

**A Study of  
Partial Hospitalization Programs  
At 23 Child-Serving Agencies in Ohio**



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## Introduction

To better understand the impact of changes in Medicaid billing rules for partial hospitalization services, the Ohio Department of Mental Health Office of Program Evaluation and Research (ODMH-OPER) expanded an analysis of service utilization patterns among child and adolescent treatment providers with residential services licensure or certification to include a descriptive study of partial hospitalization programs at those agencies. For the service utilization study, a 23 agency sample was drawn from a universe of 25 providers<sup>1</sup> with residential licensure or certification who submitted Medicaid claims for child and adolescent partial hospitalization (PH) services during the 2002 fiscal year. For the descriptive analysis of partial hospitalization programs, clinical program directors and quality assurance officers at the 23 agencies were interviewed through a phone survey for information about program size, structure, and content, treatment milieu characteristics, administrative and clinical practices, school programming, and average length of stay. Due to the study's original purpose and the limited manpower available to conduct a statewide phone survey, the study sample was limited to the 23 agencies with residential licensure or certification among the universe of 43 agencies that provided child and adolescent PH programs in FY 02.<sup>2</sup>

For the service utilization analysis, 3,146 unduplicated claims records of children and adolescents (C&A) were extracted from the claims database for the 23-agency sample. The claims extract represented 74% of all C&A consumers who received PH services and four percent of all C&A consumers who received *any* services in FY 02. The extract sample accounted for a total of \$30,055,616 in allowed PH claims and \$9,526,928 in claims for five other Medicaid-billable services.<sup>3</sup> A total of \$39,582,544 for the sample extract represents 25% of allowed Medicaid service claims for all C&A consumers in FY 02.

The purpose of this paper is to describe features of child and adolescent partial hospitalization programs at 23 agencies throughout Ohio and present findings from statistical analyses of those agencies' Medicaid claims data. For the purpose of this study, PH-Day Treatment (PH-DT) refers to programs that bill partial hospitalization for treatment services to clients who live in the community, regardless of whether in foster care or with family of origin. PH-Residential Service (PH-RS) refers to programs that bill partial hospitalization for treatment services to client who also receive residential services, supervision, and care.

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<sup>1</sup> Two agencies dropped from the analysis reported they had closed their partial hospitalization programs by the end of 2002. These two programs accounted for less than 3% of clients with PH claims in FY 02.

<sup>2</sup> The 18 providers without residential licensure or certification accounted for 23% of clients with PH claims in FY 02.

<sup>3</sup> Diagnostic assessment, individual counseling, group counseling, individual case management, and med-somatic care.

## Description of Programs

- **The majority of agencies with PH programs are located in major urban areas. Slightly more than half of the agencies (N = 15) provide partial hospitalization in both residential and day treatment formats.**

Representatives of the 23 agencies described a total of 19 PH-Residential Service and 29 PH-Day Treatment programs. Among the 23 agencies, 15 provided both PH-RS and PH-DT programs. Six provided only PH-DT programs, and two provided only PH-RS programs. The 15 agencies providing PH treatment services to clients living in both residential and community settings billed partial hospitalization for over half of all consumers in the sample. Twelve of the 15 agencies that offer residential services are located in metropolitan areas with populations greater than 50,000. See Figure 1 for the geographic distribution of the three categories of agencies by PH program configurations. See Table 1 for description of agency data by program availability.

- **A wide range in length of treatment stay for partial hospitalization programs reflects distinctly different program objectives.**

The average length of stay reported for the two PH-RS-only programs is nine months, and both programs reported similar treatment objectives for similar service populations. When the claims data for these two agencies were analyzed, the duration variable for a total of 142 clients yielded an average length of stay of 9.5 months (SD = 10.4 months).

The range for average length of stay reported for the six PH-DT-only programs was 32 days to 2.5 years. When claims data for these six agencies were analyzed, the duration variable for 919 clients yielded an average length of stay of 4.9 months (SD = 3.4 months). The claims data covered only 12 months of services; therefore, the broad range in treatment duration reported by respondents in the phone survey was not captured in the confirmatory analysis. The six PH-DT-only programs ranged from treatment models focused on medically oriented crisis stabilization and hospital diversion to those focused on school-oriented, psychosocial objectives. Among all agencies providing day treatment (N = 21), fourteen said their programs were used to divert and/or step clients down from residential and hospital settings.

The 15 agencies with partial hospital programs serving clients in both residential services and community settings reported a wide range in average length of stay and programmatic objectives<sup>4</sup>. PH-RS treatment stays at these agencies ranged from 18 days to 1.6 years, while PH-DT stays ranged

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<sup>4</sup> Three of these agencies reported that they did not bill PH for consumers who received residential services.

from 60 days to 10.6 months. In some cases, residential services were primarily dedicated to crisis stabilization within an agency that offered a range of less restrictive step-down alternatives.

At four agencies, the population receiving residential care involved difficult-to-place clients with serious community safety issues such as fire starting and sexualized aggression. One agency served pre-school aged children (3 through 5 years old). At some agencies the community and residential treatment milieus were mixed in a single partial hospitalization program, while others placed their community and residential populations in separate treatment milieus.

- **Approximately 29 percent of the consumers in the partial hospitalization claims extract received residential services in FY 02.**

An estimated 29 percent (N = 918) of the 3,146 consumers who received partial hospitalization services in FY 02 were in residential settings during some portion of that fiscal year<sup>5</sup>. Information gathered in the phone survey regarding number of treatment slots in PH-RS and PH-DT programs was used to compute a ratio for agencies serving clients in residential and community settings. This ratio was used to estimate the number of clients in residential settings at each agency. Across the 12 agencies with PH-RS/DT services, it is estimated that there is an average of 45 (SD = 23) clients in residential care to every 55 clients in community settings. See Appendix A for detailed explication of method used to estimate the proportion of clients receiving partial hospitalization services in residential settings.

- **The estimated mean treatment duration for an estimated 918 clients who received PH services while living in residential settings is 6.6 months. The estimated mean duration for an estimated 2,228 clients who received PH services while living in community settings is 3.9 months.**

Duration data were calculated for each agency based on the number of PH billing days for clients in the MACSIS extract. Among the 15 agencies that provided both residential and day treatment services, three indicated they did not bill PH for clients in residential care. These three agencies were added to the six PH-DT only providers for analysis of mean length of stay in day treatment programs.

Based on survey information about mean length of stay in PH-RS versus PH-DT programs, a ratio was calculated for estimating a length of stay (duration) for each treatment group. Across the 12 agencies with PH-RS/DT programs, it was estimated that on average, the residential clients spent 58 (SD = 9) days in treatment to every 42 days by the community-based clients. Length of stay

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<sup>5</sup> If the 18 day treatment agencies without residential licensure or certification are included in the denominator, residential estimates represent 22% of the total PH population served in 2002.

calculations for the two agencies with PH-RS-only programs were added to the final estimate of mean treatment duration for all clients (N = 918) living in residential settings. Likewise, final estimates of mean treatment duration for all clients (N = 2,228) living in community settings included data from the nine agencies that billed PH-DT-only. See Appendix B for a more detailed explication of the methodology used to estimate duration means. Table 1 shows descriptive data by PH billing category and program type.

- **The majority of treatment providers offer educational programs with SBH-certified teachers, but relatively few PH programs specifically target school success as a treatment objective.**

Of the 23 agencies in the sample, 18 provide access to educational programming by SBH teachers certified with local school districts. However, only six agencies reported that they had integrated the partial hospital treatment curriculum into the structure of educational activity.<sup>6</sup> Although it did not use the integrated model, a seventh agency reported that it offered an after-school “educational success program” that entailed treatment and case management around school issues. At over half of the agencies (N = 13), PH treatment activity occurs during a block of therapeutic group activities after the end of educational activities. Regardless of programmatic design, the bulk of the PH treatment curriculum entails group work in areas such as anger and behavior management, communication and coping skills, self-esteem, trauma and abuse issues, and psycho-education.

- **Most providers offer family intervention services, but relatively few require collateral participation as a condition for admission and ongoing care. Approximately one-third reported the presence of an evidence-based behavioral treatment model.**

Five out of 23 agencies reported that a family representative is required to participate at some level of engagement as a condition of client enrollment in partial hospitalization services. One day treatment provider explained that as a condition of continued enrollment, family members or custodians were expected to choose from a menu of services, e.g., case management, psycho-education, family therapy, or med-somatic consultation. Representatives at most agencies said they offered opportunities for family involvement and encouraged participation in treatment, but that collateral engagement was not a required component of the partial hospitalization program.

Most of the agencies reported using a token economy and level system for managing behavior. About one-third described evidence-based behavior treatment models. Among the handful of

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<sup>6</sup> Clients at these six agencies (N = 1,435) represented 46 % of the total sample.

behavioral treatment models described by eight agencies were Teaching Family, Re-Education Therapy, Cognitive-Behavioral Therapy, and Reality Therapy.

- **The majority of agencies (N = 20) have adopted the Ohio Scales as an outcomes instrument; however, only five said they used a standardized screening instrument other than the Ohio Scales.**

Standardized assessment screens included the CAFAS, the CBCL, and the Devereau. One agency reported using the CALOCUS in combination with the CAFAS to determine level of treatment of intensity suggested by the assessment tool. Three agencies reported using clinical profiling techniques to assign clients to specific treatment groups tailored to address issues pertinent to the client's clinical characteristics. Under this treatment evaluation model, measured outcomes are specific to the clinical profile of each group.

- **Analyses of additional treatment services provided to 2,959 clients suggest two levels of treatment intensity that are unrelated to the presence of residential care.**

Twenty-two of the 23 agencies provided additional treatment services for which they billed Medicaid in FY 02. The five additional services provided to clients in partial hospitalization programs were diagnostic assessment, individual counseling, group counseling, individual case management, and med-somatic care. T-tests indicated that patterns of additional service utilization by agencies were significantly different. Clients at the twelve agencies that billed PH for residential and community clients (N = 1776) provided significantly more individual counseling and diagnostic services than the eight agencies that billed PH-DT-only (N = 1041).<sup>7</sup> There was no evidence that agencies with residential populations provided significantly more medication services than agencies serving only community-based populations.<sup>8</sup>

Hierarchical cluster analysis of the agency-level service data (N = 22) suggested two patterns of service provision. There is a group of agencies that provide a pattern of diagnostic assessment, individual counseling, and medication services and those that primarily provide case management or additional group therapy. However, the clustering of additional services was not associated with the presence (or lack) of residential services by the agency. Cluster analysis of client-level service data suggests that within the PH population as a whole, medication services are most closely linked to the presence of additional individual and group counseling rather than the agency PH program

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<sup>7</sup> One agency that provided no additional treatment services was dropped from the analysis.

<sup>8</sup> This held true even when the two agencies with PH-RS-only programs were added to the analysis.

configuration. Diagnosis and case management formed a second pattern of service utilization by the population served in partial hospitalization programs.

- **In FY 02, the estimated mean cost of partial hospitalization for 918 Medicaid clients in residential settings was \$11,369. The estimated mean cost for 2,228 PH clients in community settings was \$8,121. The mean cost of additional services for 2,838 clients who received PH was \$3,339.**

The mean PH service cost for the entire sample (N = 3,146) was \$9,554 (SD = \$8,190).<sup>9</sup> One client received as little as \$8 in partial hospitalization, and another as much as \$41,701. At least 50 percent of the sample received \$6,869 in PH services. These figures say nothing about differences in PH service utilization by residential and community populations. Survey information regarding program size and lengths of stay confirmed the hypothesis that the two groups use PH services in differing proportions and duration. To estimate the cost for each group, a PH-day dollar unit was calculated by dividing the total allowed amount for the partial hospitalization of 3,146 clients by the total number of treatment days for the sample. Using respective group estimates of treatment duration, the PH-day dollar unit was used to calculate mean costs for 918 residential and 2,228 community clients. The respective results were \$11,369 and \$8,121. A t-test of the \$11,369 PH-RS estimate on mean cost for the two PH-RS-only agencies showed no statistical difference. T-test results for the \$8,121 PH-DT estimate on the mean cost for the PH-DT-only agencies also showed no statistical difference. See Appendix C for further discussion of the formula used to calculate mean dollar amount for the residential and community populations.

Because study methodology does not allow for determining whether residential and community populations use additional Medicaid services at differing levels of intensity or service mix, a single mean of \$3,339 (SD = \$3,864) was calculated for all PH clients (N = 2,959) with additional services. A range where some clients received as little as \$11 in additional services while another topped out at \$40,488 influenced the wide standard deviation. At least 50 percent of the clients received \$2,205 in additional services during FY 02. An average \$6,585 (SD = \$7,895) in additional services was provided at the two PH-RS-only agencies, while eight PH-DT agencies provided an average of \$3,487 (SD = \$4,140). Table 1 provides a summary of descriptive data by claims categories.

All dollar estimates reported in this analysis represent allowed Medicaid amounts. Therefore, dollar estimates reflect only 60 percent of the total amount reimbursed to the agencies for Medicaid-

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<sup>9</sup> Allowed Medicaid dollar amounts were used in the analysis because the unit measure for a day of PH treatment is not standardized across all agencies.

billable services. When Medicaid matching dollars are added to the estimated mean cost of partial hospitalization for clients in residential and day treatment programs, respective mean expenditures rise to \$18,948 and \$13,535. Likewise, the Medicaid match for a median cost of \$2,205 in additional services raises the median expenditure to \$3,675. When the mean cost of additional services is added to the PH-RS and PH-DT estimates, the average client in residential care runs about \$22,623, while the typical community-based client runs about \$17,210 in total Medicaid expenditures. These estimates do not include additional program costs, such as room and board for residential services or transportation to day treatment facilities.

### **Summary**

A wide range of program designs and objectives fall under the umbrella of “partial hospitalization” in Ohio. Although a curriculum-based group process modality is the basic format for partial hospitalization service at the majority of agencies, the group process format is much differently structured in the integrated school/treatment design versus that of an after-school treatment block. Because agencies have only recently adopted a standardized outcome measure, it is not possible to know whether either of the two designs is associated with better (or worse) treatment and educational outcomes. The fact that only a handful of agencies were using any sort of standardized outcome measurement prior to adoption of the Ohio Scales is particularly disturbing, but not surprising given the fact that ODMH has not actively pursued compliance with the current service evaluation rule.

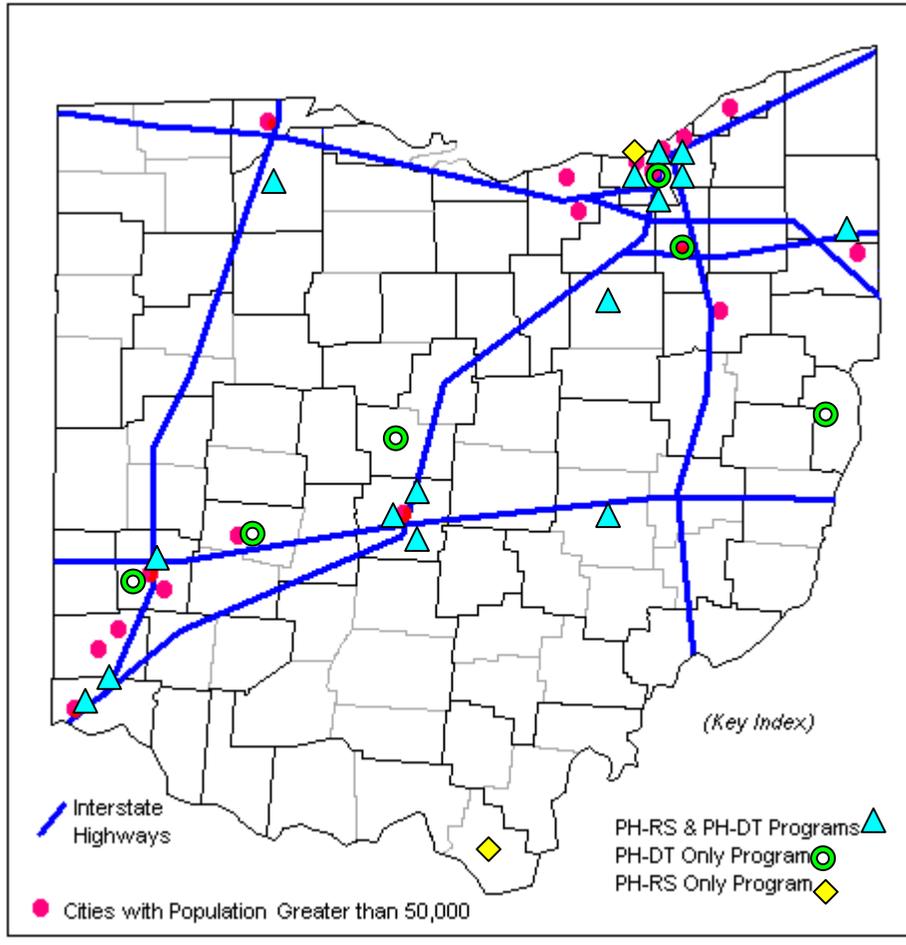
The study’s qualitative and quantitative data analyses suggest that partial hospitalization programs are serving a wide range of child and adolescent consumers. Again, without standardized clinical assessment measures, it is impossible to know the extent to which C&A consumers in residential settings differ from those being treated in the community. However, qualitative information indicates that the more restrictive treatment settings are used with PH programming to serve youth with sexually inappropriate externalizing behavior. At the same time, very few agencies report the availability programming focused on clinical distinctions between consumers, such as those with externalizing versus internalizing behavior. Analyses of med-somatic service data suggest that C&A consumers with brain diseases are no more likely to receive partial hospitalization in residential settings than those with less medically-oriented psychosocial conditions such as inadequate family support.

Results from the estimation methodology used to derive average treatment duration and number of clients in PH-RS and PH-DT programs are valid to the extent that staff at 12 agencies provided reliable data on program size and length of stay. Computational techniques that control for

variability were purposely chosen to produce conservative estimates for the Medicaid cost of PH-RS and PH-DT programs. The fact that t-tests on the sample's estimated PH-RS and PH-DT Medicaid costs show no statistical differences to the means of known distributions suggests study findings are reasonable approximations. The higher Medicaid expenditures associated with PH-RS programs may well be offset at agencies with the capacity to step clients down to PH-DT programs.

The skew in geographic distribution of PH programs along major highways and urban areas bears comment. An economy of population scale may well influence the distribution of partial hospitalization programs such that residential services are a medical necessity borne of geographic location.

**Figure 1. Geographic Distribution of Agencies with Partial Hospitalization Programs**



**Table 1. Description of Agency Data**

	<b>Residential Only</b>	<b>Day Treatment Only</b>	<b>Residential &amp; Day Treatment</b>
<b>Number of Agencies by Program Configuration</b>	2	6	15
Mean Cost by Program Availability¶	\$10,474	\$9,666	\$9,441
Mean Cost Additional Services¶	\$6,585	\$3,362	\$2,801 (N = 14)
Total Number of RS and DT Programs	19	29	*
Length of Stay: Range (Phone survey)	9 months	32 days – 2.5 yrs.	18 days – 1.6 years 60 days – 10.6 months
Length of Stay: Mean Duration (Claims data)	9.5 months	4.9 months	4.4 months
Number of Clients by Program Format	142	919	2085
<b>Number of Agencies by PH Billing Practice</b>	2	9	12
Mean Cost by PH Claims Category¶	\$10,474	\$7,842	\$10,664
Mean Cost Additional Services¶	\$6,585	\$3,487 (N = 8)	\$2,689
Number of Clients by PH Claims Category	142	1228	1776
Length of Stay: Mean Duration by PH Claims	9.5 months	4 months	4.9 months
<b>Number of Agencies by Two Program Types</b>	14	21	*
Estimated Mean Cost by Program Type¶	\$11,369	\$8,121	*
Mean Cost for Sample¶ (N = 2,959)	\$3,339	\$3,339	*
Estimated Number of Clients by Program Type	918	2228	*
Estimated Mean Duration by Program Type	6.6 months	4 months	*

¶ 60 % Medicaid Allowable Expense

## Appendix A

Survey information about the size of each of 12 agencies with day treatment and residential programs that billed PH was used to calculate the proportion of clients in residential versus community settings at each agency. The method used to estimate the proportion of consumers in residential and community settings attempts to minimize the distorting effect of variance between the agencies in mean program size. The method is as follows:

$$R_{\text{ratio}}_{1...12} = (n_{\text{dt}} + n_{\text{rs}} / n_{\text{rs}})$$

Where,

$n_{\text{dt}}$  = number of reported day treatment slots at each of 12 agencies

$n_{\text{rs}}$  = number of reported residential treatment slots at each of 12 agencies

The method used to estimate a total number of clients in residential care at the 12 agencies is:

$$N_{\text{rs}} = \sum (R_{\text{ratio}}_{1...12} * N_{1...12})$$

Where,

$R_{\text{ratio}}_{1...12}$  = the proportion of residential clients at each agency

$N_{1...12}$  = the number of extract clients at each of 12 agencies

The method used to estimate a total number clients in community settings at the 12 agencies is:

$$N_{\text{dt}} = N - N_{\text{rs}}$$

Where,

$N$  = the total number of extract clients at the 12 agencies

$N_{\text{rs}}$  = the estimated number of clients in residential care at the 12 agencies

Estimates of total clients receiving PH service while living in residential or community settings is calculated as follows:

$$RS_n = N_{\text{rs}} + N_{\text{rs-only}}$$

Where,

$N_{\text{rs-only}}$  = total number of extract clients served by two PH-RS only agencies

And

$$DT_n = N_{\text{dt}} + N_{\text{dt-only}}$$

Where,

$N_{\text{dt-only}}$  = total number of extract clients served by nine PH-DT only agencies

## Appendix B

Survey information about the average length of stay in residential versus community-based programs at 12 agencies that billed PH for both groups was used to calculate the proportion of treatment days used by each program group. The method used to estimate the proportion of treatment days in each group attempts to minimize the distorting effect of variance between agencies in mean length of stay.

The method is as follows:

$$RSdur_{1...12} = (los_{dt} + los_{rs} / los_{rs})$$

Where,

$los_{dt}$  = reported mean or median length of stay for community group

$los_{rs}$  = reported mean or median length of stay for residential group

The method used to estimate a total number of treatment days for the residential group at the 12 agencies:

$$D_{rs} = \sum (RSdur_{1...12} * D_{1...12})$$

Where,

$RSdur_{1...12}$  = the proportion of residential treatment days at each agency

$D_{1...12}$  = the total number of extract sample treatment days at each agency

The method used to estimate a total number treatment days for the community group at the 12 agencies:

$$D_{dt} = D - D_{rs}$$

Where,

$D$  = the total number of extract sample treatment days at the 12 agencies

$D_{rs}$  = the estimated number of clients in residential care at the 12 agencies

Mean number of treatment days for all clients residential or community settings is calculated as follows:

$$RSdur = D_{rs} + D_{rs-only}$$

$$\chi = RSdur / N_{rs}$$

Where,

$D_{rs-only}$  = total number of extract treatment days at two PH-RS only agencies

And

$$DTdur = D_{dt} + D_{dt-only}$$

$$\chi = DTdur / N_{dt}$$

Where,

$D_{dt-only}$  = total number of extract treatment days at nine PH-DT only agencies

## Appendix C

To control for the variance associated with the average amount billed by each agency for partial hospitalization programs and other services, PH-dollar / day unit and service-dollar /day unit variables were calculated as follows:

$$\text{PH\$day units (PDU)} = \Sigma \text{PH-dollars}_{1...23} / \Sigma \text{duration}_{1...23}$$

Where,

PH-dollars<sub>1...23</sub> = total PH dollars billed by 23 agencies

Duration<sub>1...23</sub> = total treatment days at 23 agencies

Mean cost for clients who received partial hospitalization while in residential settings was calculated as follows:

$$\text{PDU} * \text{RSdur} / N_{rs}$$

Where,

RSdur = total estimated treatment days for the residential group

N<sub>rs</sub> = total estimated number of clients in residential settings

Mean cost for clients who received partial hospitalization while in residential settings was calculated as follows:

$$\text{PDU} * \text{DTdur} / N_{dt}$$

Where,

DTdur = total estimated number of community group treatment days

N<sub>dt</sub> = total estimated number of clients in community settings

The duration variable computed on the extract data was derived by aggregating the total number of PH billing records for each client at each agency. This method assumes that one billing record for partial hospitalization service equals one treatment day. This duration variable was tested for reliability by calculating number of days based first and last billing dates for each record. There was a significant correlation between both duration variables. Because billing dates do not account for non-treatment periods such as weekends or transitioning from one program to another, the second method of calculating duration resulted in longer estimated treatment periods. The means produced by the first approach to estimated duration came closer to the estimated length of stays provided by agencies in the survey.