

VIRGINIA SUPPORTIVE HOUSING

A Place to Start:  
Cost Savings and Client  
Outcomes

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Community Impact Report

December 2010

Report prepared by the Central Virginia Health Planning Agency (CVHPA) and  
Virginia Supportive Housing (VSH), Richmond, Virginia

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## EXECUTIVE SUMMARY

A Place to Start (APTS) provides permanent housing and comprehensive mental health services to individuals in the City of Richmond and the counties of Chesterfield and Henrico who have a long history of homelessness and serious mental illness.

Often referred to as “chronically homeless,” program participants have been unable to succeed in traditional office-based services and suffer greatly from the symptoms of their illnesses, primarily schizophrenia and bipolar disorder. These individuals are considered the “hardest to serve,” and the costs of their homelessness and untreated illnesses are high. Based on a program model that has been found to be effective in other communities, APTS helps end homelessness for this group of individuals and reduces costs to the community.

A program of Virginia Supportive Housing, APTS began providing services in December 2007 and has served 58 individuals since then. In addition to being the compassionate thing to do, the creation of housing-first programs such as this actually saves communities money. On average, the cost of the housing subsidy for APTS is \$5,000 per client per year. The cost of clinical and housing services, medications for those without benefits, new participants’ move-in costs and other program-related costs are approximately \$13,000 per client per year, making the total cost of APTS about \$18,000 per client per year (or about \$900,000 for 2010). Traditional supportive services models, including VSH’s studio apartments, cost approximately \$10,222 per person per year. However, prior to entry into APTS, program participants cost “the system” much more. As the following information shows, APTS is not only the clinical answer to an un-served population, but it is also a financially wise program to operate.

To measure the cost savings specific to the Richmond community, data from area hospital systems and client criminal records for the first 52 were evaluated. Initial data, including participant demographic information and criminal history, was captured upon program entry. Hospitalization records were noted in February 2009 and March 2010. Participant “event data” — hospitalization, incarceration, employment and housing changes — was captured as these events occurred after entry into the program.

This evaluation shows that APTS effectively ends homelessness for its participants while saving the community valuable financial resources. The following are the major findings:

### **Program Retention**

- The APTS program had a 98% success rate in keeping clients in housing. Only one of the program participants has returned to homelessness since the program’s inception.

### **Increased Income**

- The number of clients with an income increased by 33%. The median income was \$674, and the average income was \$711. The primary source of client income was Supplemental Security Income (SSI), obtained by 82% of participants. The remaining clients received Social Security Disability Income (SSDI). One client worked and received SSDI.

### **Savings in Emergency Department and Inpatient Costs**

- An estimated 66% of APTS clients' emergency department cost (approximately \$83,500) was saved during the first 20 months of program participation in comparison to the 20 months prior to entering.
- Compared to the 20 months prior to program entry, clients' emergency department visits decreased 61.5% (157 fewer visits) in the 20 months after entering the program.
- Inpatient hospitalizations for psychiatric admissions decreased 62% after clients entered the program.
- Although hospital admissions increased during the APTS participants' first 10 months in the program, admissions after this initial "adjustment period" decreased 79.5%.

### **Savings in Criminal Justice Costs**

- Although cost data was unavailable for arrests and associated processing/judiciary costs, the number of APTS client arrests during the 20 months before and after program entry declined by 83.1%. This suggests significant costs savings for the criminal justice system.
- The 74% decline in average incarceration duration and the 89% decrease in number of incarcerations save estimated \$98,072 for area corrections facilities and the criminal justice system as a whole.

### **Summary of Estimated Cost Savings to the Community**

- Comparing the total costs for emergency department visits, inpatient hospital stays and incarceration costs during the 20 months prior to and the 20 months after program entry, **the community saved more than \$320,000**. This does not include arrest and other judicial or ancillary costs, such as ambulance services, behavioral health and homeless service system costs (intake, feeding programs and emergency shelter).
- The total community cost saving represents the difference between the average annual cost per client for incarcerations and hospital visits prior to program entry (\$6,062) and after program entry (\$3,227) — **almost a 50% decrease**.
- In evaluating clients with the heaviest use of hospitals and jails, **annual costs to these institutions went from almost \$18,000 per year prior to program entry to \$528 per year after**.

In addition to remarkable monetary savings, the APTS program has benefitted program participants in profoundly positive ways. Individuals who have spent years sleeping on the streets now have a home of their own. Those who have been unable to access necessary mental health treatment are now receiving the services they need. The stability the program provides has allowed participants to reclaim their lives and start the recovery process.

### **In His Own Words**

The following are excerpts from a letter written by a current APTS participant. His words clearly express the impact APTS has had on his life.

For years I was homeless—eight to be exact. I have been hospitalized for mental illness and have served time for various non-violent crimes. One of my worst memories of being homeless is

being cold. Because of frostbite and severe nerve damage to my feet, I have half a foot and can barely walk at times. So, when it is 35 degrees or colder, it is very important to warm my feet. If I don't, the cold precipitates frostbite or even death. Most people don't recognize what the homeless population goes through. There is no shelter from the rain, heat or snow. Most people don't know that other homeless care agencies don't provide a safe place to get out of the elements. So, when it is raining, snowing or when it's cold, there is no place to go even for five minutes. Filling meals are hard to come by; you stand in line for hours just for one or two meals a day, in the rain, snow or heat.

Most people degrade you or think you are nothing when you are homeless or mentally or physically disabled. I felt so alone and helpless until Virginia Supportive Housing's A Place To Start program came my way. A Place To Start is just that—a new place to start, but with help. You don't have to go it alone. Before A Place To Start came into my life, I had given up. I felt like I had no one who really cared or understood that all I needed was a place to start with affordable rent and services to keep my housing.

Living on the streets can almost take your soul if you let it. At a time when I thought no one cared if I lived or died, I met the A Place To Start team. Without the constant and considerable emotional support of A Place To Start, I would be homeless or dead.

Since I have been in the A Place To Start program, I have not been hospitalized or incarcerated. I have been able to stay on my medication which is something I've never been able to do on a consistent basis. All the staff at A Place To Start have been true warriors; we have cried together and fussed together. It doesn't matter if I am taking my meds or staying sober; they keep coming back to help no matter what.

I know I'm not just a number or name to them. All the team, even the doctor, truly listen and ask in-depth questions about me and my treatment. I guess what I am trying to say is that at A Place To Start everyone there considers and recognizes me as a real person. I thank God for them.

By having someone to talk to, someone who is really interested or really concerned or even cares about my personal as well as my physical and mental needs, A Place To Start saved my life.

To sum it all up, if I hadn't started at A Place To Start when I did, I would still be homeless, dead or in jail for a long time. It is hard to put it all into words. I can't begin to explain to you the pain and agony that I have felt in my life. Now I am happy about all my accomplishments and the people who help me get through it. I feel proud now. **I know that I am somebody. I have much love and respect for A Place To Start. Thank God I now have A Place To Start.**

## BACKGROUND

APTS is a regional program (City of Richmond, Counties of Henrico and Chesterfield) operated by Virginia Supportive Housing (VSH) that provides housing and intensive support services for individuals experiencing chronic homelessness and serious mental illness. This population has

often been called the “most difficult to serve.” In addition to a long history of homelessness and severe mental health symptoms, many also suffer from substance abuse disorders. Because of strict programmatic rules, these individuals are not able to succeed in traditional homeless programs. Mental health symptoms including paranoia, audio and visual hallucinations, and disorganized and bizarre thinking make it very hard to be in a shelter setting. Additionally, their homelessness makes it very difficult to follow up and participate in traditional mental health services. It is very hard to schedule, remember, and then get to office based appointments when you are living on the streets. Many are unable to afford their prescribed medications. Of those who can, it is common for this group to decide not to take them because of a fear of being “drugged” and unable to defend themselves “on the streets” or a fear of being robbed for their medications (many drugs used to treat psychiatric symptoms also have a “street value”). This group is also the most vulnerable within the homeless population and experiences higher rates of abuse and trauma. Most importantly, nationwide, this group is most likely to die on the streets without appropriate services.

APTS is modeled after the Pathways to Housing Program in New York City and embraces the “Housing First” principle by providing stable housing, with low barriers to enrollment, and intensive mental health services individuals may need. Program participants (clients) are not required to receive services as a condition of receiving housing although all of the APTS participants, to date, have voluntarily entered services upon enrollment in the program.

A clinical service team provides the mental health services for APTS participants. The clinical team is based on the Assertive Community Treatment (ACT) model. ACT is an interdisciplinary team designed to provide intensive treatment to persons experiencing serious mental illness. The model is nationally recognized as an effective evidence-based practice. The team is licensed by the Virginia Department of Behavioral Health and available to clients 24 hours a day, 365 days a year.

APTS housing-related services include the location of affordable rental housing; the acquisition of housing subsidies to assist with paying the clients’ rent, utilities, and deposits (all participants pay 30% of their income towards rent and utilities); and the development and maintenance of relationships with landlords. The housing staff works closely with the clinical team to prevent and address situations that may threaten the stability of client housing.

A Place to Start (APTS) contracted with the Central Virginia Health Planning Agency (CVHPA) in the summer of 2008 to develop a database that could be used to track client-specific information in order to subsequently assess the program’s impact. Particular focus would be on the program’s impact relative to the use of health care, criminal justice, and other community resources and, specifically, the financial impact of that utilization.

With appropriate client approvals, VSH collected hospitalization and emergency visit data from the Richmond area’s three major health systems (Bon Secours, HCA, and VCU Health System) for the three years prior to client enrollment. Additionally, criminal justice information (arrests, convictions, incarcerations) from criminal background checks routinely run for program participants was collected. APTS staff collected similar information on all clients from the time of enrollment to the date of this evaluation. The CVHPA processed the data downloaded from

the client database by APTS staff and evaluated the results. The data evaluation focuses on several key areas identified by APTS and CVHPA staff as highly relevant:

- Demographic data and mental and physical health
- Hospital use – inpatient and emergency department
- Criminal justice activity – arrests, convictions, and incarcerations.

## METHODOLOGY

### Database

When a client enters the APTS program, their service provider completes the initial data collection tool. This tool includes all demographic information and some historical data. Additionally, during intake into the program, each client completes a Release of Information for each hospital system to request hospital records for the past three years as well as to use information from the criminal and credit report for the research project. This data are entered into the Access Database designed by CVHPA specifically for this project. On a daily basis, clinical staff enter “Event Data” (hospitalization, incarceration, employment, and moves) into a binder. This information is entered into the system on a monthly basis. All data entry is completed by the APTS program assistant.

### Incarceration data

All criminal data was evaluated at three years prior to program entry, 20 months prior to program entry, and 20 months following program entry. The housing staff runs a criminal and credit report during program admission and all clients voluntarily agreed to the use of this information in the program’s evaluation.

### Hospital data

The following section presents utilization and financial data from the Richmond area’s three acute care hospital systems – Bon Secours, HCA, and Virginia Commonwealth University (VCU). Therefore, hospitalizations and/or emergency department visits that occurred outside the Richmond area prior to client program entry are not included but, based on client interviews about past residence, are not likely to be significant. Data was analyzed to determine the program’s impact on acute care hospital charges, cost, and payment for services.

**Charges** reflect the non-discounted sum owed by a patient according to the billing records. **Cost** reflects the provider’s expenses associated with delivering those health care services and does not reflect any associated profit or loss. The cost of service was *estimated* by applying the 2008 average cost-to-charge ratio (operating expenses divided by gross revenue from individual facility financial reports submitted to Virginia Health Information) to the reported charge for each visit. *Note that the actual cost-to-charge ratio for specific diagnoses or types of visits may be different from the overall facility cost-to-charge ratio so caution should be used in making conclusions relative to actual cost to health care providers from this data.* Nevertheless, because the facility ratio is held steady throughout the analysis, the data are valuable in making comparisons across time. **Payment** is the amount the hospital actually receives for services either

directly from the client or from the client's insurer. It is important to note that VCU Health Systems (a significant provider of care to this population) did provide services to numerous clients with zero reimbursement reported. However, VCU does receive monies for indigent care from other sources generally not available to other acute care hospitals (such as state government general fund allocation and disproportionate share) that may not be reflected in the data presented here.

## DEMOGRAPHICS

Overall, 52 individuals have participated in the APTS program, and there are currently 48 clients currently enrolled. The four individuals (7.7%) who have withdrawn from the program left after spending an average of 9.68 months in the program, and their reasons for withdrawal included that they found other permanent housing (N = 1), found other temporary housing (N = 1), disappeared (N = 1), and death (N = 1). Due to the timing of this evaluation, the average time in the program for all participants is 19.75 months or a little less than two years.

Of note for APTS clients is that compared to the population of Richmond city, where most clients resided before enrolling in the program, these clients are more likely to identify themselves as Black/African-American. This may reflect the fewer financial and health care resources generally available to African-Americans. Additionally, the largest percentage of APTS clients is those 50-59 years old, with the percentage of clients in the age range being four times the general city population. This may reflect the long-term degenerative nature of mental illness and chronic homelessness.<sup>1</sup>

Due to the program entry requirement that clients be chronically homeless (i.e., an adult unaccompanied by children who has a disability and has been homeless for at least one year or at least four times in the last three years), client experiences with homelessness are not surprising. Clients who entered the program from institutional settings needed to meet this definition of chronic homelessness prior to institutionalization and have no appropriate housing arrangements identified upon discharge.

Half of APTS clients (N = 26) have children, and nine (17%) of these clients have minor children. None of the clients have physical custody of these minor children at this time.

Six clients reported being a previous victim of domestic violence - five reported the occurrence was more than a year prior to enrollment, one client could not remember the time of the incident.

Three clients are Veterans (6%); one client reports receiving Veteran's Services.

<sup>1</sup> Virginia Health Equity Report 2008, Virginia Department of Health, Office of Minority Health, pages 14-16.

Table 1 provides demographic information about all 52 participants.

Table 1: Demographic Characteristics of APTS Clients

| Characteristics                                    | N (%)      |
|--|------------|
| Sex  |            |
| Male   | 34 (65.4%) |
| Female   | 18 (34.6%) |
| Race   |            |
| White  | 12 (23.1%) |
| Black  | 39 (75.0%) |
| Asian  | 1 (1.9%)   |
| Age  |            |
| 18-29  | 8 (15.4%)  |
| 30-39  | 10 (19.2%) |
| 40-49  | 11 (21.2%) |
| 50-59  | 22 (42.3%) |
| 60+  | 1 (1.9%)   |
| Experiences with homelessness                      |            |
| First time – 1-2 years                             | 3 (5.8%)   |
| Two years or more                                  | 11 (21.1%) |
| 2-3 times in past three years                      | 1 (1.9%)   |
| 4 times in past three years                        | 37 (71.2%) |
| Residence prior to program entry                   |            |
| Emergency shelter                                  | 18 (34.6%) |
| Psychiatric facility                               | 3 (5.8%)   |
| Substance abuse treatment/detox                    | 1 (1.9%)   |
| Jail   | 3 (5.8%)   |
| Street   | 27 (51.9%) |
| Educational attainment                             |            |
| 5 <sup>th</sup> -8 <sup>th</sup> grade             | 11 (21.2%) |
| 9 <sup>th</sup> -12 <sup>th</sup> grade/no diploma | 10 (19.2%) |
| GED  | 10 (19.2%) |
| High school diploma                                | 14 (26.9%) |
| Post-secondary school                              | 4 (7.7%)   |
| Bachelor's degree                                  | 2 (3.8%)   |
| Missing  | 1 (1.9%)   |

## Income

- More than a third of clients (19) had no source of income on enrollment.
- 33 clients (63%) had a source of income (one client is employed) on enrollment; the median income was \$637 and the average income was \$556. The primary source for individuals with income was Supplemental Security Income (SSI).

- As of June 2010, 44 individuals have a source of income, *a 33% increase in the number of clients with an income source*. The median income is \$674 and the average income is \$711. The primary source (82%) for individuals earning income is SSI with the remaining seven clients receiving Social Security Disability Income (SSDI). One client works and receives SSDI.

## MENTAL AND PHYSICAL HEALTH

All APTS clients have a long-term mental health problem, which is a program entry requirement. In addition to mental health problems, seven clients (13.5%) have a physical disability, 10 clients (19.2%) reported a chronic physical health problem, and two clients (3.8%) reported a developmental disability.

Twenty-eight (53.8%) of APTS clients reported having a substance abuse problem upon entry, and of those with a current substance abuse problem, twenty-four (85.7%) indicated that their substance abuse problem was long-term. Table 2 indicates that more than half of clients with a substance abuse problem have issues with both drugs and alcohol.

Table 2: Substance Abuse Problems of APTS Clients

| Characteristic                  | N (%)      |
|---------------------------------|------------|
| Type of substance abuse problem |            |
| Alcohol                         | 6 (11.5%)  |
| Drugs                           | 5 (9.6%)   |
| Alcohol and Drugs               | 17 (32.7%) |
| None                            | 24 (46.2%) |

## HOSPITAL USE: EMERGENCY DEPARTMENT USE AND INPATIENT HOSPITALIZATIONS

### Emergency Department (ED) Use

Prior to program entry, visits to Richmond area EDs were most likely to be for mental health reasons. After program entry, these visits were less frequent and were more likely to be for physical health reasons. This is often observed as clients' physical illnesses are identified and addressed when mental stability is established.

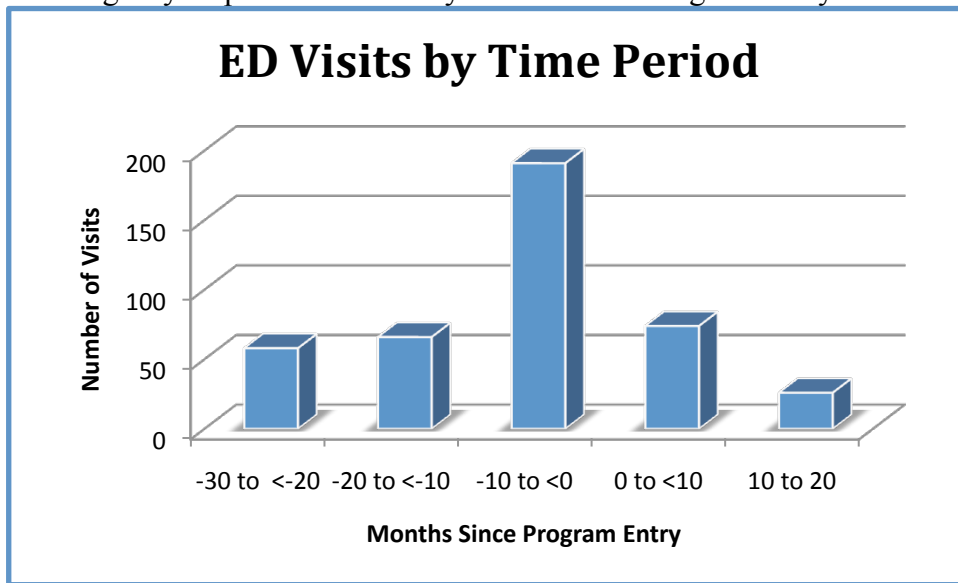
Overall, ED visits declined 61.5% from the time period 20 months prior to program entry to clients' first 20 months in the program. Table 3 provides information on the number of client visits to Richmond area emergency departments for physical, mental, substance use, and unknown reasons.

Table 3: Visits to Richmond Area EDs

|                  | ED visits 3<br>years prior to<br>entry<br>N = 357<br>N (%) | ED visits 20<br>months prior<br>to entry<br>N = 255<br>N (%) | ED visits 20<br>months after entry<br>N = 98<br>N (%) | Total ED visits<br>N = 690<br>N (%) |
|------------------|--|--|---|-------------------------------------|
| Reason for visit |  |  |   |                                     |
| Physical         | 119 (35.3%)  | 101 (39.6%)  | 74 (75.5%)  | 294 (42.6%)                         |
| Mental           | 214 (63.5%)  | 151 (59.6%)  | 23 (23.5%)  | 388 (56.2%)                         |
| Substance abuse  | 2 (.6%) (2.3%)   | 1 (.4%)  | 1 (1.0%)  | 4 (.6%)                             |
| Unknown          | 2 (.6%)  | 1 (.4%)  | 0 (0%)  | 3 (.4%)                             |

**Note.** Due to lack of funding streams and the frequency of co-occurring symptoms, the number of ED visits coded as Substance Abuse is very low. This number is most likely low given the high co-occurrence of substance abuse disorders with this cohort.

Figure 1: Emergency Department Visits by Months from Program Entry



ED Visit data are expressed over 10 month intervals, 30 months prior to entry and 20 months following entry

As shown in Figure 1, there was a sharp reduction in the number of visits for the first 10 months of the program, but an even sharper decline in the most recent 10 months, with very few ED visits.

Table 4: Emergency Department Visits Before and Following Program Entry by Hospital

| Site                              | <u>Time Period</u>         |                               |                              |
|-----------------------------------|----------------------------|-------------------------------|------------------------------|
|                                   | 3 Years Prior<br>(N = 340) | 20- Months Prior<br>(N = 257) | 20 Months After<br>(N = 100) |
| VCU Health System                 | 197 (57.9%)                | 144 (56.0%)                   | 63 (63.0%)                   |
| CJW – Medical<br>Center           | 49 (14.4%)                 | 39 (15.2%)                    | 8 (8.0%)                     |
| Richmond<br>Community<br>Hospital | 49 (14.4%)                 | 39 (15.2%)                    | 7 (7.0%)                     |
| Retreat Hospital                  | 22 (6.5%)                  | 15 (5.8%)                     | 2 (2.0%)                     |
| St. Mary’s Hospital               | 13 (3.8%) – check          | 10 (3.9%)                     | 5 (5.0%)                     |
| Henrico Doctors’<br>Hospital      | 10 (2.9%)                  | 10 (3.9%)                     | 2 (2.0%)                     |

- The majority of clients (both before and following program entry) used VCU Health System services for emergency visits.
- For emergency visits, CJW – Medical Center and Richmond Community Hospital were used equally prior to program entry, but client usage declined for these two facilities following admission into the program.

#### ❖ Financial Impact

Table 5: Financial Impact of Emergency Department Visits

|                     | <u>Time Period</u> |                 |                 |
|---------------------|--------------------|-----------------|-----------------|
|                     | 3 Year Prior       | 20 Months Prior | 20 Months After |
| <b>Charges (\$)</b> |                    |                 |                 |
| Average (per visit) | 1,294              | 1,354           | 1,314           |
| Median (per visit)  | 736                | 724             | 644             |
| Total               | 436,182            | 343,928         | 128,739         |
| <b>Cost (\$)</b>    |                    |                 |                 |
| Average (per visit) | 468                | 495             | 462             |
| Median (per visit)  | 242                | 241             | 225             |
| Total               | 157,741            | 125,796         | 42,290          |
| <b>Payment (\$)</b> |                    |                 |                 |
| Average (per visit) | 502.8              | 616.4           | 704.1           |
| Median (per visit)  | 56                 | 90              | 333             |
| Total               | 169,452            | 156,577         | 68,999          |

- As illustrated in Table 5, it is estimated that there was a 66% savings in emergency department cost (approximately \$83,500) in the first 20 months of the APTS program from the previous 20 months.
- During that same period, there was more than a 55% savings (approximately \$87,500) in payments to providers for client’s emergency visits. However, providers collected 54% of their charges, compared to 46% of their charges 20 months prior to program enrollment, reflecting the difference in the type of ED visit after enrollment and the relatively greater reimbursement associated with physical visits, as detailed in the following breakdown.
- Note that these costs do not account for any community emergency medical services that may have been involved in treating and/or transporting clients prior to their arrival at the hospital.

Table 6: Financial Impact of Emergency Department Visits by Type

|                     |                     | <u>Time Period</u> |                 |                 |
|---------------------|---------------------|--------------------|-----------------|-----------------|
|                     |                     | 3 Year Prior       | 20 Months Prior | 20 Months After |
| <b>Mental</b>       |                     |                    |                 |                 |
| <b>Charges (\$)</b> |                     |                    |                 |                 |
|                     | Average (per visit) | 1,147              | 1,227           | 1,624           |
|                     | Median (per visit)  | 736                | 736             | 775             |
|                     | Total               | 245,469            | 185,220         | 37,348          |
| <b>Cost (\$)</b>    |                     |                    |                 |                 |
|                     | Average (per visit) | 431                | 451             | 449             |
|                     | Median (per visit)  | 263                | 261             | 248             |
|                     | Total               | 92,119             | 68,120          | 10,318          |
| <b>Payment (\$)</b> |                     |                    |                 |                 |
|                     | Average (per visit) | 209                | 267             | 241             |
|                     | Median (per visit)  | 0                  | 44              | 0               |
|                     | Total               | 44,744             | 40,558          | 5,539           |
| <b>Physical</b>     |                     |                    |                 |                 |
| <b>Charges (\$)</b> |                     |                    |                 |                 |
|                     | Average (per visit) | 1,461              | 1,441           | 1,221           |
|                     | Median (per visit)  | 726                | 680             | 540             |
|                     | Total               | 173,821            | 145,510         | 90,330          |
| <b>Cost (\$)</b>    |                     |                    |                 |                 |
|                     | Average (per visit) | 512                | 537             | 456             |
|                     | Median (per visit)  | 218                | 208             | 207             |
|                     | Total               | 60,962             | 54,205          | 33,752          |
| <b>Payment (\$)</b> |                     |                    |                 |                 |
|                     | Average (per visit) | 931                | 1,032           | 833             |
|                     | Median (per visit)  | 311                | 391             | 337             |
|                     | Total               | 110,806            | 104,262         | 61,641          |

| Substance Abuse     |        |        |       |
|---------------------|--------|--------|-------|
| Charges (\$)        |        |        |       |
| Average (per visit) | 7,088  | 13,000 | 1,061 |
| Median (per visit)  | 7,088  | 13,000 | 1,061 |
| Total               | 14,175 | 13,000 | 1,061 |
| Cost (\$)           |        |        |       |
| Average (per visit) | 1,881  | 3,385  | 463   |
| Median (per visit)  | 1,881  | 3,385  | 463   |
| Total               | 3,763  | 3,385  | 463   |
| Payment (\$)        |        |        |       |
| Average (per visit) | 6,588  | 12,000 | 1,061 |
| Median (per visit)  | 6,588  | 12,000 | 1,061 |
| Total               | 13,175 | 12,000 | 1,061 |
| Unknown             |        |        |       |
| Charges (\$)        |        |        |       |
| Average (per visit) | 1,358  | 198    | 0     |
| Median (per visit)  | 1,358  | 198    | 0     |
| Total               | 2,717  | 198    | 0     |
| Cost (\$)           |        |        |       |
| Average (per visit) | 448    | 87     | 0     |
| Median (per visit)  | 448    | 87     | 0     |
| Total               | 897    | 87     | 0     |
| Payment (\$)        |        |        |       |
| Average (per visit) | 364    | 198    | 0     |
| Median (per visit)  | 364    | 198    | 0     |
| Total               | 727    | 198    | 0     |

- As shown, providers received only about 22% or less of their charges for mental health ED visits, regardless of client program status, but received 64-72% of their charges for physical health ED visits representing a potential profit over the health care systems' estimated costs regardless of time period.
- Total payment savings to insurers (public and private) from the 20 months prior to program enrollment was approximately \$35,000 from mental health visits, \$43,000 from physical health visits, and \$11,000 from substance abuse visits.

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## Hospital Inpatient Stays

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### ❖ Utilization

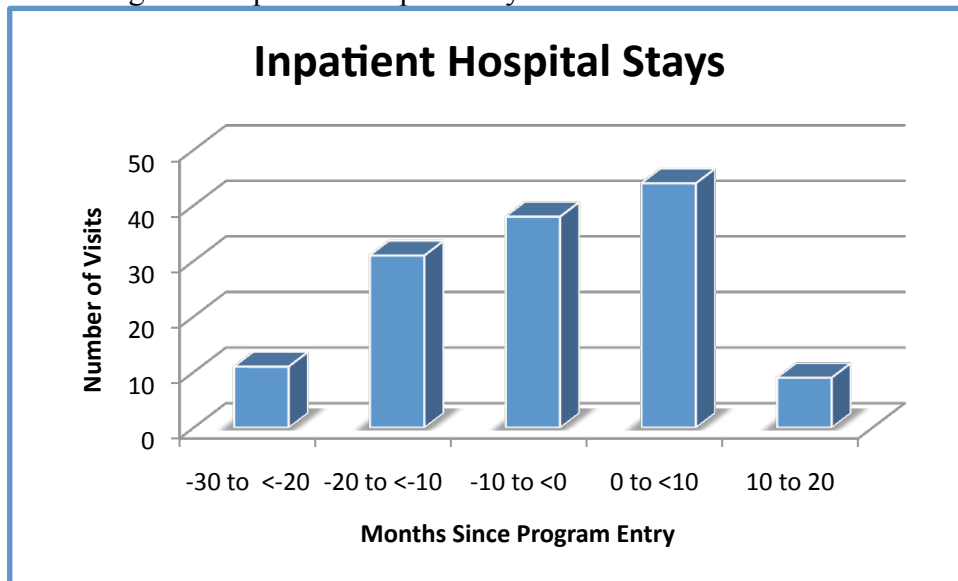
Table 7 provides information about inpatient stays in Richmond area hospital for mental, physical, and substance abuse reasons.

Table 7: Inpatient Stays at Richmond Area Hospitals

| Type            | Time Period               |                              |                             |
|-----------------|---------------------------|------------------------------|-----------------------------|
|                 | 3 Years Prior<br>(N = 83) | 20- Months Prior<br>(N = 69) | 20 Months After<br>(N = 39) |
| Mental          | 74 (89.2%)                | 61 (88.4%)                   | 23 (59.0%)                  |
| Physical        | 4 (4.8%)                  | 3 (4.3%)                     | 16 (41.0%)                  |
| Substance Abuse | 5 (6.0%)                  | 5 (7.2%)                     | 0 (0.0%)                    |

- For the average of 20 months since entering the program, client’s inpatient stays have decreased 43.5% (30 fewer visits) from the previous 20 months. *Note that one client who subsequently died after program enrollment from a degenerative physical health condition was responsible for 10 (25.6%) of the inpatient visits (seven physical, three mental) that occurred after program enrollment but only eight (11.6%; one physical, seven mental) of the inpatient visits the 20 months prior to program entry.*
- Prior to program entry, a significantly greater percentage of clients received hospital services for mental health reasons. Twenty months after program entry, a four-fold increase in hospital visits for physical reasons was observed while there was a 62.3% decline in visits for mental health reasons.

Figure 2: Inpatient Hospital Stays



Hospital visit data are expressed over 10 month intervals, 30 months prior to entry and 20 months following entry

- Hospital visits by clients steadily rose prior to program entry and in the 10 months following program entry, after which visits declined by 79.5%. Note that the farther back in time one goes, the less likely that all of the acute care visits have been captured since clients may have resided out of area or given different personal information on registration, making it more difficult to match with current clients.

Table 8: Inpatient Hospital Facility Stays Before and Following Program Entry by Hospital

| Site                              | Time Period               |                              |                             |
|-----------------------------------|---------------------------|------------------------------|-----------------------------|
|                                   | 3 Years Prior<br>(N = 84) | 20- Months Prior<br>(N = 69) | 20 Months After<br>(N = 53) |
| VCU Health System                 | 35 (41.7%)                | 29 (36.3%)                   | 24 (45.3%)                  |
| CJW – Medical<br>Center           | 26 (31.0%)                | 24 (30.0%)                   | 12 (22.6%)                  |
| Richmond<br>Community<br>Hospital | 20 (23.8%)                | 13 (16.3%)                   | 14 (26.4%)                  |
| Retreat Hospital                  | 1 (1.2%)                  | 1 (1.3%)                     | 0 (0.0%)                    |
| St. Mary’s Hospital               | 1 (1.2%)                  | 1 (1.3%)                     | 2 (3.8%)                    |
| Henrico Doctors’<br>Hospital      | 1 (1.2%)                  | 1 (1.3%)                     | 1 (1.9%)                    |

- For inpatient stays, VCU Health System, CJW-Medical Center, and Richmond Community Hospital were the primary providers of hospital care before and after program entry.

#### ❖ Financial Impact

Table 9: Financial Impact of Inpatient Hospital Stays

|                     | Time Period  |                 |                 |
|---------------------|--------------|-----------------|-----------------|
|                     | 3 Year Prior | 20 Months Prior | 20 Months After |
| Charges (\$)        |              |                 |                 |
| Average (per visit) | 12,355       | 13,052          | 15,769          |
| Median (per visit)  | 8,459        | 9,523           | 10,657          |
| Total               | 1,025,495    | 900,589         | 614,982         |
| Cost (\$)           |              |                 |                 |
| Average (per visit) | 4,024        | 4,201           | 5,788           |
| Median (per visit)  | 2,649        | 2,578           | 3,499           |
| Total               | 333,962      | 289,832         | 225,741         |
| Payment (\$)        |              |                 |                 |
| Average (per visit) | 5,584        | 6,112           | 9,897           |
| Median (per visit)  | 4,295        | 4,476           | 4,439           |
| Total               | 463,501      | 421,733         | 285,983         |
| Days                |              |                 |                 |
| Average (per visit) | 6.97         | 7.19            | 8.31            |
| Median (per visit)  | 6            | 6               | 6               |
| Total (per visit)   | 579          | 496             | 324             |

- Payments for inpatient care decreased by 32% (\$135,750) from the 20 months prior to admission, reflecting decreased inpatient utilization after program entry.
- The average length of stay increased after program enrollment but the total number of inpatient days for clients decreased by 33%, reflecting fewer inpatient stays.

Table 10: Financial Impact of Inpatient Hospital Stays by Visit Type

|                        |                     | <u>Time Period</u> |                 |                 |
|------------------------|---------------------|--------------------|-----------------|-----------------|
|                        |                     | 3 Year Prior       | 20 Months Prior | 20 Months After |
| <b>Mental</b>          |                     |                    |                 |                 |
| Charges (\$)           |                     |                    |                 |                 |
|                        | Average (per visit) | 12,463             | 13,262          | 12,218          |
|                        | Median (per visit)  | 8,555              | 9,535           | 10,190          |
|                        | Total               | 922,252            | 808,985         | 281,016         |
| Cost (\$)              |                     |                    |                 |                 |
|                        | Average (per visit) | 4,072              | 4,257           | 3,935           |
|                        | Median (per visit)  | 2,690              | 2,578           | 3,138           |
|                        | Total               | 301,288            | 259,696         | 90,508          |
| Payment (\$)           |                     |                    |                 |                 |
|                        | Average (per visit) | 5,259              | 5,642           | 7,940           |
|                        | Median (per visit)  | 4,129              | 4,180           | 4,065           |
|                        | Total               | 389,151            | 344,133         | 182,630         |
| Days                   |                     |                    |                 |                 |
|                        | Average (per visit) | 8.66               | 7.42            | 7               |
|                        | Median (per visit)  | 6                  | 6               | 6               |
|                        | Total               | 537                | 460             | 161             |
| <b>Physical</b>        |                     |                    |                 |                 |
| Charges (\$)           |                     |                    |                 |                 |
|                        | Average (per visit) | 17,119             | 18,946          | 20,873          |
|                        | Median (per visit)  | 18,052             | 24,464          | 14,238          |
|                        | Total               | 68,476             | 56,837          | 333,966         |
| Cost (\$)              |                     |                    |                 |                 |
|                        | Average (per visit) | 4,679              | 5,392           | 8,452           |
|                        | Median (per visit)  | 4,151              | 5,764           | 4,901           |
|                        | Total               | 18,715             | 16,176          | 135,233         |
| Payment (\$)           |                     |                    |                 |                 |
|                        | Average (per visit) | 12,011             | 14,900          | 12,710          |
|                        | Median (per visit)  | 7,835              | 12,328          | 5,175           |
|                        | Total               | 48,043             | 44,701          | 203,353         |
| Days                   |                     |                    |                 |                 |
|                        | Average (per visit) | 5.25               | 5               | 10.19           |
|                        | Median (per visit)  | 5                  | 4               | 5               |
|                        | Total               | 21                 | 15              | 163             |
| <b>Substance Abuse</b> |                     |                    |                 |                 |
| Charges (\$)           |                     |                    |                 |                 |
|                        | Average (per visit) | 6,953              | 6,953           | 0               |
|                        | Median (per visit)  | 5,851              | 5,851           | 0               |
|                        | Total               | 34,767             | 34,767          | 0               |
| Cost (\$)              |                     |                    |                 |                 |
|                        | Average (per visit) | 2,792              | 2,792           | 0               |
|                        | Median (per visit)  | 2,555              | 2,555           | 0               |
|                        | Total               | 13,960             | 13,960          | 0               |
| Payment (\$)           |                     |                    |                 |                 |

|      |                     |        |        |    |
|------|---------------------|--------|--------|----|
| Days | Average (per visit) | 5,262  | 5,262  | 0  |
|      | Median (per visit)  | 5,383  | 5,383  | 0  |
|      | Total               | 26,308 | 26,308 | 0  |
|      | Average (per visit) | 4.2    | 4.2    | 0  |
|      | Median (per visit)  | 4      | 4      | 0  |
|      | Total               | 21     | 21     | 0* |

\*As this table indicates, there were no inpatient hospital stays with substance abuse as the primary reason for admission after program admission. There could be many causes for this including differences in coding by hospital staff (most insurances do not cover inpatient stays for substance abuse issues alone), a desire of the client to focus on other issues before substance abuse issues, and more access to outpatient substance abuse services.

- The payment of provider charges for mental health stays increased from an average of 42-43% prior to program entry to 65% after program entry while average payment for physical health stays decreased from 70% or more to 61% after program entry. As a general rule, if a hospital collects 40-50% or more of its charges, it will definitely cover its costs and likely make a profit.
- The number of days for inpatient mental health stays decreased dramatically (299 days, a 65% decrease) from 20 months prior to the same period after program enrollment, while the days for physical health stays increased by 148 days during the same time period. The majority of these inpatient stays occurred within the first ten months of program entry and, as noted previously, physical health needs are often identified once an individual's mental stability is established.

## CRIMINAL JUSTICE ACTIVITY: ARRESTS AND INCARCERATIONS

### Arrests

Arrests of APTS clients were assessed at three time points: three years prior to program entry, 20 months prior to program entry, and 20 months after program entry. Note that one client could be arrested multiple times.

Overall, the number of arrests declined 92.2% from three years prior to program entry to 20 months after program entry. Arrests declined 83.0% from 20 months prior to program entry to 20 months after program entry. The majority of arrests occurred in the City of Richmond both prior to and after program entry.

Table 11 provides additional details on the localities in which arrests occurred.

Table 11: Arrests Prior to and Following Entry into APTS

| Arrests 3 years prior to entry<br>N = 128<br>N (%) | Arrests 20 months prior to entry<br>N = 59<br>N (%) | Arrests 20 months after entry<br>N = 10<br>N (%) | Total arrests<br>N = 197<br>N (%) |
|--|---|--|-----------------------------------|
|--|---|--|-----------------------------------|

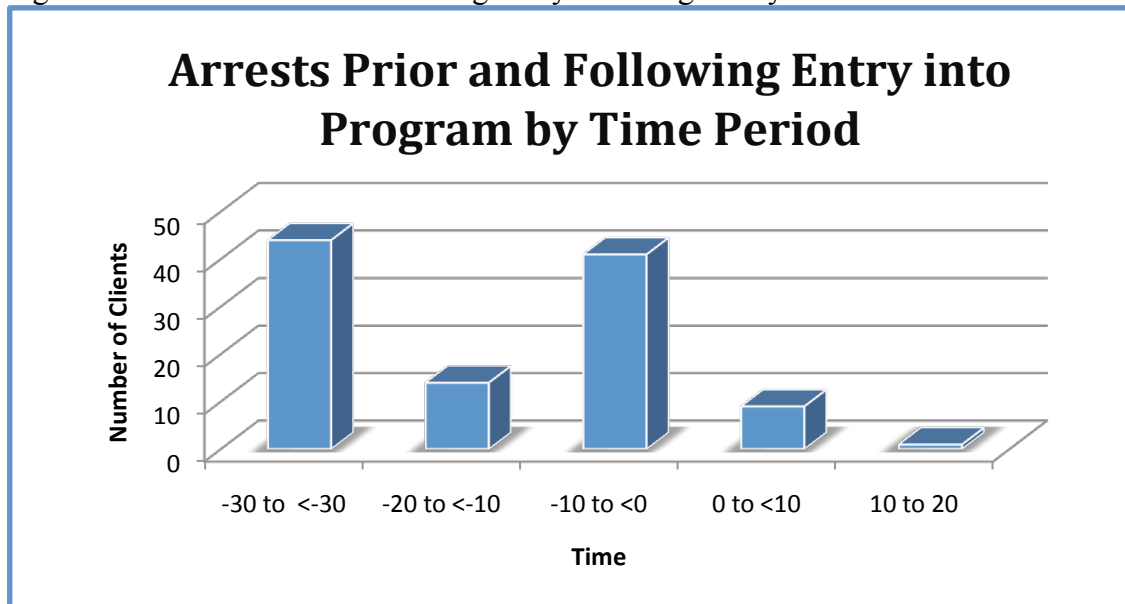
Locality

| Locality         | Arrests 3 years prior to entry<br>N (%) | Arrests 20 months prior to entry<br>N (%) | Arrests 20 months after entry<br>N (%) | Total arrests<br>N (%) |
|------------------|---|---|--|------------------------|
| Richmond         | 95 (74.2%)                              | 50 (86.2%)                                | 9 (90.0%)                              | 154 (78.2%)            |
| Henrico          | 9 (7.0%)                                | 2 (3.4%)                                  | 0 (0.0%)                               | 11 (5.6%)              |
| Chesterfield     | 3 (2.3%)                                | 0 (0%)                                    | 0 (0%)                                 | 3 (1.5%)               |
| Colonial Heights | 1 (.8%)                                 | 1 (1.7%)                                  | 0 (0%)                                 | 2 (1.0%)               |
| Hopewell         | 0 (0%)                                  | 0 (0%)                                    | 1 (10.0%)                              | 1 (.5%)                |
| Out of area      | 6 (4.7%)                                | 4 (6.9%)                                  | 0 (0%)                                 | 10 (5.1%)              |
| Out of state     | 14 (10.9%)                              | 1 (1.7%)                                  | 0 (0%)                                 | 15 (7.6%)              |

Note. Out of area includes Northampton and Virginia Beach. Out of state includes the North Carolina counties of Pitt, Wake, Halifax, and Craven.

Looking at the data in 10 month intervals as depicted in Figure 3 below, helps illustrate the dramatic decline in arrests following program entry, with only one arrest 10-20 months after program entry.

Figure 3: Arrests Prior and Following Entry into Program by Time Period



- While the CVHPA could not find a source for a reliable cost estimate of arrest and associated processing/judiciary costs but believe the significant decline in arrest numbers suggest noteworthy cost savings to the criminal justice system. Moreover, the sustained incidence of arrest prior to program participation suggests there would have been ongoing future law enforcement costs without intervention.

**Incarcerations**

Table 12: Incarceration Prior and Following Entry into Program

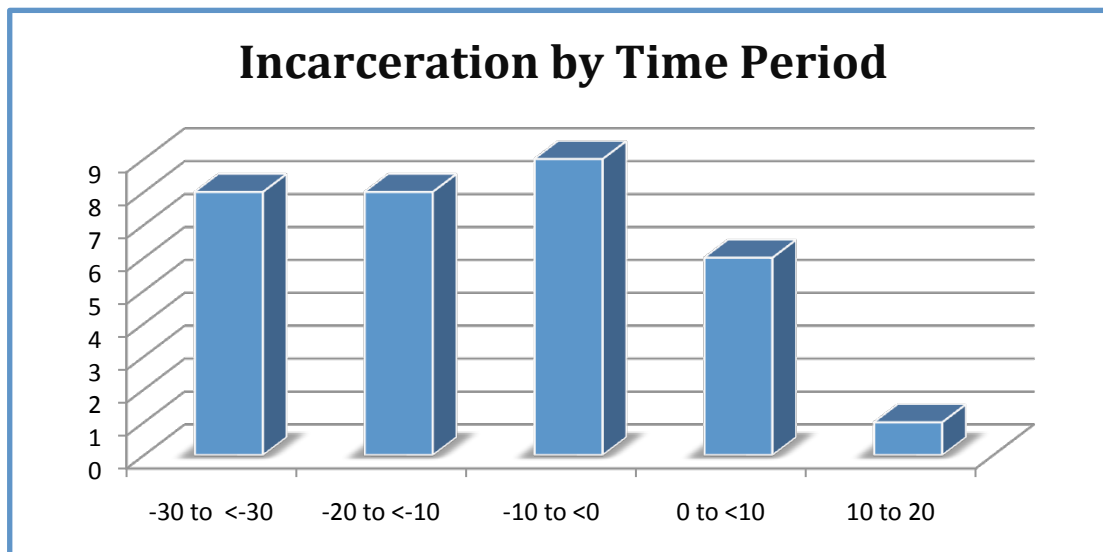
| Site                        | Time Period   |                  |                 |
|-----------------------------|---------------|------------------|-----------------|
|                             | 3 Years Prior | 20- Months Prior | 20 Months After |
| Richmond City Jail          | 23 (69.7%)    | 15 (88.2%)       | 6 (85.7%)       |
| Henrico County Jail<br>West | 1 (3.0%)      | 1 (5.9%)         | 0 (0%)          |
| Mecklenburg<br>County Jail  | 1 (3.0%)      | 0 (0%)           | 0 (0%)          |
| Chesterfield County<br>Jail | 2 (6.1%)      | 0 (0%)           | 0 (0%)          |
| Not Reported                | 6 (18.2%)     | 1 (5.9%)         | 1 (14.3%)       |
| Total                       | 33            | 17               | 7               |

- Significant decreases in occurrence of incarceration are observed after program entry, with a 59% decrease from the 20 months prior to enrollment.

Only about 28% of the arrests resulted in incarceration in the 20 months prior to program enrollment. This could be due to the nature of the charges as well as the greater percentage of arrests that resulted in incarceration after program enrollment may reflect the stable location of clients and the support needed to address outstanding legal issues.

- During all time periods, the majority of incarcerations were at the Richmond City Jail.

Figure 4: Incarceration by Time Period



Incarceration data are expressed over 10 month intervals, 30 months prior to entry and 20 months following entry.

- Only one incidence occurred during the 10 to 20 month period after program entry compared to occurrence of eight or nine incarcerations per ten month interval in the 30 months prior.

Table 13: Incarceration Durations of Program Participants Prior to and Following Entry

| Time                    | 3 Years Prior | 20 Months Prior | 20 Months After |
|-------------------------|---------------|-----------------|-----------------|
| Total days              | 2,707         | 1,647           | 176             |
| Average duration (days) | 82            | 97              | 25              |
| Median duration (days)  | 15            | 15              | 16              |

- The average durations of incarceration prior to program entry are significantly higher than median durations because of a few incidences of incarcerations lasting from half a year to 2 years or more which did not occur after program entry.

❖ **Financial Impact**

- Prison/jail cost for an offender in Virginia is estimated to be \$66.62 per day.<sup>2</sup>
- Total costs for the 20 months after admission are estimated to be \$11,651 compared to \$109,723 (20 months prior) for an estimated savings of \$98,072 (a decrease of 89%).
- An average jail stay for an APTS client is estimated to cost \$1,675 in the twenty months following program entry. Prior to program entry, an average jail stay for an APTS client was estimated to cost \$6,454. This difference of \$4,779, a decline of 74.1%, is due to the decrease in the duration of incarcerations following program entry.
- Decreases in the number and duration of incarcerations of APTS clients translate into considerable cost savings to local area corrections facilities.

**SUMMARY OF FINDINGS AND COST SAVINGS**

1. Approximately 20% more of the APTS clients had a source of income after enrollment and the average income increased by \$155 and the median income increased by \$37 a month. Social Security continued to be the primary source of income.
2. As illustrated in the following table, declines were seen in the twenty months after program entry in all health care and criminal justice indicators measured. The declines are even greater for clients after being enrolled in the program for ten months or more, suggesting long-term significant improvement relative to utilization of community health care and criminal justice resources.

<sup>2</sup> “1 in 31: The Long Reach of American Corrections, Virginia”, The PEW Center on the States, 2008.

Table 14: Client Utilization of Community Resources

| Event                    | Time Period     |                 | Difference |
|--------------------------|-----------------|-----------------|------------|
|                          | 20 Months Prior | 20 Months After |            |
| Emergency                | 257             | 100             | (157)      |
| Department Visits        |                 |                 |            |
| Inpatient Hospital Stays | 69              | 39              | (30)       |
| Arrests                  | 59              | 10              | (49)       |
| Incarcerations           | 17              | 7               | (10)       |

3. A significant finding is the shift from mental health related utilization of area health care resources to physical health care resources. Tracking this utilization as underlying physical health conditions are addressed should provide additional information relative to changes in the long-term utilization of community services.
4. As reflected in the table below, there was a \$321,400 cost savings to the community in the 20 months since program enrollment for hospital costs and incarcerations. This represents an annual cost of \$6,062 per client prior to program entry and \$3,227 after program entry, **almost half the cost**. These are significant savings and do not include the costs associated with the 49 arrests, nor do they include other costs to the community, such as ambulance costs, and costs to the homeless service system and other mainstream services such as behavioral health and department of social services. Moreover, this does not account for the additional Social Security (Federal) income being brought into the community or, as noted previously, reductions in the utilization of community emergency medical services.
5. In addition to the overall cost savings, the research included an evaluation of the highest cost clients. Table 16 shows the results of this search indicating that for the highest cost client, the total cost of Emergency Department, Inpatient stays, and incarceration was a little under \$18,000 annually versus \$528 annually after program enrollment.

Table 15: Estimated Cost Savings to the Community

| Event                     | Time Period      |                  | Difference         |
|---------------------------|------------------|------------------|--------------------|
|                           | 20 Months Prior  | 20 Months After  |                    |
| Emergency                 | 156,577          | 68,999           | (87,578)           |
| Department Visits*        |                  |                  |                    |
| Inpatient Hospital Stays* | 421,733          | 285,983          | (135,750)          |
| Arrests**                 | N/A              | N/A              | -                  |
| Incarcerations*           | 109,723          | 11,651           | (98,072)           |
| <b>Total Cost</b>         | <b>\$525,351</b> | <b>\$279,682</b> | <b>(\$245,669)</b> |

\* Based upon actual payments to providers or estimated daily incarceration costs.

\*\* Reliable arrest and associated judicial cost estimates were not available.

Table 16 - Total Cost for Client with Highest Costs (including Inpatient, Emergency Department, and Criminal Activity)

|                | ED Cost | Inpt Cost | Total           |                    | ED Cost | Inpt Cost | Total        |
|----------------|---------|-----------|-----------------|--------------------|---------|-----------|--------------|
| 3yrs prior=    | \$9,491 | \$43,376  | \$52,867        | 20months after=    | \$880   | \$0       | \$880        |
| criminal 3yrs= |         |           | \$999           | criminal 20months= |         |           | 0            |
| total cost=    |         |           | <b>\$53,866</b> | total cost=        |         |           | <b>\$880</b> |

**Average Cost per year prior to program admission= \$17,955.39**

**Average Cost per year after program admission= \$528.12**

The information presented in this report captures data from the beginning of the APTS program. As the program grows, more participants will be added, and the initial cohort will remain permanently housed. As new participants are added, the proper releases of information will be obtained, and their hospital records and criminal data will be gathered and entered into the program database. As appropriate, new data will be analyzed to provide an ongoing report of cost savings of the APTS program.