



CT BHP Literature Review

Child and Adolescent Residential Treatment Programs: A Review of Average Length of Stay (ALOS) and Factors Effecting Length of Stay April, 2009

Introduction

This literature review was conducted to better understand the issues which impact the length of stay of youth with mental health and/or substance abuse diagnoses who are placed in residential facilities. Upon review of the literature, much of the research found on residential care was specific to efficacy, outcomes, appropriateness of residential care within the system of care, surveys of residential programs, and demographic and diagnostic differences among those using residential care. Some of these research articles did however contain length of stay information which was used in this paper. Only three articles and 1 dissertation was found whose sole subject was residential length of stay. This paper summarizes the literature review in sections. To begin, it is helpful to briefly review some overall statistics on residential treatment.

In recent years there has been a concerted effort among State's agencies to increasingly fund community based services and decrease reliance on longer-term and more costly out of home residential placements. To lend a perspective on the costs associated with residential care, one-fourth of the national outlay on child mental health was spent on care in residential settings, although only 8% of children with mental health problems were in residential treatment (Teich, J., Ireys, H., 2007, Surgeon General 1999). In the most recent Child Welfare Survey from the Urban Institute (Boots, S.W., Geen, R., Tumlin, K., Leos-Urbel, J., 1999), 45% of States out-of-home placement spending was on residential care (foster family care, correctional, shelter care and other were the remaining 55%). In comparison, the survey also noted 62% of Connecticut's spending on out-of-home placements in 1999 was for residential care. Nationally, the number of residential treatment centers for emotionally disturbed children has risen from 13,489 in 1969 to 35,709 in 2002 (The Center for Mental Health Services, 2004). The expense of residential treatment has spurred a movement in the past fifteen years to begin to shorten residential lengths of stay and ensure that residential care follows best practices and results in better outcomes.

As part of a much bigger initiative in Connecticut to right-size the residential system, the Department of Children and Families, the Department of Social Services and ValueOptions, acting as the administrative service organization within the Connecticut Behavioral Health Partnership (CT BHP) have partnered to reduce the average length of stay (ALOS) in in-state residential programs. There has been a slight downward trend in the average length of stay for Connecticut's residential programs from 2007 to 2008, and the goal is to continue this trend over the coming

year. A reduced average length of stay would conceivably increase timely access for residential treatment for more youth at the front end of the residential system. A second goal for Connecticut is to significantly decrease the use of out of state residential facilities. More beds freed up in in-state facilities due to a reduction in length of stay could help meet this goal. Decreasing length of stay in residential has inherent challenges. Therefore, several questions became important:

- Is there an industry standard for average length of stay for residential facilities in the United States? What is the average length of stay for most residential facilities?
- What are the primary influencing factors related to short lengths of stay, long lengths of stay, reducing length of stay?
- Specifically, is length of stay more impacted by the youth's predisposing clinical and demographic factors or by the facility itself?

Most of the literature found made similar statements that surprisingly little is published on residential care and length of stay, and residential care in general has been understudied. The length of stay data that was found showed a wide variance in the average length of stay among facilities and pointed to a multitude of variables that affect length of stay. Three of the four articles found specifically on residential length of stay were recent; all were 2005. Since 2005 and before 2005, there was no research found specifically on residential length of stay.

Review of the Literature

Average length of stay among facilities

A broad field survey was conducted by the Center for Mental Health Services (Ireys, Achman, Takyi, 2006) between November 2003 and March 2004 regarding state regulatory practices among residential facilities in the United States for children with mental illness. Thirty eight States responded, including CT. Among other survey questions, average length of stay information was gathered and reported in aggregate. Of the 3,628 residential facilities included in the national survey, ALOS data was unavailable on 39.1% of the facilities, which represented almost half of all the beds in the survey.

- 37.6% of the facilities had seven months to twelve months ALOS,
- 12.9% had thirteen months or more ALOS, and
- 10.4% had one to six months ALOS

Longer lengths of stay were more common for facility types that averaged 3 to 16 residents as compared with facilities averaging 17 or more residents. For this survey, CT included twenty-one (21) Residential Treatment Centers, each with an average of 47 children and a total of 1,002 beds. For purposes of trying to understand the industry standard for average length of stay, this report is

helpful but provides only a high level view of ALOS, and does not take into consideration variables such as clinical design and program philosophy, gender served, admission criteria, etc.

Another national review containing length of stay information was found in an August 2007 report produced by The University of Kansas (Walter, U., 2007). This is an excellent report that is a review of the national literature on residential treatment, with a small section of the report on length of stay. This report stated that across programs researched, overall the mean LOS varied from two months to more than two years, with only about half the placements ending in planned discharges. The report primarily contained a thorough literature overview of residential treatment effectiveness and outcomes and stated positive outcomes were found to be linked to length of stay. Additional research also suggested that there are increased positive outcomes when discharging youth sooner back to the community from residential (Hoagwood & Cunningham, 1992; Pfeiffer & Strzelcki, 1990). In a review of 14 outcome studies, (Frensch, K.M. and Cameron, G., 2002) looked at the characteristics of youth and family outcomes. The larger residential treatment centers showed that shorter LOS was a factor in predicting positive outcomes, along with clinical work with a child's family and improved academic performance while in the program. Contrary, another study was found that focused on the effectiveness of long lengths of stay versus shorter lengths of stay in residential (Charuvastra, V.C., Dalali, I.D., Cassuci, M., Ling, W., 1992). Patients admitted during a six month period in 1985 were followed up six months after discharge. These results were then compared with a similar study conducted in 1973 where patients were also followed up six months after discharge. The results showed that the longer lengths of stay in 1973 (LOS was one year) was almost twice as effective in regards to positive outcomes than the shorter length of stay in 1985 (LOS was three months).

Some information was found on length of stay related to individual programs. According to Colorado's February 2009 Monthly Population Report by the Division of Youth Corrections Research and Evaluation Unit, of the total 2009 YTD committed youth, 62% were committed to private secure/staff supervised or community residential programs. Of those discharged, the ALOS was 18.7 months. It is not known by this report what percentage of these youth had psychiatric and/or substance abuse diagnoses however it is probably safe to estimate that over half of these youth placed in residential had such diagnoses. Also it is not known whether the youth's length of stay was "prescribed" by the type of program they were admitted to. For example, a youth may have been committed to a program that requires a twelve month minimum stay. One such community residential program in Colorado is The Third Way Center in Colorado. This well known program has five residential treatment programs with approximately 80 beds for co-ed youth ages 14-20. These programs provide intensive mental health/behavioral health treatment, community based programming, family therapy, and teaching independent living skills. Although their program information that was available did not focus on length of stay, it was noted their ALOS (all facilities combined) is six to nine months.

Additional program specific average length of stay information was found in the United States General Accounting Office (GAO) January 1994 report on residential care. Seventeen residential programs were included in the scope of this project; and among the data listed for each program was length of stay. This was the most recent data of this type by the GAO. Attachment I shows LOS for these individual programs.

Perhaps the most striking data on residential length of stay comes from Milwaukee, WI (Bilchik, S.) and is related to decreasing length of stay. The well known Wraparound Milwaukee adolescent mental health treatment system began to form in 1994. Wraparound Milwaukee targets their services only to emotionally disturbed youth in residential treatment or at risk of referral to residential treatment. This program pooled \$28M/year from county agencies and Medicaid reimbursements to fund an array of intensive community based service strategies in addition to their residential programs. Payment to providers under Wraparound Milwaukee is via a capitated rate basis which helps minimize unnecessary residential stays, in addition to the aggressive use of tailored wraparound services. By 2000, Wraparound Milwaukee reduced the daily population in residential programs from 360 youth/day to 135 youth/day. Average length of stay in residential was reduced from 14 months to 3.5 months. This is an impressive average length of stay. Also, upon admission to residential, there is an understanding that the initial term of treatment will be 90 days followed by a discharge to wrap-around services at the earliest possible date. It would be beneficial to look at the strategies employed with the Milwaukee residential facilities that reshaped the culture to an expected norm of 90 day length of stay.

The Menninger Clinic in Texas has worked to develop an intensive program to shorten their length of stay to two to four months (O'Malley, F., 2004). This abstract noted that essential clinical programming is needed to ensure effective treatment and sustained treatment gains. This may be a program that would be beneficial to research further regarding the clinical model instituted that affected lowering length of stay.

Primary predictors of length of stay

In a large investigation of gender differences in adolescents in residential treatment (Handwerk, M., Copton, K., Huefner, J., Smith, G., Hoff, K., Lucas, C., 2006), participants were 2,067 youth (mean age 15yo) admitted to a large residential facility in the Midwest between January 1994 – September 1997 and May 1999 to September 2004. The mean length of stay for boys and girls combined was 17.6 months. Boys had a lower LOS, with a mean of 16.9 months and girls had the higher LOS, with a mean of 18.8 months. This program uses the behaviorally oriented teaching-family model where married couples who are highly trained supervise the treatment of six to eight same-sex youths living in a residential home. In addition to the girls having a longer length of stay, girls also exhibited more behavioral and emotional problems than the boys, had higher scores on standardized behavior checklists at admission, had more psychiatric diagnosis and more problems

behaviors during their residential stay. This study used the DISC, a highly structured interview with criteria and symptomatology from the DSM. Using the DISC, the rates of internalizing disorders were significantly higher for girls at admission and at one year. Girls also exhibited equally high rates as boys of externalizing behavior. Among the several limitations of this study, the most significant one is that it used only one residential facility.

Hussey, D., Guo, SI, (2005, 2002) conducted a five year study to identify predictors that might forecast lengths of stay in residential treatment. No studies prior to this one (per author) have looked at predicting length of stay in preadolescent residential care. The study included 126 youth ages 5-13 admitted to a psychiatric residential program in Ohio. The median length of stay was 374 days – however, the average length of stay was not noted. The majority of youth in this study population was from abusive environments (73%), from families with significant alcohol/drug (44.4%), had histories of psychopharm treatment (89.7%), had an average FSIQ 82.7, and at least 42.1% had at least one primary caregiver with mental illness. Unplanned discharges and elopement were rare occurrences. Five predictors were used in this study:

- Child's behavior problem scores based on The Devereux Scales of Mental Disorders (DSMD) that was administered during the first 30-90 days following admission,
- Demographics: age at entry, race, gender,
- IQ,
- Clinical characteristics and Placement history: number of out of home placements & currently taking meds,
- And eight indicators of parental characteristics

The primary statistical method used was Cox regression model. Significant findings of the study included the following:

- *Using the DSMD*, each one-unit increase in the score of critical pathology decreased the rate of discharge from residential by 4% (or 40% longer stay). Of the total DSMD score, children with the highest measure/score were discharged at the slowest rate. Of those with the highest score, 83% remained in care by the end of the 18 month period compared to 10% remaining in care with the lowest measure/score. This is a similar finding as the gender differences study cited earlier, which found a correlation with longer length of stay and those with more psychiatric symptoms and a higher score on a behavioral checklist at admission.
- *Ethnicity* proved a factor; African American youth were discharged at a rate 44% slower than for other children (56% remained in residential at end of 18 months vs. 35% other)
- *Younger Age at Entry* proved a significant factor for longer lengths of stay; For every year of increase in age at admission to residential, the rate of discharge increased by 30%.

Children entering residential at age five had the slowest rate of discharge, with 80% remaining in care vs. 18% of thirteen year olds at the end of the study period.

- *Parental Alcohol Abuse*; Interestingly, youth whose parents had a history of alcohol abuse were discharged from residential care at a rate that was 183% quicker than the rate for the children with non-alcohol abusing parent(s). This was thought to be because discharges to foster and permanent adoptive placements occur more easily than attempting to discharge to the “dysfunctional” family.
- *Psychopharm*; Youth on medication were discharged at a rate that was 61% slower than non-medicated youth. This is consistent with the finding that the symptoms and behavioral severity of psychiatric illness are linked to longer lengths of stay; youth with more severe symptoms would be on a medication regime.

Residential length of stay proved to be linked strongly in this study to presenting levels of psychiatric symptomatology. A standard deviation increase of ten-points in the DSMD score led to a 40% increase in length of stay. In total, the predictors of longer lengths of stay included the child’s race, parental alcohol abuse, medication use, younger age, and high critical pathology scores on the DSMD. Limitations in this study included the use of a conservative chart review for some of the data and the study used only one residential facility and no control group.

Similar findings were reported in a study by Baker, A.J. and Wulczyn, D. in 2005. This study looked at variables affecting length of stay in one child welfare residential program. Researchers used an event-history analysis on 416 boys from admission to discharge. They looked at the rates of discharge over time and the covariates of LOS. On average the LOS was 1.7 years but varied greatly with type of discharge/exit. Results showed that longer lengths of stay were associated with youth that had mental health issues and returned to the community (45% parents/relatives) or were transferred (41% transferred to other settings- 1.98 years). Children who aged out, ran away and had a substance abuse history were discharged at a faster rate, i.e. 14% of those who ran away did so within six months of admission. This study also found that psychiatric symptomatology and crises within the program added seven (7) months onto length of stay for both reunified and transferred children. Covariates of quicker discharge for the transferred youth were prior placements and prior psychiatric hospitalizations or suicidal behavior. Discharge due to run away status was linked to substance abuse, parental incarceration, juvenile delinquency and being older. Data in this study was for only one facility.

The several studies mentioned above on predictors linked to residential length of stay are similar to the same variables linked to length of stay in inpatient facilities. In a five year large scale study of admissions at Illinois State Hospital (Meyer, E., Gray, C., Russell, R., Johnson, A., 2001), it was found that longer lengths of stay was associated with: younger ages, race of African-American,

diagnosis of attention deficit disorders, psychotic disorders, and conduct disorders, and higher number of previous psychiatric hospitalizations. In this study however, males were associated with higher lengths of stay.

In 2005 a dissertation was completed by Kelly Anne English on “Factors Affecting Length of Stay in Residential Treatment”. This was the most comprehensive article found on length of stay in residential treatment. The author sought to examine the effects of various clinical and non-clinical factors on LOS for children with serious emotional disturbance. In English’s study of one Northeastern residential program, a cohort of 165 children admitted between September 1995 and December 2003 was used. Results showed the following factors predicted length of stay: number of previous psychiatric hospitalizations (probability of discharge was significantly lower for children with a high number of previous hospitalizations), DSMD externalizing and internalizing scores (only slightly longer lengths of stay were noted for children scoring high internalizing scores), and rate of physical restraint while in the program (high rates of restraint early in treatment were associated with quicker discharges; restraints occurring later in the stay led to a longer length stay). The author notes that when using a discrete-time hazard model and adding these variables together, only physical restraint retained significance. In this study the following findings are also notable:

- The youth’s age at intake into residential was not found to be a significant predictor. This is an opposite finding from Hussey, D., Guo, S.I., (2005) study noted earlier
- Involvement of family members during the youth’s residential stay did not result in a statistically significant longer length of stay. This is an opposite finding from Frensch, K.M. and Cameron, G. (2002) as noted earlier.
- Reduced funding burden in the form of a cost-sharing agreement resulted in only a slightly lower LOS than for children placed/funded by only DSS or local education authorities

English posits that it is the variables specific to the current treatment that actually influences length of stay (i.e. physical restraint) and that predisposing factors (psychopathology, family involvement, gender, age, etc.) may effect the probability of a child being admitted to residential but may have little effect on length of stay once admitted. This dissertation noted it is extremely difficult to identify factors that are related to length of stay.

Per English, the limitations of this study include that only one facility was used, data was based on an existing database, the reason for discharge was not taken into account, and the scale level of predictors was not always sensitive enough. For example, the family influence was measured only by the existing data that indicated a family member was available at time of admission. So if a family was involved during treatment but not indicated to be available at the time of intake, this would not be included.

A facility’s design and clinical programming is an important factor to consider as far as its impact on influencing length of stay. As is known, program lengths of stay are sometimes built into the

youth's overall treatment plan, whether written or unwritten. The above cited dissertation essentially puts forth that it is not predisposing factors that determine length of stay, rather factors related to the child's treatment while in the residential program. In researching for information on the effects of a facility on length of stay, there was only one study that could be found, however only the abstract was available from the Academy Health Meeting (Gifford, F., Olchoski, A., 2004). This study examined patient-level factors vs. facility-level factors impacting residential length of stay of youth with mental health, substance use, and co-occurring disorders. This study also included a methodology for identifying facilities whose patients on average had a marked short or long length of stay. Using a cross-classified structure/model (patients receiving care during multiple facilities during the study time period), they estimated LOS with the following covariants: Patient characteristics- age, gender, race, insurance, and diagnosis upon admission. Facility characteristics were facility type and primary specialty. Their findings suggest only 8% of the variation in length of stay was explained by variables at the patient-level versus 47% being explained at the facility level. They further suggest the importance of monitoring facility processes and outcomes. Although the title of the abstract refers to residential only, the body of the abstract repeatedly states "inpatient". If the study indeed included inpatient, it is still worthwhile as this finding could also be considered applicable to residential. This finding may lend further value to the redesign of some of Connecticut's residential program models, evaluating outcomes, and possibly using their methodology for tiering facilities according to their length of stay. The summarized study design and methodology in this abstract was complex. Due to its findings, this article would be beneficial to have in full text.

Research data on determining length of stay by diagnostic category was not found for residential treatment but was found for inpatient hospitals. According to the Organization for Economic Co-Operation and Development (OECD), the November 2008 Policy Brief reported psychiatric inpatient average lengths of stay by diagnostic categories for seven countries using ICD-10 and ICD-9 codes. The OECD maintains an electronic health database that is released annually. It appears they have historically reported on LOS by diagnostic category. This may be interesting for CT to look at residential length of stay by diagnostic category as well. For example, it may be hypothesized that youth in the psychiatric tier would have the longer lengths of stay according to research to date.

Summary

The current literature that exists on residential length of stay is scarce. What we do know is that there is considerable variability in both the lengths of stay among facilities and agreement upon the factors that may predict length of stay. In general, there is not a lot of research done on residential programs as a discrete level of care. This, despite the system reform efforts over the years to treat children in the least restrictive environment. Residential treatment is used by mental health, child welfare, and juvenile justice and still there is no agreed upon standards for "success" of residential

treatment and no real system for data collection (Walter, U., 2007). Although most children make gains during residential treatment, 20-40% either had no improvement or deteriorated (Walter, U., 2007). With this in mind, it would be a contribution to the research field if DCF, DSS, and CT BHP together participated in a joint research study on a facet of the residential treatment system, such as reducing residential length of stay in Connecticut programs.

Based on the literature reviewed, the following items may be worthwhile for discussion as Connecticut (DCF, DSS, and CT BHP) works to decrease residential length of stay and right-size the congregate care system over the next several years:

- Conduct a comparative length of stay analysis of like-RTCs in CT- identify those with the highest/lowest LOS. Look at diagnosis or clinical indicators at admission for a discrete time period to evaluate if a correlation w/diagnosis exists
- Examine LOS based on gender alone or age groupings
- Quantify family involvement and incorporate this as an outcome measure- i.e. do youth with significant family involvement have fewer admissions to inpatient level of care 1 year after discharge?
- Examine outliers: Conduct a case study of children who had relatively short lengths of stay and relatively long lengths of stay and qualify type of discharge; identify factors that may play a role in length of stay
- Explore readiness for discharge; what are the critical factors indicating that a child is ready for discharge to a lower level of care
- Flag children who have indicators for high-risk of long length of stay (i.e. young at admission, have previous psychiatric hospitalizations, and have significant psychiatric symptoms) for more aggressive discharge planning and to avert from residential care when possible
- Contact two or more facilities in other States that have successfully decreased their residential length of stay; identify the program models used; strategies used to change the culture so a prescribed short length of stay upon admission is innate for a facility, levels of staff training (crisis and de-escalation), evidence based models used (i.e. Milwaukee Project)
- Identify one or two RTCs willing to pilot a new clinical design and monitor for decreased lengths of stay
- For certain facilities or all facilities, begin implementing a 90-120 day target length of stay at the time of admission for identified cohorts of children
- Identify factors for data collection and add to CT BHP database, as needed, for possible research study
- Assist facilities with lowering staff turnover rates
- Continue to explore capitated rates for residential providers and possibly intensive community based services as well; pilot in one region

- Increase the use of starting home based treatment for child while in residential to foster a quicker transition to the community and more positive outcomes, i.e. increased community tenure

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APPENDIX I

Source: United States General Accounting Office, (January 1995). Residential care: Some high-risk youth benefit, but more study needed. Appendix I., Retrieved from: www.gao.gov , Publications and Testimonies

Program	Type of Program	ALOS	Average Treatment Cost Per Child Per Stay	Cost of Treatment for One Year
Boysville of Michigan, Clinton Campus	Juvenile Justice	12 months	\$46,508	46,508
The Bridge Over Troubled Waters Transitional Living Program	Juvenile Justice	8 months	\$15,073	22,609
Father Flanagan's Boys' Home, Boys Town Home Campus	Psych/ Juvenile Justice	18 months	\$73,918	49,279
The Hyde School	Boarding School	2 years	16,923 (9 month school year)	16,923
New Life Youth Services, Paint Creek Youth Center	Juvenile Justice	17 months	51,023	35,188
Piney Woods Country Life School	Boarding School	Not provided	19,443 (9 month school year)	19443 (9 month school year)
Salesmanship Club Youth and Family Centers Inc., Youth Camp	Psych	6 months	12,869	25,738
Starr Commonwealth Schools, Cedar Village Residential Program	Juvenile Justice	10 months	42,811	51,373

YouthCare, Threshold Program	Psych	19 months	45,802	28,927
The Children's Village, Thompkins Transitional Care Program	Psych	15 months	79,141	65,496
Eastern Nebraska Community Office of Mental Health Adolescent Treatment Facility	Psych	9 months	18,555	24,740
Eastfield Ming Quong, Los Gatos Intensive Residential Treatment	Psych	15 months	165,616	132,493
Eckerd Family Youth Alternatives, Inc., Wilderness Educational System, Camp E-How-Kee	Juvenile Justice	13 months	45,863	41,071
Harbor Schools and Family Services, Haverhill Program	Psych/Substance Abuse	12 months	51,986	51,986
Hillside Children's Center, Residential Treatment Center	Psych/Substance Abuse	12 months	51,746	51,746
KidsPeace National Centers for Kids in Crisis, Residential Treatment Center	Psych	15 months	105,210	84,168
Oasis Center, Michael's Kids House	Psych	9 months	Not provided	24,321
Pressley Ridge Schools, Grant Gardens Residential Program	Psych	7 months	29,033	49,772