were identified, an individual match for each SIPP enrollee was randomly selected.

In order to control for the amount of time that youth in the SIPP and comparison sample received services post-discharge, participants were grouped into three follow-up intervals of 6 months, 3–6 months, or 0–3 months beginning with their discharge dates. The first SIPP enrollees entered the program in April 1999 and the first discharges from SIPP occurred in May 1999. Medicaid claims data are currently available through June 2000, so six months of claims data were available for individuals who were admitted and discharged by December 31, 1999 ($n = 44$). For those who were discharged after December 31, 1999 but on or before March 31, 2000 ($n = 17$) only three to six months of data were available. For those who were discharged after March 31, 1999 but on or before June 30, 2000 ($n = 8$) less than three months of data were available. Each SIPP enrollee was compared to a high-risk utilizer of inpatient psychiatric services within the same follow-up interval. After the follow-up intervals were used for comparisons, standardized per person per month rates were calculated across all follow-up intervals.

The effectiveness of the SIPP program in reducing general hospital inpatient utilization is examined by comparing post-discharge inpatient readmission patterns and lengths of stay between SIPP youth and those in the comparison groups. In addition, post-discharge targeted case management and community mental health claims and cost patterns for the group of high users are compared with the SIPP enrollees.

The findings of the 1st SIPP evaluation report (Snyder et al., 2000) showed that there were substantial differences between the two SIPP programs. These differences related to the program philosophy of the implementing agencies, their program organization, and the availability of community resources post-discharge in each area. In recognition of these differences, findings are often reported for each SIPP site as well as for total SIPP youth. However, since the purpose of this study is to compare SIPP youth with a matched sample of high-risk youth, testing for differences is limited to the comparison of total SIPP youth with the matched sample of youth.

Findings

Question 1: What are the demographic and diagnostic characteristics of the children who are enrolled in SIPP?

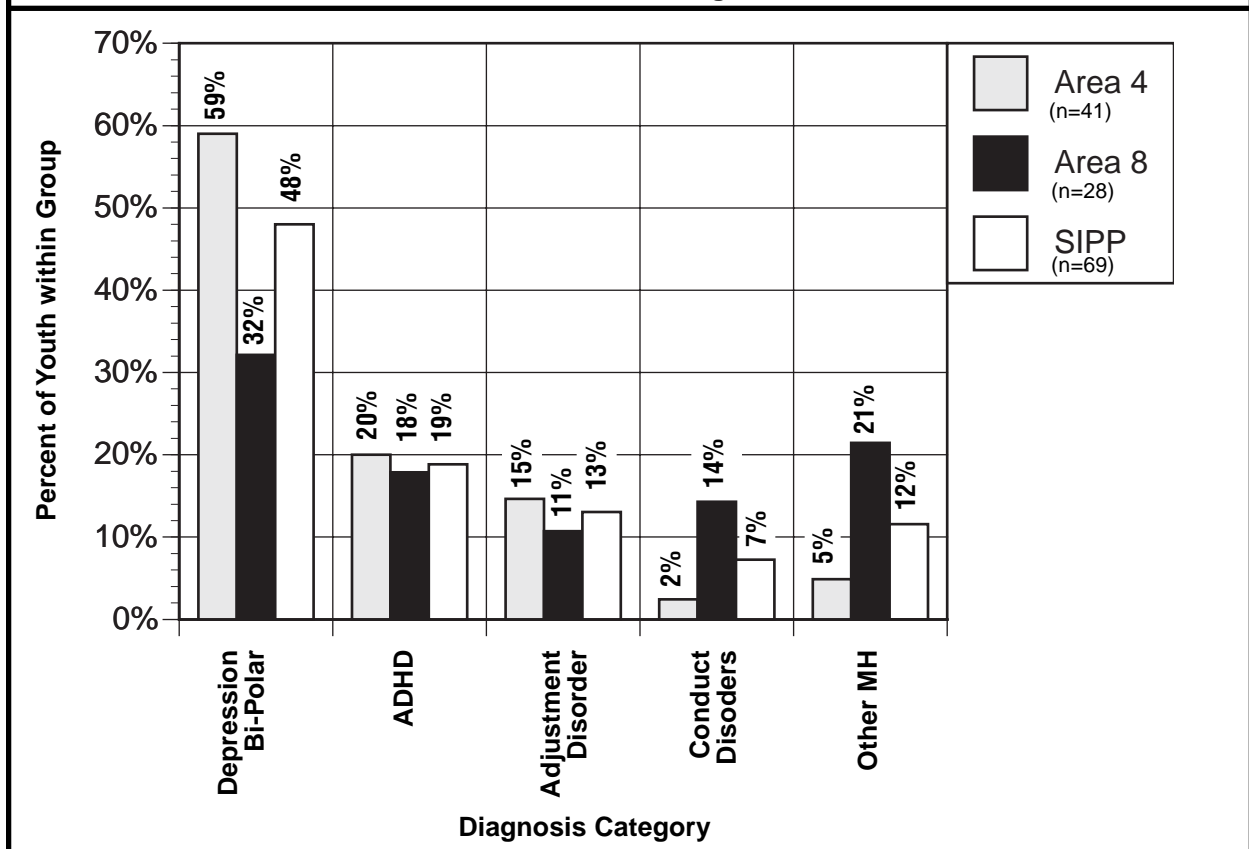
Table 2 (page 6) displays the demographic characteristics of high-risk youth admitted to SIPP by AHCA Area. Generally, children enrolled in SIPP were more likely to be male than female, more likely to be white than to fall into any other racial category, and their average age was approximately 11 years of age. The demographic characteristics of these SIPP enrollees are consistent with the characteristics of the child populations in these areas. For example, in Area 4 a higher proportion of blacks were served by SIPP than in Area 8.



Table 2
Demographic Characteristics of SIPP Enrollees in AHCA Areas 4 and 8

	Area 4	Percent	Area 8	Percent	Total SIPP	Percent
Number of Enrollees	41		28		69	
Average Age	10.73		10.89		10.8	
Gender: Male	28	68%	18	64%	46	67%
Female	13	32%	10	36%	23	33%
Race: Black	10	24%	5	18%	15	22%
White	22	54%	21	75%	43	62%
Asian	0	0%	0	0%	0	0%
Hispanic	0	0%	0	0%	0	0%
Other	9	22%	2	7%	11	16%

Figure 1
SIPP Admission Diagnoses

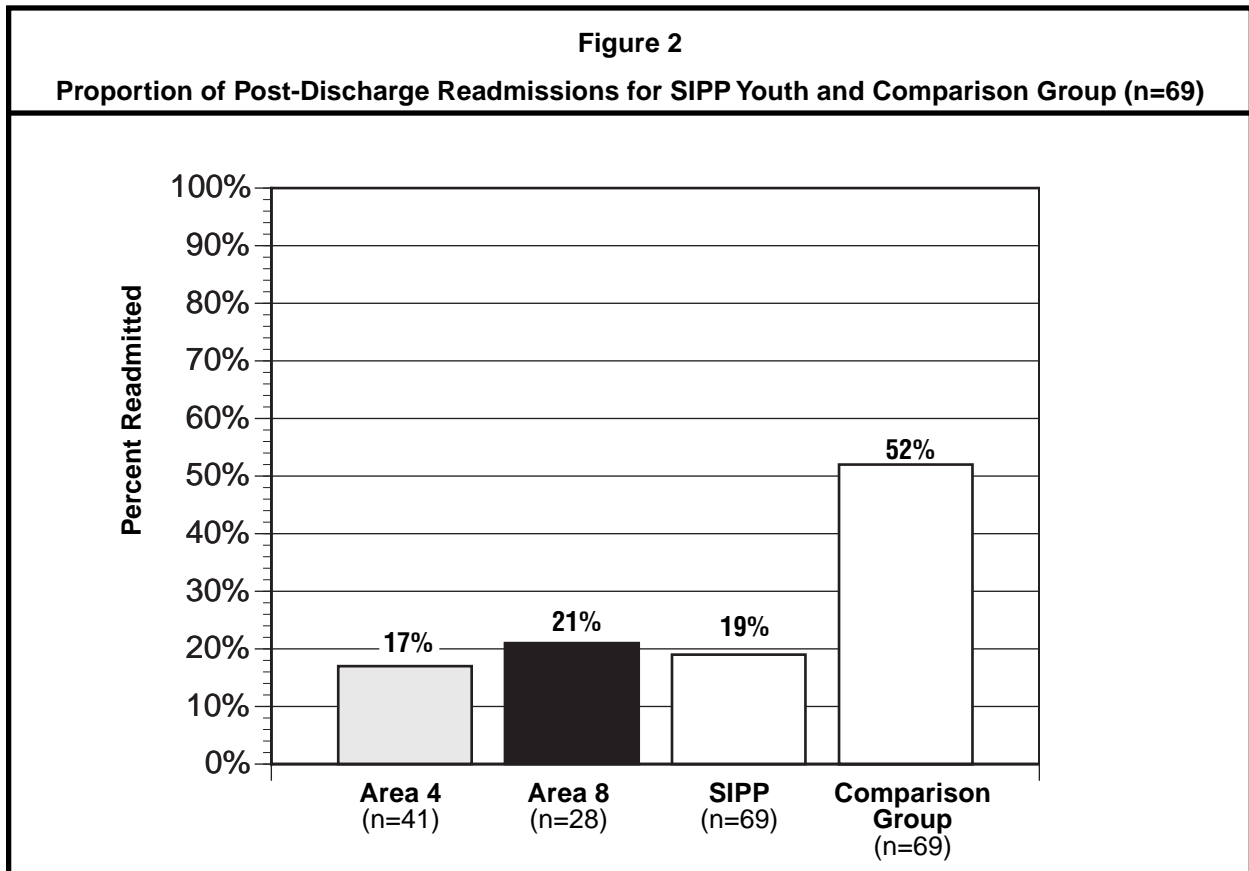


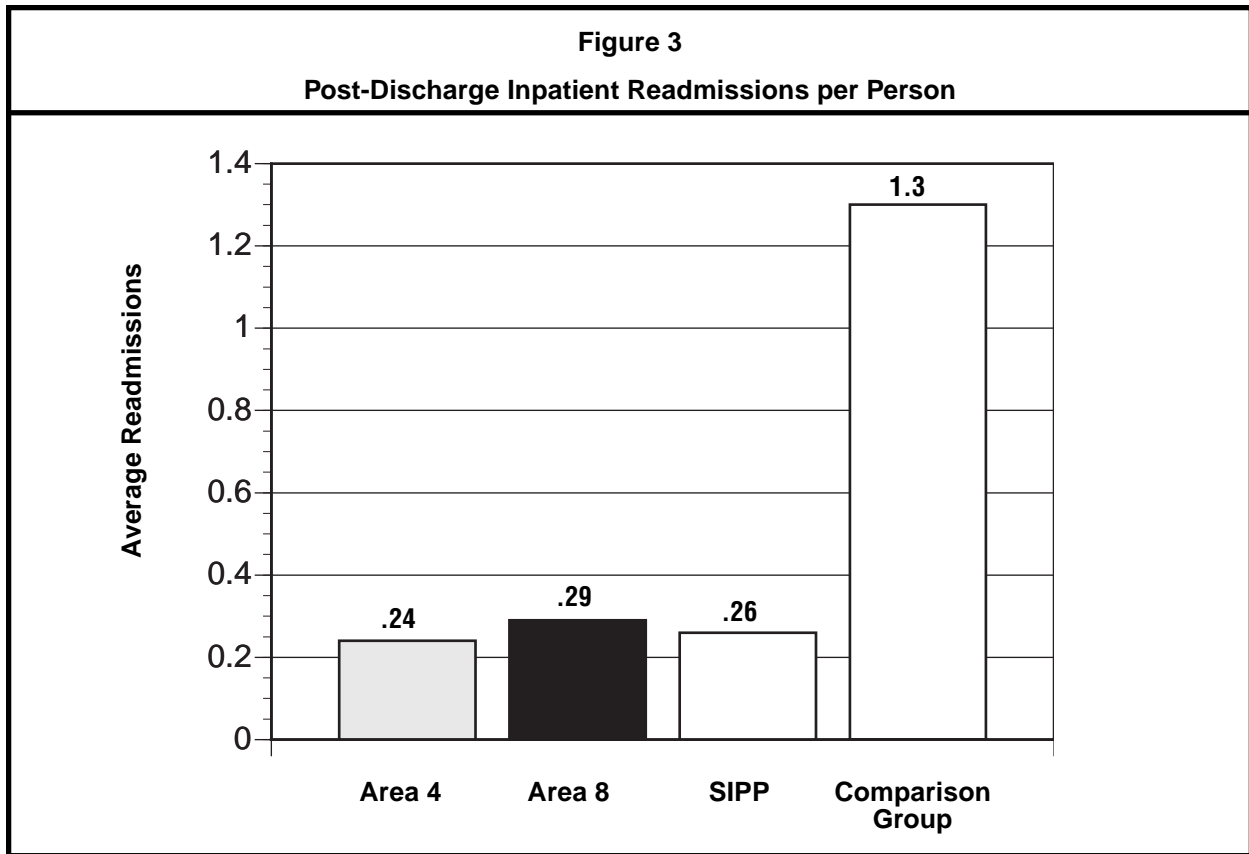


The diagnoses for children admitted to SIPP are displayed in **Figure 1** (page 6). These admitting diagnoses were part of the matching criteria used to select the comparison group. The inpatient diagnostic information for the comparison group is directly matched to the overall diagnostic information for the SIPP enrollees. The most common admitting diagnoses included bipolar and depressive disorders (296). Other frequent admitting diagnoses were attention deficit/hyperactivity disorder (314), adjustment disorders (309), and conduct disorders (312). The remaining admitting diagnoses are grouped into other mental health diagnoses and include oppositional defiant disorder (313), schizophrenia (295), depressive disorder NOS (311), psychosis NOS (298), and anxiety disorders (300). One SIPP enrollee had no diagnosis recorded in any of the inpatient claims recorded in the data. This enrollee was matched to a high utilizer of inpatient psychiatric services from the comparison group who also had no diagnosis recorded on inpatient claims.

Question 2: What are the patterns of inpatient readmissions post-discharge for SIPP youth and the comparison group?

The readmission patterns for SIPP enrollees and the comparison group of high-risk youth are described in two ways. Readmission is first represented as a proportion of youth who have an inpatient readmission within any follow-up intervals. This provides an overall rate of readmission post-discharge for the 69 children in each high-risk group. As **Figure 2** shows, the proportion of youth readmitted for psychiatric inpatient care is more than twice as high for the comparison youth as it is for the SIPP enrollees. Based on a significant chi-square statistic, the SIPP enrollees are 4.5 times less likely to be readmitted than the youth in the comparison group ($\chi^2=16.74$; $p=.0001$).

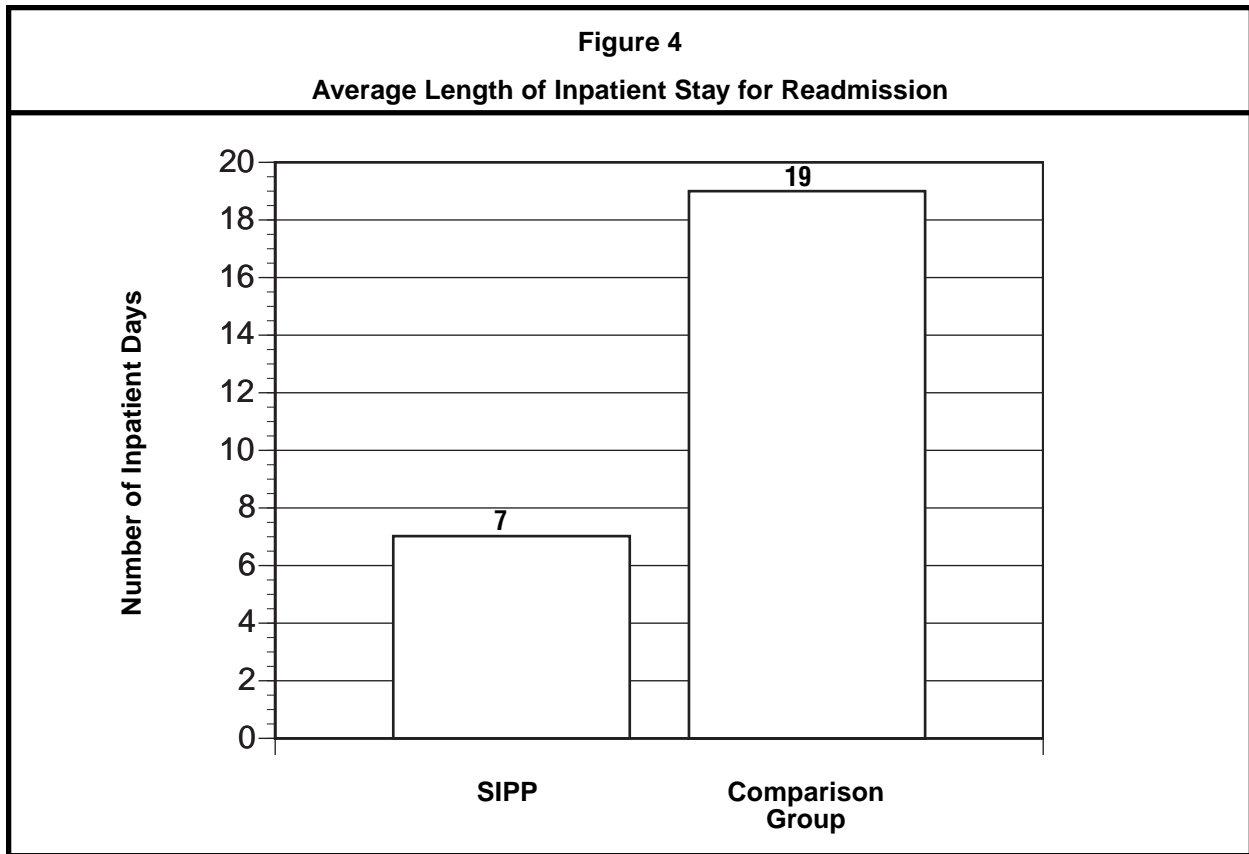




Second, average post-discharge readmission rates per person are calculated to compare the levels of inpatient readmissions between SIPP enrollees and the high-risk comparison group. The mean rates of post-discharge readmission are .26 readmissions per person for SIPP youth and 1.3 readmissions per person for the comparison youth. These average rates of readmission are lower for the SIPP enrollees than for their matched counterparts as shown in **Figure 3** (above).

Question 3: For both the SIPP enrollees and the comparison group, what are the average inpatient lengths of stay post-discharge?

The average lengths of inpatient stay for the 49 youth who were readmitted to inpatient care post-discharge from either SIPP or a general hospital psychiatric program are presented in **Figure 4** (page 9). The average length of stay for SIPP youth upon post-discharge readmission is slightly more than 7 days (mean = 7.025 days, sd = 13.503) and the average length of stay for the comparison high-risk youth is 19 days (mean = 19 days, sd = 20.106).



Question 4: What are the patterns of community mental health service utilization post-discharge for youth in both groups?

In response to this question, post-discharge service utilization patterns for targeted case management (TCM) and community mental health services between SIPP enrollees and the comparison group are contrasted.

Targeted Case Management — Each unit of targeted case management (TCM) represents a 15-minute increment of service. After determining that the differences in average units of TCM between SIPP enrollees and the comparison group were relatively normally distributed, a paired difference t-test was conducted to compare the levels of targeted case management across all follow-up intervals. The SIPP youth received an average of 170.46 units of targeted case management (sd = 147.70) following discharge and the comparison youth received an average of 170.83 units (sd = 208.66). The differences in average levels of targeted case management for SIPP enrollees compared with their high-risk matches were not statistically significant ($t = 0.012$, n.s.). Average per person per month rates of targeted case management were calculated for both groups of high-risk youth to standardize the follow-up intervals. The pattern for TCM utilization between youth discharged from each SIPP program (Area 4 and Area 8) and a comparison group is displayed in **Table 3** (page 10).



Table 3				
Targeted Case Management Service Utilization Post-Discharge per Person per Month				
	Area 4	Area 8	SIPP	Comparison Group
TCM Units	27.47 ¹	9.54	20.08	28.64
	n=41	n=28	n=69	n=69

¹An outlier was removed from the calculated Area 4 TCM average for the follow-up interval of 0–3 months post discharge since it had a disproportionate influence in this subgroup that contained a very small number of people.

Youth discharged from the Area 4 SIPP received substantially greater amounts of targeted case management than SIPP enrollees in Area 8. Differences in service utilization patterns between Areas 4 and 8 are similar to the substantive differences between availability and comprehensiveness of children’s targeted case management and community mental health services identified in Report #1 of the SIPP evaluation (Snyder, et. al., 2000). For example, during the 3 years prior to SIPP implementation, high-risk youth in Area 4 received substantially greater amounts of TCM than similar youth in Area 8. In addition to these area differences, Report #1 identified significant differences in the implementation of the SIPP program, including the role of the SIPP case manager in discharge planning. At the SIPP program in Area 4, one identified task for the case manager was making post-discharge phone calls to determine if discharge plans were being followed. At the SIPP program in Area 8, after children were discharged, there was not as much emphasis placed on aftercare coordination and the case manager was not consistent in making follow-up calls to ensure that appropriate services were in place. It is probable that differences in TCM utilization patterns between Areas 4 and 8 are related to both area differences in service availability and to differences in the two SIPP program models.

Community Mental Health Services — Service utilization patterns for community mental health services (CMH) between SIPP enrollees and the comparison group are compared in **Table 4**.

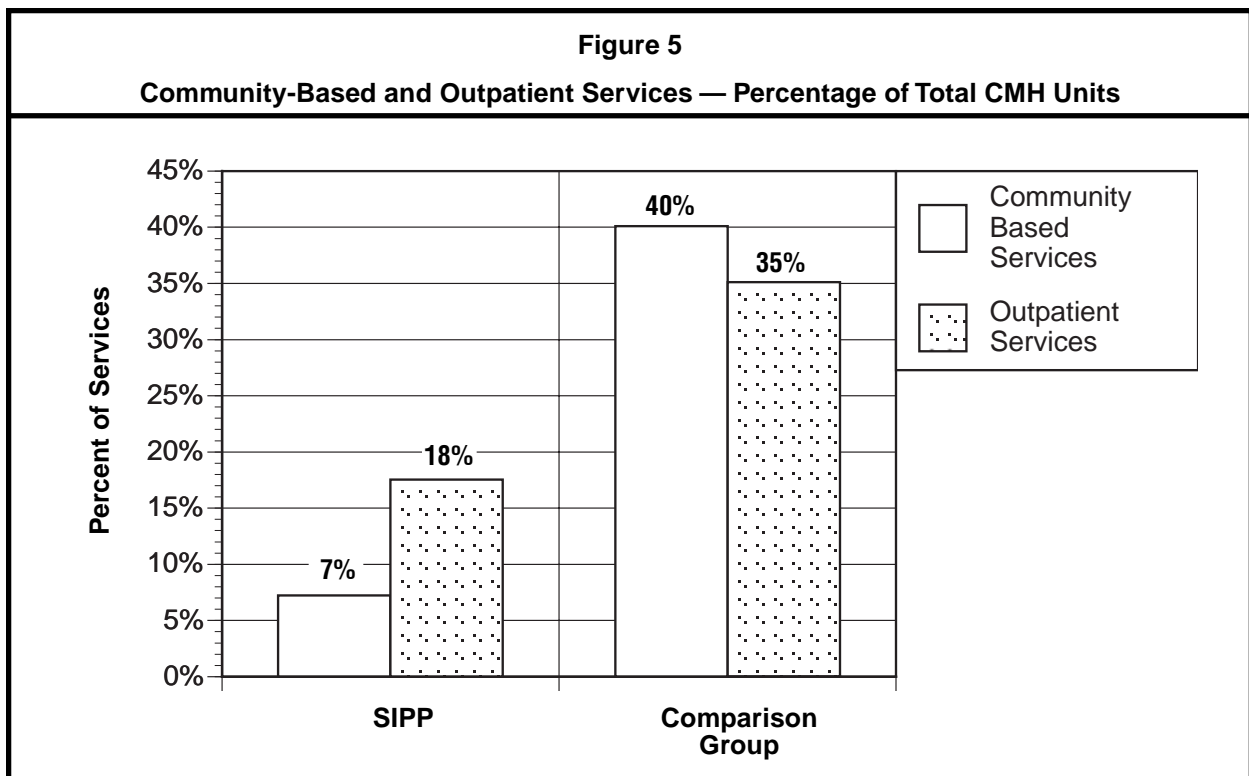
Table 4				
Community Mental Health Service Utilization Post-Discharge per Person per Month				
	Area 4	Area 8	SIPP	Comparison Group
CMH	5.09	5.92	5.45	16.86
	n=41	n=28	n=69	n=69



The analysis of difference in community mental health service utilization is based on units of service. It is important to note that different services are billed in different time segments. The community mental health category is comprised of a number of service types and a unit can represent varying degrees of service duration. For example, a unit of day treatment represents one day, whereas a unit of individual therapy may represent 45 or 60 minutes. Higher units of service for CMH could result from a higher use of day treatment or more counseling sessions. An aggregate analysis of CMH limits the amount of information that can be inferred from the data.

In addition to differences in duration, the category of community mental health combines services of varying intensity. To further refine the analysis, the CMH category was sub-divided into community-based services and outpatient services. Community-based services are generally more intensive and costly and are those services that are offered in-home and in-school, including Intensive Therapeutic On-site Services, Home and Community-based Rehabilitation Services, and Social Rehabilitative Counseling. All other CMH services are classified as Outpatient Services, representing services that are office/building based.

Service utilization patterns for outpatient and community-based services between SIPP enrollees and the comparison group youth are contrasted in **Figure 5**. The percentage of total community mental health services allocated to each sub-category (community-based services and outpatient) across SIPP enrollees and the comparison youth is displayed within each case interval. In general, **Figure 5** indicates that substantially more outpatient and community-based services are used by the comparison group youth within each case interval than by the SIPP enrollees.





A paired difference t-test was conducted to compare the levels of community-based services and of outpatient services between SIPP enrollees and the comparison group. The SIPP youth received an average of 14.80 units of community-based services (sd = 20.03) following discharge and the comparison youth received an average of 51.81 units (sd = 85.15). The differences in average levels of community-based services for SIPP enrollees were statistically significantly lower ($t = 3.28, p = .002$) compared with their high-risk matches. On the other hand, SIPP youth received an average of 27.56 units of outpatient services (sd = 41.40) following discharge and the comparison youth received an average of 42.01 units (sd = 73.30). These differences in average levels of outpatient services for SIPP enrollees compared with their high-risk matches were not statistically significant ($t = 1.39, n.s.$).

Question 5: What are the average costs per user post-discharge for individuals enrolled in SIPP and the comparison group for six months post discharge?

Patterns of post-discharge expenditures for targeted case management and community mental health for SIPP enrollees and the group of high users who are matched to them are generally consistent with the service utilization trends described above. Expenditures for targeted case management for SIPP youth and the comparison group are contrasted in Table 5. The average TCM costs per SIPP enrollee in Area 4 were higher than the average costs per enrollee in Area 8. Area 8 cost levels are lower than cost levels for both Area 4 enrollees and for the high-risk youth in the comparison group. This difference is a reflection of TCM service utilization patterns noted earlier in **Table 3** (page 10). Overall, the comparison group enrollees incurred more costs for targeted case management across all follow-up intervals than did youth in the SIPP group.

The patterns for community mental health service expenditures shown on **Table 5** also are consistent with the service utilization patterns for CMH. The rate of CMH expenditure for the comparison youth is more than twice as high as the rate for SIPP youth.

	Area 4	Area 8	SIPP	Comparison Group
TCM	\$254.01	\$87.05	\$208.18	\$258.43
CMH	\$201.77	\$239.92	223.22	\$572.07



Discussion

In summary, the findings of this report indicate that the SIPP program met its goals of providing an alternative sub-acute inpatient program and reducing utilization of inpatient care in general hospitals. Youth in the comparison group are 4.5 times more likely to be readmitted to an inpatient program than SIPP enrollees. The average length of post-discharge inpatient stay for a SIPP youth is 7 days, in contrast with 19 days for a comparison high-risk youth. Based on these findings, the SIPP program has been successful in reducing the post-discharge utilization of psychiatric inpatient care by youth discharged from SIPP in comparison with a matched sample of high-risk youth.

In addition, rates of targeted case management post-discharge are comparable for SIPP youth and comparison group youth. The average levels of community-based services used by SIPP youth were statistically significantly lower compared with the high-risk youth. There was no difference in average levels of utilization of outpatient services.

Previous analyses of Florida's Medicaid datasets (Snyder et.al, 2000) have indicated differences between Areas 4 and 8 in service utilization patterns and costs. The patterns observed in this study confirm these regional differences. The contrasts in implementation of the SIPP model noted between the two SIPP sites in the earlier report also are consistent with the differences in inpatient readmissions and lengths of stay, service utilization patterns and costs described in this report. In future evaluations, it may be useful to continue to examine both regional differences and differences in SIPP program implementation. Finally, it would be useful to compare costs of an average SIPP episode including both SIPP care and post-discharge care to an average general hospital inpatient episode.

Limitations

While the SIPP enrollees are matched with high-risk youth statewide on demographic characteristics, diagnosis, and SIPP eligibility criteria, the decisive factor that admits a youth to SIPP is the recommendation of a clinician based on a match between the needs of the youth and the services provided by SIPP. A second admission criteria is the agreement of a parent or guardian to participate in the SIPP treatment program. These non-quantifiable admission factors are likely to provide greater homogeneity among SIPP enrollees than is present among the comparison youth who have been randomly selected from high-risk users of inpatient psychiatric services. Further, the lack of a reliable index of severity associated with the administrative Medicaid data prevents a more precise clinical match. Additional data and further study are needed to determine which factors are related to the differences between the two groups. □



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