



COMMONWEALTH of VIRGINIA

MIRA SIGNER
ACTING COMMISSIONER

DEPARTMENT OF
BEHAVIORAL HEALTH AND DEVELOPMENTAL SERVICES

Post Office Box 1797
Richmond, Virginia 23218-1797

Telephone (804) 786-3921
Fax (804) 371-6638
www.dbhds.virginia.gov

December 3, 2019

The Honorable Thomas K. Norment, Jr., Co-chair
The Honorable Emmett W. Hanger, Jr., Co-chair
Senate Finance Committee
The Honorable Chris S. Jones, Chair
House Appropriations Committee
900 East Main Street
Richmond, VA 23219

Dear Senator Norment, Senator Hanger, and Delegate Jones:

Item 310.B.B. of the *2019 Appropriation Act*, required the Department of Behavioral Health and Developmental Services (DBHDS) to report on the program funding, cost effectiveness, and impact of the Program of Assertive Community Treatment (PACT).

Please find enclosed the report in accordance with Item 310.B.B. Staff at the department are available should you wish to discuss this request.

Sincerely,

A handwritten signature in blue ink that reads 'Mira Signer'.

Acting Commissioner

Cc: The Honorable Daniel Carey, Jr.
Marvin Figueroa
Mike Tweedy
Susan Massart



**Program of Assertive Community
Treatment –
Program Funding, Cost Effectiveness,
and Impact**

(Item 310 BB)

November 1, 2019

DBHDS Vision: A Life of Possibilities for All Virginians

1220 BANK STREET • P.O. BOX 1797 • RICHMOND, VIRGINIA 23218-1797 PHONE: (804) 786-3921 • FAX: (804) 371-6638 • WEB SITE:
WWW.DBHDS.VIRGINIA.GOV

Preface

This report responds to Item 310 BB of 2019 Appropriation Act requiring the Department of Behavioral Health and Developmental Services (DBHDS) to submit a report on the Program of Assertive Community Treatment (PACT). The language states:

"BB. The Department of Behavioral Health and Developmental Services shall report on the allocation and funding for Programs of Assertive Community Treatment (PACT) in the Commonwealth. The report shall include information on the cost of each team, the cost per individual served and the cost effectiveness of each PACT in diverting individuals from state and local hospitalization and stabilizing individuals in the community. The department shall provide the report to the Chairmen of the House Appropriations and Senate Finance Committees by November 1, 2019."

Program of Assertive Community Treatment – Program Funding, Cost Effectiveness, and Impact

Table of Contents

Executive Summary.....	2
Program of Assertive Community Treatment (PACT) Overview.....	3
Program Impact.....	4
The Cost of Each Team and Cost per Individual Served.....	4
Cost Effectiveness of PACT in Diverting Individuals from Hospitalization.....	7
State Hospitals.....	7
Local Hospitals.....	10
Cost Effectiveness of PACT in Reducing Incarceration.....	12
Conclusion.....	13

Executive Summary

Assertive Community Treatment (ACT, or PACT as it is currently known in Virginia) is an evidence-based practice (EBP) that improves outcomes for people with severe mental illness. One of the oldest and most widely researched EBP's in behavioral healthcare for people with severe mental illness, research shows that ACT reduces hospitalizations and incarceration, increases housing stability, and improves quality of life for people with the most severe symptoms of mental illness.¹ To do so, ACT utilizes a multidisciplinary, community-based team of medical, behavioral health, and rehabilitation professionals who work together to meet the needs of the individuals that they serve.

In response to the General Assembly's request to provide recent data on PACT, the Department of Behavioral Health and Development Services (DBHDS) assessed general financial figures – costs per team and costs per individual served, the program's impact on state and local hospitalization and incarceration, and the associated cost implications from diverting PACT clients from these more expensive services. The assessment of data indicated that PACT services resulted in lower hospitalization and incarceration, and substantial associated cost reductions.

Some of the main findings in this report that support the value of investment in PACT services across the Commonwealth include:

- The average cost per client served by PACT teams across the Commonwealth is \$15,754.
- State hospitalization use for all PACT clients admitted in FY16 had a 54% reduction, which represents a cost avoidance of \$8,061,856 for that group.
- All new FY16 PACT clients accounted for 21,546 state hospital bed days in the two years before PACT admission, and just 11,642 in the two years after PACT admission.
- Seventy-eight percent or 1,704 of all 2,186 PACT clients in FY18 had zero local hospitalizations, 12% or 259 individuals had one hospitalization, and 10% or 223 individuals had multiple local hospitalizations.
- Incarceration of all PACT clients admitted in FY16 was reduced by 52.5% and represents a cost avoidance of \$688,700 for that group.
- In the two years before admission to PACT, all new FY16 clients served 15,288 days in confinement compared to only 7,264 days in the two years after starting PACT services.

¹ For a collection of relevant research, see: UNC Institute for Best Practices. (2019). *ACT* [Research]. Retrieved from <http://www.institutebestpractices.org/act/research/>

Program of Assertive Community Treatment (PACT) Overview

Assertive Community Treatment (ACT, or PACT as it is currently known in Virginia) is an evidence-based practice (EBP) that improves outcomes for people with severe mental illness. The program has a self-contained trans-disciplinary team comprised of a team leader, psychiatrist, nurses, social workers, therapists, and specialists, such as in the area of co-occurring substance use treatment, employment and educational services, and peer-support services. Team members work closely together to help adults with severe mental illness live in their homes instead of an institution or the streets. They provide a comprehensive array of services, such as helping find and maintain safe and affordable housing, get a job, learn about their mental health challenges and treatment choices, assist with harm reduction and substance abuse recovery, develop practical life skills, and provide medication oversight and support. ACT teams also assist with the overall health care needs of people served, and aim to work closely with individuals' families and other natural supports.

To be most effective, ACT is to be recovery-oriented, strengths-based, and person-centered. Treatment is assertive in that the team is proactive and persistent in efforts to engage individuals who would likely benefit from this level of support.

Individuals who are appropriate for ACT do not benefit from receiving services across multiple, disconnected providers, thus a fundamental charge of ACT is to be the first-line (and generally sole provider) of all the services that individuals who receive ACT need. Being the single point of responsibility necessitates a higher frequency and intensity of community-based contacts, and a very low individual-to-staff ratio.

Other important characteristics of ACT programs include:

- Services are delivered in an ongoing rather than time-limited framework to aid the process of recovery and ensure continuity of care.
- Services are delivered according to a recovery-based philosophy of care, where the team promotes self-determination, respects the individual as expert in his or her own right, and engages peers in the process of promoting hope that the individual can recover from mental illness and regain meaningful roles and relationships in the community.
- ACT teams assist individuals in advancing towards personal goals with a focus on enhancing community integration and regaining of valued roles (e.g. employee, spouse, parent, tenant). Because ACT teams work with individuals who may passively or actively resist services, ACT teams are expected to thoughtfully carry out planned assertive engagement techniques which consist largely of rapport-building strategies, facilitating meeting of basic needs, and motivational interviewing techniques. These techniques are used to identify and focus on the individual's life goals and what they are motivated to change.

Virginia began providing state-funded Assertive Community Treatment in 1996 with its first 'demo' PACT team. With the most recent expansion of PACT in FY17, Virginia now operates 25 PACT teams out of 24 of our 40 Community Service Boards (CSBs).

State funds in the amount of \$18,678,943 were provided to PACT teams in FY18. State funding for PACT has differed with each appropriation and varies between \$336,061 to \$850,000 for individual CSBs. In 2016, five CSBs in the southeastern portion of the state received an additional \$200,000 in ongoing funds to create a forensic enhancement to their PACT teams, aimed at addressing the needs of this particular population.

Program Impact

The Cost of Each Team and Cost per Individual Served

Data Source: On May 7, 2019, the Department of Behavioral Health and Developmental Services (DBHDS) distributed a survey to all 40 of Virginia's CSBs and their Executive Directors via email. The survey was conducted using Survey Monkey, but three of the respondents had trouble submitting the survey on that platform and sent answers manually via email. The questions were as follows:

Name of CSB:

Does this CSB provide PACT services?

How long has this CSB offered PACT services?

What is the total amount of expenditures this CSB had for PACT services for FY2018?

How much total revenue did the CSB receive from its PACT services for FY2018?

State:

Local:

Third Party:

Other Fees:

Findings:

Respondents were instructed to answer "no" to "does this CSB provide PACT services?" if they exclusively offer ICT services. Results were collected into a spreadsheet provided in Table 1 below.

Average cost per client served by PACT teams is \$15,754 (see Table 1 below). PACT teams with the highest per client costs tended to be in areas with higher poverty or for CSBs that cover multiple municipalities.

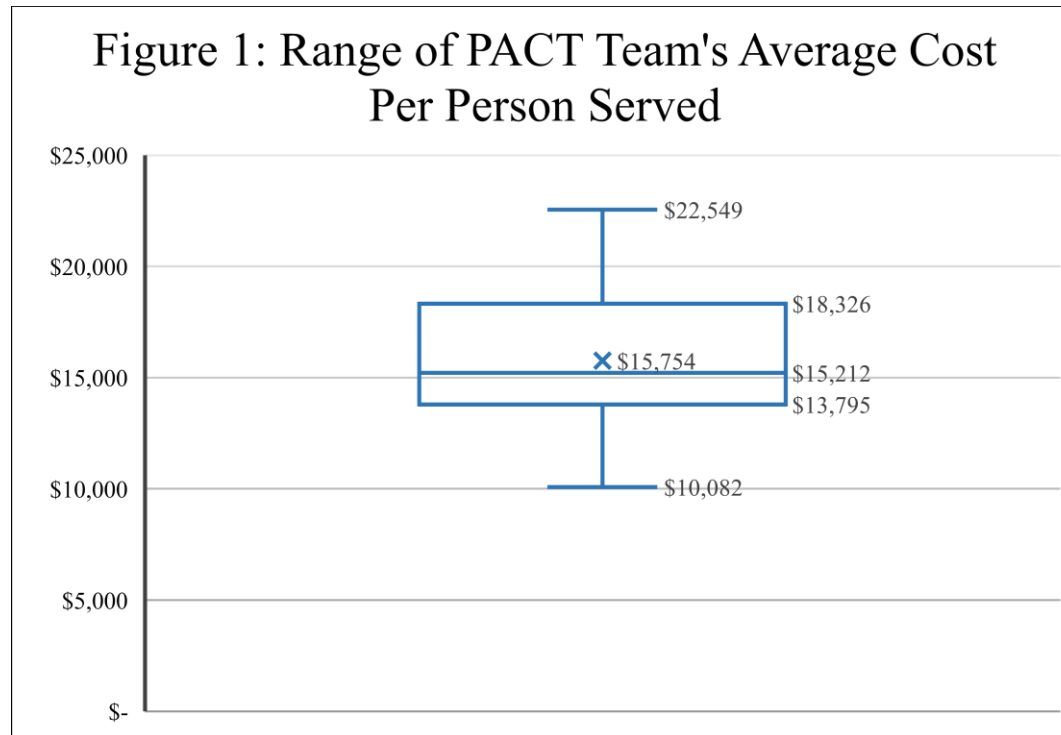
As illustrated by Figure 1 below, the cost per person across PACT teams can range anywhere from \$10,082 to \$22,549. The middle 50%, the second and third quartile, fall between \$13,785 and \$18,326 per person.

Table 1: Virginia PACT Team Costs

Name of CSB:	Years Offering PACT	Total expenditures - PACT Services FY2018	Total revenue - PACT Services FY2018	State:	Local:	Third Party (Including Medicaid):	Other (Out of Pocket) Fees:	Individuals Served	Average Cost per Person
Alexandria CSB	2	\$926,075	\$926,075	\$850,000	\$0	\$5,963	\$70,112	51	\$18,158
Arlington County CSB	20	\$1,423,229	\$1,423,229	\$665,000	\$314,825	\$440,447	\$2,957	104	\$13,685
Blue Ridge Behavioral Healthcare	20	\$1,031,556	\$936,110	\$700,000	\$0	\$0	\$236,110	92	\$11,213
Chesapeake Integrated Behavioral Healthcare	12.5	\$1,904,408	\$1,904,408	\$1,008,000	\$440,475	\$0	\$455,933	86	\$22,144
Colonial Behavioral Health	2	\$1,001,584	\$1,129,843	\$989,848	\$0	\$151,917	\$0	50	\$20,032
Danville-Pittsylvania Community Services	14	\$1,284,388	\$1,284,387	\$1,091,292	\$0	\$189,457	\$3,637	92	\$13,961
District 19 CSB	22	\$1,609,263	\$1,609,263	\$843,404	\$0	\$63,731	\$702,128	84	\$19,158
Fairfax-Falls Church CSB	20	\$1,515,504	\$1,515,504	\$841,887	\$512,517	\$0	\$161,100	106	\$14,297
Hampton-Newport News CSB	21	\$1,647,467	\$1,967,327	\$862,500	\$0	\$944,319	\$160,508	108	\$15,254
Henrico Area Mental Health & Developmental Services	22	\$1,340,852	\$1,340,852	\$500,000	\$123,187	\$517,665	\$0	133	\$10,082
Horizon Behavioral Health	20	\$1,416,340	\$1,436,528	\$722,041	\$0	\$713,462	\$0	103	\$13,751
Middle Peninsula - Northern Neck CSB	2	\$1,104,879	\$1,722,375	\$1,104,879	\$0	\$271,238	\$6,033	49	\$22,549
Mount Rogers CSB	14.5	\$1,361,636	\$1,533,057	\$835,000	\$0	\$696,457	\$1,600	85	\$16,019
New River Valley Community Services*	19.5	\$3,161,715	\$4,326,373	\$336,061	\$0	\$3,988,477	\$1,835	172	\$18,382
Norfolk CSB	20	\$1,820,341	\$1,820,341	\$700,000	\$359,779	\$432,670	\$327,892	120	\$15,170
Northwestern CSB	3	\$897,608	\$1,121,924	\$918,771	\$0	\$0	\$203,153	84	\$10,686
Piedmont CSB	3	\$989,007	\$1,121,216	\$850,000	\$0	\$270,216	\$1,000	81	\$12,210
Prince William County CSB	3	\$1,402,243	\$1,402,243	\$850,000	\$326,943	\$224,036	\$1,264	71	\$19,750
Rappahannock Area CSB	3	\$1,092,707	\$1,322,154	\$850,000	\$0	\$472,154	\$0	78	\$14,009
Region Ten CSB	20	\$1,405,684	\$1,288,426	\$700,000	\$0	\$559,527	\$28,899	84	\$16,734
Richmond Behavioral Health Authority	21	\$1,378,757	\$193,599	\$931,229	\$0	\$836,638	\$168,052	99	\$13,927

Valley CSB	20	\$1,232,277	\$1,327,733	\$630,000	\$0	\$414,092	\$0	85	\$14,497
Virginia Beach Human Services	5	\$1,544,048	\$1,544,048	\$1,083,447	\$104,932	\$0	\$355,669	97	\$15,918
Western Tidewater CSB	2	\$1,188,629	\$1,061,824	\$850,000	\$0	\$211,620	\$205	72	\$16,509
Average:	13.0	\$1,403,342	\$1,469,118	\$821,390	\$90,944	\$475,170	\$120,337	91	\$15,754

*New River Valley CS consists of two separate PACT teams



Cost Effectiveness of PACT in Diverting Individuals from Hospitalization

State Hospitals

DBHDS assessed hospitalization cost effectiveness by comparing individuals' number of bed days (and associated costs) in the two years prior to PACT admission with the number of bed days (and associated costs) the two years following admission to PACT. In FY16, PACT programs admitted 324 new individuals across the Commonwealth. The entire group of new PACT admits in FY16 accounted for a total of 21,546 state hospital bed days in the two years before they were admitted to a PACT program. Total cost for these bed days was an estimated \$17,538,444.

In the two years after their first PACT service in FY16, the group used only 11,642 bed days (cost \$9,476,588). For this group, **54% of the expected costs for state hospitalization (\$8,061,856) were avoided in the two years following PACT admission.**

The costs are based off an \$814 average daily cost per patient figure, which is the average year-to-date cost per patient day rate from the June 2018 DBHDS Monthly Cost Report. This figure excludes the three training centers and CCCA that do not serve PACT-related patients to calculate the average.

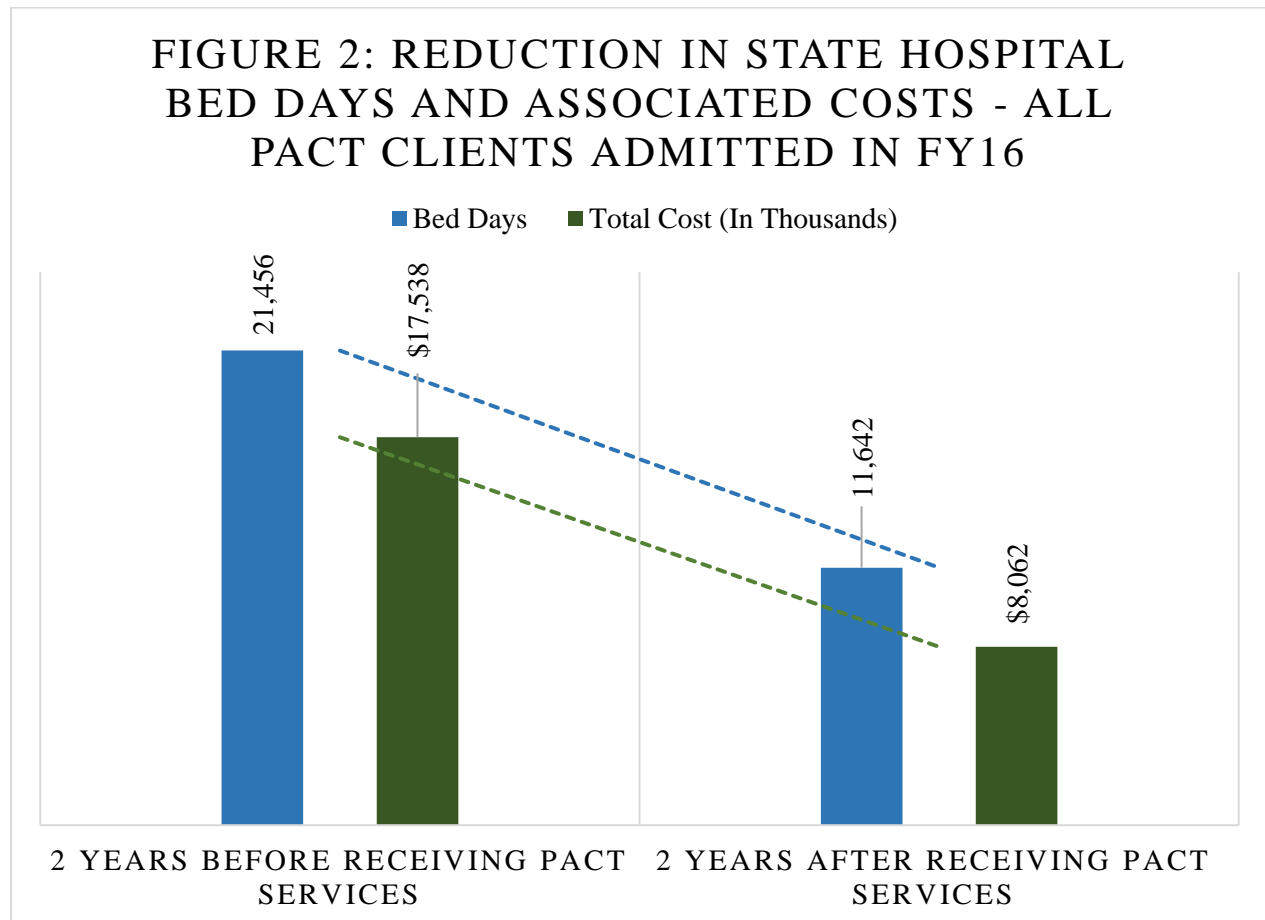


Table 2 below demonstrates the impact of all PACT teams in diverting PACT clients admitted in FY16 from state hospitalization. Nineteen of the CSBs with PACT teams (79%) exhibited a net reduction in state hospital bed days for their FY16 cohort. The average cost reduction per PACT team was \$350,515.

Data Sources:

State Hospitalization information comes from DBHDS' AVATAR Database - This is the client-level DBHDS inpatient facility database that includes demographic, clinical, and service information about individuals receiving inpatient services in DBHDS hospitals.

PACT individuals for this study are designated as receiving PACT services by CSBs in DBHDS' CCS3 Database - Virginia's unique, consumer-level data collection system that is used in partnership with CSBs statewide. CCS3 is a compilation of demographic, clinical, and service utilization data for all individuals receiving services from CSBs.

Table 2: State Hospital Bed Days by PACT Team

Name of CSB	Two Years Before PACT	Two Years After PACT	Difference	Cost Reduction
Alexandria CSB	-	-	-	-
Arlington County CSB	959	185	-774	\$630,036
Blue Ridge Behavioral Healthcare	408	462	54	-\$43,956
Chesapeake Integrated Behavioral Healthcare	1,484	582	-902	\$734,228
Colonial Behavioral Health	327	473	146	-\$118,844
Danville-Pittsylvania Community Services	205	192	-13	\$10,582
District 19 CSB	569	462	-107	\$87,098
Fairfax-Falls Church CSB	3,558	838	-2,720	\$2,214,080
Hampton-Newport News CSB	176	197	21	-\$17,094
Henrico Area Mental Health & Developmental Services	154	386	232	-\$188,848
Horizon Behavioral Health	98	53	-45	\$36,630
Middle Peninsula - Northern Neck CSB	2,923	956	-1,967	\$1,601,138
Mount Rogers CSB	558	104	-454	\$369,556
New River Valley Community Services	781	605	-176	\$143,264
Norfolk CSB	727	312	-415	\$337,810
Northwestern CSB	7	0	-7	\$5,698
Piedmont CSB	2,419	1,794	-625	\$508,750
Prince William County CSB	705	314	-391	\$318,274
Rappahannock Area CSB	31	141	110	-\$89,540
Region Ten CSB	1,312	591	-721	\$586,894
Richmond Behavioral Health Authority	1,481	1,329	-152	\$123,728
Valley CSB	1,709	1,119	-590	\$480,260
Virginia Beach Human Services	924	547	-377	\$306,878
Western Tidewater CSB	31	0	-31	\$25,234
Total	21,546	11,642	-9,904	\$8,061,856

Local Hospitals

In FY18, a total of 2,186 individuals were served by PACT and 482 unique individuals – 22% of PACT clients – went to a local hospital up to 29 days. Those 482 individuals accounted for 8,920 bed days, amounting to an estimated \$8,349,120 in total costs. The costs are based on DMAS’ FY19 Local Hospital Psychiatric Operating Rate per Day’s state average of \$936.²

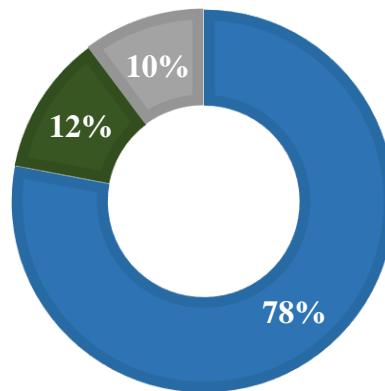
The average length of stay for those 482 individuals was 8.8 days and \$8,237 per visit. Just over half of the group with a local hospitalization, 259 individuals, only went to the hospital once in FY18. As illustrated in Figure 3 below, 78% or 1,704 of all 2,186 PACT clients in FY18 had zero local hospitalizations, 12% or 259 individuals had one hospitalization, and 10% or 223 individuals had multiple local hospitalizations.

Table 3 below displays how individuals in each PACT team contributed to minimal rates of local hospitalization. The average number of bed days PACT clients used by PACT team was 372 days in FY18. The average amount spent towards local hospitalization for PACT clients was \$347,880. As is evidenced in the table, across PACT teams, the bulk of bed days and subsequent costs were incurred by a small percentage of clients with multiple hospital stays.

Data Source: Local hospital use is tracked in DBHDS’ PACT Database. Each PACT team submits monthly data about all PACT clients in the PACT Database to track client outcomes and program fidelity on a variety of dimensions – such a reduced hospitalization, greater housing stability and employment, and reduced criminal activity.

FIGURE 3: PERCENT OF ALL PACT CLIENTS SERVED IN LOCAL HOSPITALS IN FY18

■ No Local Hospitalizations ■ One Local Hospitalization
■ Multiple Local Hospitalizations



² Department of Medical Assistance Services. (2019). *Hospital Rates* [DRG and Psychiatric Rates]. Retrieved from <http://www.dmas.virginia.gov/#/hospitalrates>

Table 3: Local Hospital Utilization by CSB

Name of CSB	Total Clients Served FY18	Number Clients Zero Local Hosp.	Clients with One Local Hosp.		Clients with Multiple Local Hosp.		Sum of All Bed Days	Sum of Costs
			Total People	Total Bed Days	Total People	Total Bed Days		
Alexandria CSB	51	39	9	139	3	58	197	\$184,392
Arlington County CSB	104	79	9	79	16	391	470	\$439,920
Blue Ridge Behavioral Healthcare	92	71	14	130	7	160	290	\$271,440
Chesapeake Integrated Behavioral Healthcare	86	66	12	121	8	166	287	\$268,632
Colonial Behavioral Health	50	35	11	138	4	92	230	\$215,280
Danville-Pittsylvania Community Services	92	74	9	126	9	235	361	\$337,896
District 19 CSB	84	60	14	166	10	248	414	\$387,504
Fairfax-Falls Church CSB	106	84	13	173	9	354	527	\$493,272
Hampton-Newport News CSB	108	79	13	185	16	473	658	\$615,888
Henrico Area Mental Health & Developmental Services	133	96	19	186	18	531	717	\$671,112
Horizon Behavioral Health	103	82	17	171	4	102	273	\$255,528
Middle Peninsula - Northern Neck CSB	49	42	3	11	4	94	105	\$98,280
Mount Rogers CSB	85	75	6	65	4	64	129	\$120,744
New River Valley Community Services	172	163	6	34	3	27	61	\$57,096
Norfolk CSB	120	85	16	134	19	558	692	\$647,712
Northwestern CSB	84	64	10	93	10	250	343	\$321,048
Piedmont CSB	81	70	9	70	2	40	110	\$102,960
Prince William County CSB	71	43	10	102	18	732	834	\$780,624
Rappahannock Area CSB	78	52	16	184	10	275	459	\$429,624
Region Ten CSB	84	69	8	83	7	109	192	\$179,712
Richmond Behavioral Health Authority	99	61	15	153	23	693	846	\$791,856
Valley CSB	85	85	0	0	0	0	0	\$0

Virginia Beach Human Services	97	70	12	86	15	467	553	\$517,608
Western Tidewater CSB	72	60	8	95	4	77	172	\$160,992
Total	2186	1704	259	2724	223	6196	8920	\$8,349,120

Cost Effectiveness of PACT in Reducing Incarceration

DBHDS assessed reduction in incarceration and corresponding cost effectiveness by comparing individuals' number of total days in confinement in the two years prior to PACT admission with the number of total days in confinement the two years following admission to PACT. In FY16, 324 individuals were newly admitted to PACT programs across the Commonwealth. The entire group of new PACT admits in FY16 served 15,288 days in confinement during the two years before they were admitted to a PACT program. Total cost for these confinement days is an estimated \$1,312,169.

In the two years after their first PACT service in FY16, the group served only 7,264 days in confinement (cost \$623,469), for a reduction in time spent in confinement and associated costs of 52.5% (cost avoidance of \$688,700 in expected costs).

The costs are based off an \$85.83 average total daily cost per inmate day figure, provided in the latest Commonwealth of Virginia Compensation Board Report to the General Assembly: *FY2017 Jail Cost Report*.³

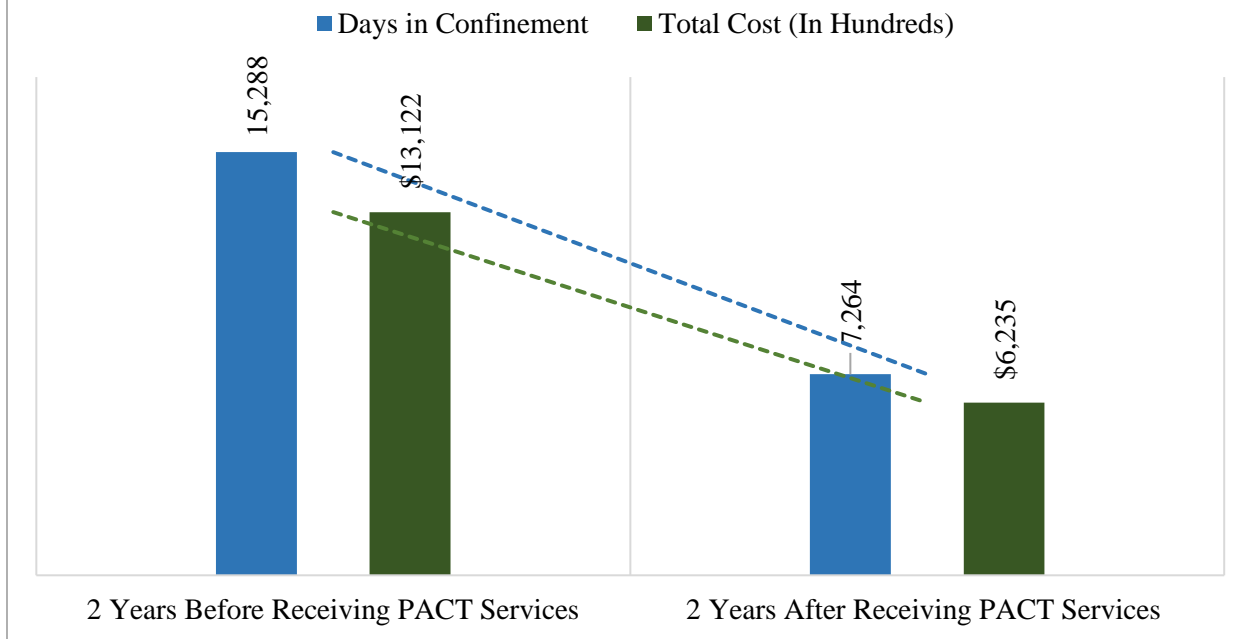
Data Sources:

Confinement data came from Virginia State Compensation Board's Local Inmate Data System (LIDS). The primary function of LIDS is to track persons entering and exiting local and regional jails in the Commonwealth of Virginia for the purpose of determining appropriate per diem payments. LIDS contains detailed information about persons incarcerated in Virginia's jails, including demographic information, court information, charges, and legal status.

PACT individuals for this study are designated as receiving PACT services by CSBs in DBHDS' CCS3 Database - Virginia's unique, consumer-level data collection system that is used in partnership with CSBs statewide. CCS3 is a compilation of demographic, clinical, and service utilization data for all individuals receiving services from CSBs.

³ Commonwealth of Virginia Compensation Board. (2018). *Report to the General Assembly: FY2017 Jail Cost Report – Annual Jail Revenues and Expenditures Report*. Richmond, VA.

FIGURE 4: REDUCTION IN DAYS SPENT IN CONFINEMENT AND ASSOCIATED COSTS - ALL PACT CLIENTS ADMITTED IN FY16



Conclusion

In what started as a small state-grant for a single pilot PACT team in 1996, PACT has grown to 25 teams across the Commonwealth. In FY18, PACT served nearly 2,200 individuals who required highly proactive and persistent support through PACT services. On average, it costs the state \$15,754 per individual to provide this level of care. This investment has produced significant outcomes. The program reduces PACT client state hospitalization, evidenced by FY16 PACT clients requiring 54% less bed days, which resulted in avoiding an estimated \$8,061,856 in the expected cost. Additionally, the data suggests that the PACT program keeps the demand on local/private hospitals minimal with 78% of clients never requiring local hospitalization, and only 12% requiring multiple visits in FY18. Furthermore, findings indicate that time spent in confinement is drastically reduced, with our assessment showing clients’ confinement days cut by over half after initiation of PACT services.

Virginia's data is reflective of other research showing that Assertive Community Treatment (ACT) can produce better outcomes for individuals served and reduce costs for the broader behavioral healthcare services system.⁴ However, the effectiveness of Virginia’s PACT will continue to depend on the quality of the particular program delivering this service, and how faithfully they implement best practice elements (known as “program fidelity”).

⁴ For a collection of relevant research, see: UNC Institute for Best Practices. (2019). ACT [Research]. Retrieved from <http://www.institutebestpractices.org/act/research/>

To that end, DBHDS has recently partnered with national ACT experts from the University of North Carolina's Institute for Best Practices, including the co-author of the widely used *Tool for Measurement of Assertive Community Treatment (TMACT)*⁵ to begin formal fidelity evaluations of Virginia's PACT programs.

To ensure that Virginia continues to achieve and improve upon the outcomes and cost reductions PACT has achieved to date, continued support and funding for not only the service itself, but also training, ongoing program fidelity evaluation, and staff resource development remain significant priorities.

⁵ Monroe-DeVita, M., Moser, L.L. & Teague, G.B. (2013). The Tool for Measurement of Assertive Community Treatment (TMACT). In M. P. McGovern, G. J. McHugo, R. E. Drake, G. R. Bond, & M. R. Merrens. (Eds.), *Implementing Evidence-Based Practices in Behavioral Health*. Center City, MN: Hazelden.