

Implementing an Intensive Outpatient Substance Use Disorder Treatment Program:

Patients' Use of Services, Outcomes, and Costs



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Executive Summary

Tuscaloosa VAMC was one of the first VA facilities to initiate a major restructuring of its inpatient substance use disorder treatment program. Tuscaloosa closed its inpatient Addictions Treatment Unit and replaced it with an intensive outpatient program, the Primary Care Substance Abuse Clinic (PCSAC). PCSAC comprised a 1-month day treatment program with either halfway house or Hoptel placement during treatment. The Mental Health Strategic Healthcare Group in VA Central Office asked the Program Evaluation and Resource Center to evaluate the impact of the conversion of the Addictions Treatment Unit to an intensive primary care SUD treatment program.

Objectives

The evaluation objectives were fourfold:

- (1) interview key staff at Tuscaloosa and neighboring VAMCs to obtain data on the conversion process and implementation of PCSAC
- (2) examine changes in substance use disorder patients' use of inpatient and outpatient mental health services at Tuscaloosa in the two years before (baseline and transition years) and two years after the conversion (conversion and follow-up years) and compare them with changes shown by psychiatric patients
- (3) compare costs for inpatient and outpatient mental health services at Tuscaloosa two years before and two years after the conversion
- (4) determine PCSAC patients' 1-year substance use, symptom, and functioning outcomes and compare PCSAC patient outcomes to those of similar VA substance use disorder patients who received inpatient treatment and usual follow-up outpatient care.

Conclusions

Implementation

- **Implementation of PCSAC took longer than anticipated. Delays may have contributed to lower than expected patient demands for PCSAC services initially.**

A 5-month gap between the closure of the inpatient unit and the opening of PCSAC may have contributed to patients' seeking treatment elsewhere. Workload

increased gradually, with staff treating 96 patients in the day treatment program during the initial 9 months of operation of PCSAC and 208 patients in the second year. Moreover, patients received more than twice as many clinic contacts, on average, in the second year than the first.

Access to and Utilization of Inpatient and Outpatient Care

- **Substance use disorder and psychiatric patients' access to and utilization of inpatient care declined after the conversion.**

Overall, 13% fewer substance use disorder and psychiatric patients obtained inpatient care at Tuscaloosa during the follow-up year than in the baseline year. Total days of inpatient care for substance use disorder patients declined 42% over the 4-year period; psychiatric patients' days of care declined 26%.

- **Substance use disorder patients' overall access to and utilization of outpatient mental health care increased substantially; there was only a slight increase among psychiatric patients.**

The total number of unique substance use disorder outpatients treated at Tuscaloosa increased by 330 or 27% over the 4-year period. The overall gain in substance use disorder outpatients more than offset the loss of 140 substance use disorder inpatients. In contrast, unique psychiatric outpatients increased only 2%.

Over the 4-year period, outpatient contacts in substance use disorder clinics showed more than an eightfold increase and treatment intensity increased from 4 to 12 contacts per year, reflecting greater outpatient workload in PCSAC. Substance use disorder patients also received 148% more psychiatric clinic contacts over the 4-year period; psychiatric patients' contacts increased only 6%. Substance use disorder patients may have received more outpatient psychiatric care to compensate for more limited inpatient substance use disorder treatment.

- **Substance use disorder and psychiatric patients' utilization of outpatient medical and other clinic services increased.**

Substance use disorder patients' medical and other clinic contacts increased 153% between the baseline and follow-up years; among psychiatric patients, there was a smaller 33% increase. Additionally, the average number of medical and other clinic contacts increased from 6 to 11 for substance use disorder patients and from 13 to 16 for psychiatric patients.

Over half of the added clinic contacts that substance use disorder patients received were for services to assist them in their transition back to the community;

another 27% of contacts were for primary care, laboratory, and nursing services. Increases in these services are consistent with the idea that the decline in specialized inpatient substance use disorder care may have led to increased use of outpatient medical care.

Total Combined Costs of Care

- **Total combined direct inpatient and outpatient costs for mental health (substance use disorder and psychiatric) outpatients increased; no cost savings were achieved. However, cost increases for substance use disorder patients were smaller than those for psychiatric patients.**

Total combined inpatient and outpatient direct costs for mental health patients increased 9% or nearly \$1.4 million in constant dollars over the 4-year study period. A \$690,000 savings for mental health patients' inpatient care was more than offset by a \$2.1 million increase in outpatient care costs. Total combined inpatient and outpatient costs for substance use disorder patients increased 3% or \$230,000, whereas those for psychiatric patients increased 11% or \$1.2 million.

- **Per capita direct combined costs for substance use disorder patients decreased while those for psychiatric patients increased.**

The average inflation-adjusted per capita combined costs of inpatient and outpatient care for all mental health patients did not change during the 4-year period. However, there was considerable variation in per capita costs. Substance use disorder patients' per capita costs decreased 17% or \$800, whereas those for psychiatric patients increased 8% or \$300.

Breakdown of Costs for Inpatient and Outpatient Care

- **Total inpatient cost savings for substance use disorder patients were moderate. No cost savings were noted for psychiatric inpatients.**

Total inflation-adjusted direct costs for substance use disorder patients' inpatient care decreased 24% or \$1.2 million between the baseline and follow-up years. Costs for substance use disorder only patients decreased 62%, whereas costs for dual diagnosis patients increased 20%. Inpatient costs for psychiatric patients increased by 77% over the 4-year period. Tuscaloosa realized cost savings in its treatment of substance use disorder only patients, but it incurred added expenses when it treated patients who had psychiatric problems, with or without a substance use disorder diagnosis.

- **Inpatient care costs declined in substance use disorder units but rose in psychiatric units.**

Costs for substance use disorder beds declined by \$1.6 million between baseline and follow-up. However, these savings were largely offset by a \$1.2 million increase in costs of care in psychiatric units. Over 40% of the \$1.2 million increase in psychiatric care costs was associated with the care of substance use disorder patients.

- **Total direct costs of outpatient care for substance use disorder outpatients rose substantially; outpatient costs for psychiatric patients showed a more moderate increase.**

Total direct outpatient costs for substance use disorder patients increased 210% or \$1.4 million in real dollars over the 4-year period, whereas psychiatric patients' costs increased only 23% or \$660,000.

PCSAC Patient Outcomes

- **PCSAC patients improved substantially between entry to treatment and the 1-year follow-up.**

At entry to treatment, only 2% of PCSAC patients were abstinent and just 3% were free of alcohol- or drug-related problems. However, in the 3 months prior to follow-up, 32% of patients were abstinent from alcohol and drugs and had no problems due to alcohol or drug use. Patients' psychological distress and psychiatric symptoms also showed modest improvement. Psychosocial outcomes were enhanced, as well. The percent of employed patients increased from 23% to 39% between entry to treatment and follow-up, and the percent of patients arrested in the past year dropped from 43% to 31% during the same period.

- **PCSAC patients' 1-year follow-up outcomes were not as good as those of patients with substance use disorders who had inpatient care followed by usual outpatient care.**

We compared 496 patients who were treated in PCSAC during the first 2 years of its operation to a matched sample of 496 VA patients who received inpatient substance use disorder treatment followed by usual follow-up outpatient care. In general, PCSAC patients' 1-year follow-up outcomes were less favorable than those of the comparison group. PCSAC patients were less likely to be abstinent at follow-up and they experienced poorer psychological and psychosocial functioning and less residential stability than did the comparison inpatients.

Recommendations

- **The duration of intensive outpatient substance use disorder care should be flexible; patients should not be discharged from care until they have stable housing and staff are relatively confident of their long-term recovery.**

Patients with severe or chronic substance use disorders may require more than the four weeks of treatment that is typical of many intensive outpatient programs. Staff may need added time to assess and provide the services required to meet the complex psychological and psychosocial needs of some patients, such as those with severe or chronic substance use disorders.

- **Alternative substance use disorder treatment programs that combine inpatient/residential, intensive outpatient, and standard outpatient care should be implemented and evaluated.**

Intensive outpatient care “by itself” seems to result in no better and possibly worse outcomes than inpatient care followed by “usual” outpatient care. Substance use disorder programs with varying levels of care and treatment modalities may enable staff to provide more individualized treatment that is better able to address the range of problems that substance use disorder patients confront, and to facilitate their retention in treatment.

- **Evaluations should focus on examining patients’ overall service episodes.**

Aspects of continuing care may be better predictors of substance use disorder patients’ outcomes than any one aspect of intensive treatment. The total “package” of services that substance use disorder patients receive during an episode of care should be studied in order to identify the sequence and combination of treatments that provide the best patient outcomes.

- **New substance use disorder treatment programs that appear to promise improved patient outcomes and cost savings should be monitored carefully to assess actual outcomes and potential unexpected costs and cost shifting.**

Closure of resource-intensive inpatient substance use disorder programs may have unanticipated impacts, such as substance use disorder patients using more psychiatric and medical inpatient and outpatient care. Costs of care for substance use disorder patients need to be examined within the context of overall combined inpatient and outpatient costs for the health care system.

I. Overview, Evaluation Plan, and Methods

In the past decade, a number of SUD programs within the Department of Veterans Affairs and the private sector have shifted from inpatient to outpatient models of treatment (Piette, Baisden, & Moos, 1998; Humphreys, Huebsch, & Moos, 1998). The Tuscaloosa VA Medical Center (VAMC) was one of the first VA facilities to initiate a major restructuring of its inpatient substance use disorder (SUD) treatment program to an intensive outpatient program. Tuscaloosa VAMC closed its inpatient Addictions Treatment Unit (ATU) and replaced it with a new program, the Primary Care/Substance Abuse Clinic (PCSAC). PCSAC comprised a one-month day treatment program with either halfway house or Hoptel placement for veterans who needed a place to stay during treatment. The Mental Health Strategic Healthcare Group in VA Central Office asked the Program Evaluation and Resource Center to evaluate the impact of this conversion of the ATU into an intensive primary care SUD treatment program.

Evaluation Plan

The evaluation addressed four aspects of the conversion: (1) the conversion process and implementation of PCSAC, (2) the impact of the conversion on SUD and psychiatric (PSY) patients' utilization of mental health services at Tuscaloosa VAMC, (3) PCSAC patients' 1-year SUD, symptom, and functioning outcomes, and (4) costs.

Because we wanted a comparison group and speculated that the program conversion might impact the whole range of mental health services, we included both SUD and PSY patients. Specifically, we compared the utilization of inpatient and outpatient mental health services at Tuscaloosa before and after the conversion. We also assessed changes in PCSAC patients' functioning before and after they completed treatment. Finally, we compared per patient costs of inpatient and outpatient services at Tuscaloosa before and after the conversion.

Methods, Data Sources, and Data Collection Procedures

We used a variety of data sources and methods to address the evaluation objectives.

The Conversion and Implementation of PCSAC. We obtained information about the planning, implementation, and program operations of the new outpatient program via telephone interviews with key administrative and clinical staff at Tuscaloosa and neighboring VAMCs, and site visits to the Tuscaloosa and Birmingham VAMCs. Annual narratives, planning documents, and program policy manuals provided additional information.

Mental Health Patients' Use of Inpatient Services. In the analyses that follow, we present utilization and cost data for a 4-year period¹ - the "baseline year;" the "transition year;" the "conversion year," and the "follow-up year." We also present data from a prospective follow-up of patients who were treated by PCSAC in the first two and a half years of the day treatment program.

We used the Patient Treatment File (PTF) to identify all unique mental health (SUD and PSY) inpatients who were treated at Tuscaloosa during the 4-year study period and determined the services these patients received. We identified mental health inpatients based on the International Classification of Diseases (ICD-9-CM; Commission on Professional and Hospital Activities, 1986) diagnoses that they received in any bedsection stay in a fiscal year.²

For each fiscal year, we classified inpatients into three diagnostic types based on the diagnoses they received during their index episode, that is, the first discharge in the fiscal year in which a patient acquired a SUD or PSY diagnosis. The diagnostic types are:³

- (1) substance use disorder (SUD only)
- (2) dual diagnosis - both a SUD and a PSY diagnosis (DDX)
- (3) PSY only

We also focused separately on detox patients. We classified as detox patients all individuals who had a detox diagnosis-related group (DRG; DRG Guidebook, 1995) code during any stay within a fiscal year.⁴

Mental Health Patients' Use of Outpatient Services. We used the Outpatient Clinic (OPC) file to identify mental health patients who received outpatient services at Tuscaloosa VAMC. For each fiscal year, we classified outpatients into two diagnostic types based on their inpatient and outpatient activity. SUD outpatients had a SUD diagnosis in their index inpatient episode or, if they had no inpatient stay, they had one or more SUD clinic contacts. PSY only outpatients had only a PSY diagnosis in their index episode or, if they had no inpatient stay, they had one or more PSY clinic contacts, but no SUD clinic contacts.

PCSAC Patients and Program Activity. To analyze PCSAC program activity, we asked Tuscaloosa staff to provide us with the names and social security numbers (SSNs) of patients who were treated in each phase of PCSAC. We used this information to identify PCSAC patients in the PTF and OPC files and to track their utilization of services.

We surveyed patients who were treated in the day treatment component of PCSAC. During their first week of day treatment, patients were asked by PCSAC staff

to complete the Intake Information Form (IIF; appendix A). The survey provided data on patients' demographic background, alcohol and drug use, psychological symptoms, employment and legal status, living situation, relationships with family and friends, and recovery goals and resources.

Staff completed a Discharge Checklist (Appendix B) for each patient at discharge. This form asked staff about the patient's participation in program activities, characteristics of the patient's stay, relationships with other patients, and life situation after discharge. One year after patients left PCSAC's day treatment program, they completed the Follow-Up Information Form (FIF), which asked for the same information as in the IIF and about patients' satisfaction with PCSAC services.

We also obtained data on the number of PCSAC patients who used a halfway house (Phoenix House) that provided residential care to PCSAC patients while they were in day treatment, as well as on their lengths of stay. Phoenix House provided us with the SSN's and admission and discharge dates of all PCSAC patients who stayed during the first two and a half years of the PCSAC program.

Staffing. We used the Cost Distribution Report (CDR) end of year inpatient and outpatient files to obtain data on total FTEE for all treating specialties at Tuscaloosa and for Network 7 facilities.⁵

Patient Outcomes. We used data from the IIF and the FIF to assess changes in PCSAC patients' functioning between admission to the day treatment program and 12 months after they completed treatment. In addition, we determined the 1-year readmission rates⁶ for all mental health inpatients treated at Tuscaloosa in the four-year study interval.

Costs. We used the cost distribution accounts (CDAs) of the CDR to determine the direct costs of inpatient and outpatient services provided to mental health patients at Tuscaloosa VAMC. Costs were defined as recurring and nonrecurring expenditures associated with the provision of direct services to mental health patients at Tuscaloosa. We used Consumer Price Index (U.S. Department of Labor, Bureau of Labor Statistics, 1996) data for all goods to adjust fiscal year costs for inflation so that interpretable longitudinal cost comparisons could be made.^{7,8} Appendix C provides information about our cost analysis methods.

II. Mental Health Treatment Programs at Tuscaloosa VAMC

Historically, the Tuscaloosa VAMC served as a key resource for inpatient SUD and mental health services for veterans living in Birmingham and in the largely rural northern half and western portion of Alabama. Prior to the opening of PCSAC, inpatient mental health services at Tuscaloosa included: a 31-bed ATU for rehab, a 13-bed ATU for detox, and a 12-bed dual diagnosis program. Outpatient SUD services comprised: (1) an outpatient SUD clinic, (2) follow-up care for a limited number of DDX patients, and (3) five satellite Community Services Program (CSP) clinics that provided outpatient services to SUD and PSY patients.

The conversion involved the closure of the ATUs. PCSAC, an intensive day treatment program with halfway house or Hoptel placement and a less intensive regular outpatient component, replaced the rehab ATU. Detox services were shifted to a general medical unit, detox beds in the dual diagnosis program were increased, and the outpatient SUD clinic became the Outpatient Treatment Program component of PCSAC. The CSP program continued to provide outreach, treatment, and follow-up care to SUD patients who were discharged from Tuscaloosa and neighboring VAMCs. (Appendix D provides a detailed comparison of the services Tuscaloosa provided to SUD and DDX patients before and after the conversion.)

Over the four-year study period, mental health FTEE at Tuscaloosa showed a net 5% gain of 16 FTEE, the result of a loss of 7 SUD FTEE and a gain of 23 psychiatry FTEE. Outpatient SUD FTEE increased from 3 to 15.

The SUD programming changes initiated at Tuscaloosa were precursors to changes in other SUD programs. Other inpatient SUD programs in Alabama and in Network 7 also underwent significant reductions in staff and bed days of SUD treatment provided.⁹ In general, outpatient staffing increases did not expand at a rate comparable to the rate of decline in inpatient FTEE.¹⁰ These staffing changes were consistent with nationwide trends.

PCSAC: Implementation, Operations, and Program Components

During the first months of operation, staff experienced some difficulties recruiting patients to the PCSAC day treatment program. Several factors may have contributed to recruitment problems: (1) The five-month lag time in getting the PCSAC operational forced staff at Birmingham VAMC to refer their patients to other facilities and to develop alternate approaches for treatment. (2) SUD treatment programs at other VAs were more appealing to some veterans and referring staff because they offered telephone screening, domicilliaries, and work therapy programs. (3) Some patients preferred inpatient treatment and sought it elsewhere. During PCSAC's second year of

operation, the number of unique patients treated nearly doubled and patients made more than twice as many clinic contacts.

PCSAC Program Operations and Components

At its inception, PCSAC comprised two main components - the Daily Clinic Treatment Program and the Outpatient Treatment Program. Phoenix House provided the residential portion of the PCSAC program for patients who did not have housing locally. The detox unit on the general medical ward and the detox that occurred on the dual diagnosis and acute psychiatric units were integral components of the SUD services offered at Tuscaloosa.

Daily Treatment Program. Initially, the Daily Clinic Treatment Program had three phases. Phase 1, the Intensive Day Program, met five days per week from 8:00 AM to 4:00 PM, for a minimum of 28 days. The program offered patients daily groups and individual counseling with halfway house placement during their stay in the program. One Narcotics Anonymous (NA) and two Alcoholics Anonymous (AA) meetings were held each week in the evening. Phase 2 served patients who were employed or who needed less intense treatment. Patients attended some of the day program groups and/or evening couples/family therapy groups or AA meetings. Phase 3 patients attended some of the same group and therapy sessions as patients in Phase 2, but spent fewer hours in treatment. Patients entered PCSAC in any phase or began treatment in Phase 1 and then graduated to less intense outpatient treatment in Phases 2 and 3. After patients completed the day treatment program, they received outpatient continuing care at PCSAC, CSP satellite clinics, or other VA facilities.

Outpatient Treatment Program. The outpatient treatment program provided the least intensive form of treatment offered by PCSAC. Patients received counseling, group, or family therapy on an as needed basis, for example, every 2 to 6 six months or when a crisis arose.

Phoenix House. Phoenix House, a 50-bed state and community funded halfway house that served men and women with SUD problems, housed homeless PCSAC patients and those who could not commute to the program. Phoenix House staff transported patients to and from the day treatment program, and to evening AA and NA meetings.

Follow-Up. PCSAC patients were given a follow-up appointment within two weeks of completing the day treatment program. They were referred for continuing care to follow-up groups at PCSAC, CSP satellite clinics, or other VA facilities. Continuing care typically consisted of group meetings, individual or family therapy, and AA or NA meetings several times per week. Some patients also were referred to the work incentive program at Tuscaloosa VA.

Other Programming Changes at Tuscaloosa

During the course of the evaluation, all mental health services at Tuscaloosa underwent profound changes. Over time, PCSAC staff altered their initial 3-phase treatment model into two main components, the day treatment program and the outpatient program. In the second year of the PCSAC program, the inpatient Dual Diagnosis Program closed and PCSAC staff incorporated the DDX patients into the ongoing SUD day treatment program. Additionally, all designated detox beds were closed; patients needing detox were placed in "stabilization" beds on an acute psychiatric unit. Detox patients who required more intensive medical care were treated on medical units.

Tuscaloosa also opened an on-site 55-bed Hoptel. Subsequently, PCSAC patients who needed housing during intensive outpatient treatment were housed either in the Hoptel or at Phoenix House. Patients whom staff believed would benefit from a more structured environment were placed at Phoenix House. Overall, Tuscaloosa closed 94 inpatient beds and added a 55-bed Hoptel.

Staffing. The initial staffing level for PCSAC was 7.5 FTEE, including a physician and physician's assistant each at .5 FTEE, a .7 FTEE RN, a social worker, a psychology technician who served as the coordinator, a drug rehabilitation technician, an alcohol rehabilitation technician, and a clerk. PCSAC staff also included a chaplain who met with all patients and ran a weekly group, and a .5 FTEE recreational therapist.

During its first 9 months of operation, PCSAC staff treated 303 patients, 96 of whom were treated in the day treatment program. In the next year, PCSAC staff treated 595 patients, 208 of whom were admitted to the day program. Subsequently, two staff were added to handle the additional workload that ensued when the Hoptel opened.

III. Impact on Inpatient Mental Health Services at Tuscaloosa VAMC

A health care system is a complex mix of programs, providers, and patients. Changes in one program typically have consequences throughout the system. Therefore, we focused on quantifying the impact of the conversion on SUD, psychiatric, and medical services provided at Tuscaloosa. Our aim was to specify changes that occurred in the number and type of mental health patients and the services they received at Tuscaloosa in the baseline, transition, conversion, and follow-up years. Several key questions guided our analyses.

- Was there a decline in the number of SUD inpatients treated at Tuscaloosa and in the total days of inpatient care provided to these patients, as would be expected on the basis of the closure of the ATU? Given that these changes occurred within the context of an overall decline in VA inpatient care, were these declines steeper for SUD patients than for patients with PSY disorders? Were declines evident among patients with both SUDs and psychiatric disorders, or just among patients with only SUDs?
- Was there any evidence for a "substitution effect" in the locus of care? That is, was the expected decline in inpatient treatment in SUD units offset by increases in inpatient care for SUD patients in psychiatric, medical, or extended care units?

Mental Health Patients' Demographic Characteristics

The demographic and eligibility characteristics of mental health inpatients at Tuscaloosa were stable over the 4-year period. For example, of the 1,630 mental health inpatients who were treated at Tuscaloosa in the follow-up year, 96% were men. Their mean age was 50. Only 34% were married; 49% were divorced or separated and 16% were single or widowed. Sixty-five percent were Caucasian and 35% were African American. About half (49%) served during the Vietnam era. Nearly all (97%) were in VA means test Category A (i.e., below an income threshold) and 44% had service-connected disabilities.

Was There a Decline in the Number of SUD Patients Treated?

The overall number of mental health inpatients treated at Tuscaloosa (that is, patients in the SUD only, DDX, and PSY only groups) declined from 1,870 at baseline to 1,630 at follow-up, a drop of 13% (Table 1). The number of inpatients with any SUD diagnosis (that is, patients in the SUD only and DDX groups) dropped by 13%, as did the number of patients in the PSY only group. However, the number of inpatients in the SUD only group declined by 29%, whereas the number who received a DDX rose

by 12%. Separate analyses of the subsample of SUD patients who received detox services at Tuscaloosa revealed that the total number of unique detox patients declined 13% between baseline and follow-up.

Table 1. Unique Mental Health Inpatients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| SUD Only | 650 | 670 | 430 | 460 | - 29% |
| DDX | 430 | 550 | 570 | 480 | +12% |
| All SUD | 1,080 | 1,220 | 1,000 | 940 | - 13% |
| PSY Only | 790 | 770 | 740 | 690 | - 13% |
| Total | 1,870 | 1,990 | 1,740 | 1,630 | - 13% |

Mental Health Inpatients' Total Amount of Inpatient Care

We obtained the total number of days in inpatient care for each patient in all units, that is, SUD, psychiatric, medical, and extended care. As shown in Table 2, mental health patients' total amount of inpatient care declined by nearly a third between baseline and follow-up. Total days of care decreased 42% for all SUD patients and 26% for patients in the PSY only group. There were substantial differences between the two subgroups of SUD patients: a 69% decline in total days of outpatient care among patients in the SUD only group but only a 15% decline among DDX patients. Additional analyses showed that workload attributed to detox patients declined 27%.

Was There A Substitution Effect in the Locus of Inpatient Care?

Our next question concerns the locus of inpatient mental health care.¹¹ Specifically, was the decline in the amount of care delivered in SUD units offset by an increase in the amount of care delivered in psychiatric, medical, or extended care units? In Table 2, we see a 32% decline in the total amount of inpatient care mental health patients received at Tuscaloosa. As expected from the closure of the inpatient SUD unit, the reduction in days of care in SUD units was a substantial 71% (Table 3).

Table 2. Total Days of Inpatient Care for Mental Health Patients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|------------------------|-----------------|-------------------|-------------------|------------------|------------------------------------------|
| SUD Only | 16,700 | 18,000 | 8,000 | 5,200 | - 69% |
| DDX | 16,600 | 24,200 | 23,400 | 14,100 | - 15% |
| All SUD | 33,300 | 42,200 | 31,400 | 19,300 | - 42% |
| PSY Only | 47,000 | 46,700 | 45,500 | 35,000 | - 26% |
| Total | 80,300 | 88,900 | 76,900 | 54,300 | - 32% |

Table 3. Total Days of Inpatient Care for Mental Health Patients by Bedsection and Year

| Bedsection | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|----------------------------------|-----------------|-------------------|--------------------|--------------------|------------------------------------------|
| SUD including detox ^a | 13,400 | 14,100 | 3,300 ^a | 3,900 ^a | - 71% |
| Psychiatric | 44,000 | 52,600 | 52,500 | 35,200 | - 20% |
| Medical | 17,900 | 17,400 | 17,200 | 11,600 | - 35% |
| Extended Care | 5,000 | 4,800 | 4,000 | 3,600 | - 28% |
| Total | 80,300 | 88,900 | 77,000 | 54,300 | - 32% |

^aEven though the inpatient SUD program is closed, inpatient SUD days occur because detox days in medical units were coded as SUD inpatient days.

There was a rise in the amount of care in psychiatric units between baseline and follow-up; the increase of 8,500 days in psychiatric units almost offset the decline of 10,100 days in SUD units. However, in the follow-up year, coincident with the closure of 15 dual diagnosis and 30 PTSD beds, days of care on psychiatric units dropped 20% below baseline levels. These data suggest that the conversion may have contributed to a short-term shift of SUD patients to psychiatric beds.

While mental health patients' days of care in medical units were fairly stable in the first three years, a substantial 35% drop occurred in the follow-up year. Contrary to the idea that more treatment might be provided in extended care, there was a 28% decline in days of care in extended care units.

Summary

The number of SUD inpatients treated at Tuscaloosa decreased by 13% between baseline and follow-up; these patients had a 42% decline in inpatient days. Similarly, the number of detox patients treated at Tuscaloosa declined 13% in this interval and workload attributed to detox patients declined by 27%. These changes reflect a pattern of declining inpatient care. Thus, the number of PSY patients also declined 13%; these patients showed a 26% decline in number of inpatient days.

There were some differential changes for SUD only versus DDX patients. Specifically, whereas the number of SUD only patients declined by 29% between baseline and follow-up, the number of DDX patients increased by 12%. DDX patients' days of inpatient care also dropped much less (15%) than did SUD only patients' days (69%). These findings reflect a shift in the patient casemix toward DDX patients.

In the absence of an inpatient SUD unit, some SUD patients may have been shifted to psychiatric beds. The total inpatient days of care in psychiatric units rose from the baseline to the conversion year. However, a substantial drop in days in these units at follow-up eliminated the short-term increase, and, overall, there was a 20% decline in inpatient days of psychiatric care. There was no evidence for temporary "substitution" effects in medical or extended care units.

IV. Impact on Outpatient Mental Health Services at Tuscaloosa VAMC

We determined the impact of the conversion on the outpatient services that mental health patients received at Tuscaloosa. We identified the total number of mental health patients who received outpatient services in each year, determined the amount and type of outpatient care they obtained, and identified changes that occurred in outpatient health services utilization at Tuscaloosa. The following questions guided our analyses:

- Was the decline in the number of SUD and PSY inpatients offset by an increase in the number of SUD and PSY outpatients?
- Was there an increase in SUD patients' outpatient SUD and overall mental health care? Did SUD patients receive more outpatient SUD and mental health care to compensate for the decline in specialized inpatient SUD care?
- Were there any changes in SUD patients' outpatient medical and other care? Did SUD patients utilize more outpatient medical and other care, possibly to compensate for the relative lack of specialized inpatient SUD care?

Mental health outpatients' demographic and eligibility characteristics were stable over the four-year period; thus, we report data only for the follow-up year.¹² Of the 4,390 mental health outpatients treated at Tuscaloosa in that year, 95% were men. Their mean age was 52. Forty-eight percent served during the Vietnam era. The majority, 94%, were in VA means test category A and 49% had service-connected disabilities. Overall, mental health outpatients' demographic characteristics were similar to those of the inpatients.

Mental Health Outpatients by Diagnostic Type

We assigned a diagnostic label to outpatients based on either their inpatient diagnosis or the type of outpatient clinic they attended during the fiscal year.¹³ Patients who had either a SUD diagnosis in their index inpatient episode, or who had no inpatient stay but had at least one outpatient SUD clinic contact, were labeled SUD patients. Patients who received a PSY diagnosis in their index episode, or who had no inpatient stay but had at least one psychiatric clinic contact and no SUD clinic contacts, were labeled PSY patients. Outpatients with inpatient stays correspond to our inpatient sample.¹⁴ Nearly all (93 -95%) of the inpatients in our sample had some outpatient contacts.

Was the Decline in Inpatients Offset by an Increase in Outpatients?

During the 4-year study period, the total number of mental health outpatients treated at Tuscaloosa increased 10% (Table 4). Most of the growth in outpatients was due to SUD patients; their total number increased by 27% or 330 patients. This increase in SUD outpatients more than offset the decline of 140 SUD inpatients (Table 1). In contrast, PSY outpatients increased by only 2%, or 60 patients.

The number of patients who received outpatient SUD treatment grew more rapidly than did the number of mental health outpatients overall. Overall, the total number of patients seen in SUD clinics nearly tripled, increasing from 350 to 1,020.

Table 4. Unique Mental Health Outpatients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 1,210 | 1,510 | 1,390 | 1,540 | +27% |
| PSY Only | 2,790 | 2,850 | 2,800 | 2,850 | + 2% |
| Total | 4,000 | 4,360 | 4,190 | 4,390 | +10% |

Was There an Increase in SUD Patients' Outpatient SUD and Mental Health Care?

We were interested not only in determining changes in the number of SUD and PSY outpatients, but also what type of care they received. As shown in Table 5, mental health patients had a substantial 66% increase in total mental health contacts. Although PSY patients' outpatient mental health clinic contacts increased 7%, contacts for SUD patients showed a steep 376% rise. This increase was much larger than the increase in mental health clinic contacts by VA SUD outpatients nationally (Piette, Baisden, & Moos, 1996; 1997).

Much of the increase in SUD patients' mental health clinic utilization was due to expanded use of SUD clinic services. These patients' SUD clinic contacts increased by 850% (Table 6). Their psychiatric clinic contacts increased by 148%. In contrast, PSY patients' psychiatric contacts increased by only 6%. Separate analyses revealed that the sharpest rise in SUD clinic activity was for DDX SUD patients.¹⁵ They

received nearly 20 times more contacts in the follow-up than the baseline year. Both DDX inpatients and outpatients received much more outpatient care.

Table 5. Total Mental Health Clinic Contacts by Mental Health Outpatients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 3,700 | 7,100 | 10,700 | 17,600 | +376% |
| PSY Only | 19,400 | 19,000 | 19,200 | 20,800 | + 7% |
| Total | 23,100 | 26,100 | 29,900 | 38,400 | + 66% |

Table 6. Total SUD and Psychiatric Clinic Contacts by SUD Outpatients by Year

| Clinic Contacts | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| SUD Clinic | 1,200 | 3,400 | 6,600 | 11,400 | +850% |
| PSY Clinic | 2,500 | 3,700 | 4,100 | 6,200 | +148% |
| Total | 3,700 | 7,100 | 10,700 | 17,600 | +376% |

Treatment Intensity. The intensity of treatment that SUD outpatients received in SUD clinics also increased (Figure 1). The average¹⁶ number of SUD clinic contacts rose from 4 to 12, with SUD outpatients who had inpatient care receiving the most intensive outpatient treatment.

SUD patients also received more intensive psychiatric clinic care in the follow-up than in the baseline year (see Figure 1). At baseline, SUD patients received less intensive treatment in psychiatric clinics than did PSY patients; SUD patients averaged¹⁷ six psychiatric clinic contacts, whereas PSY patients averaged eight. At follow-up, however, the gap closed and SUD and PSY outpatients had eight psychiatric clinic contacts, on average.

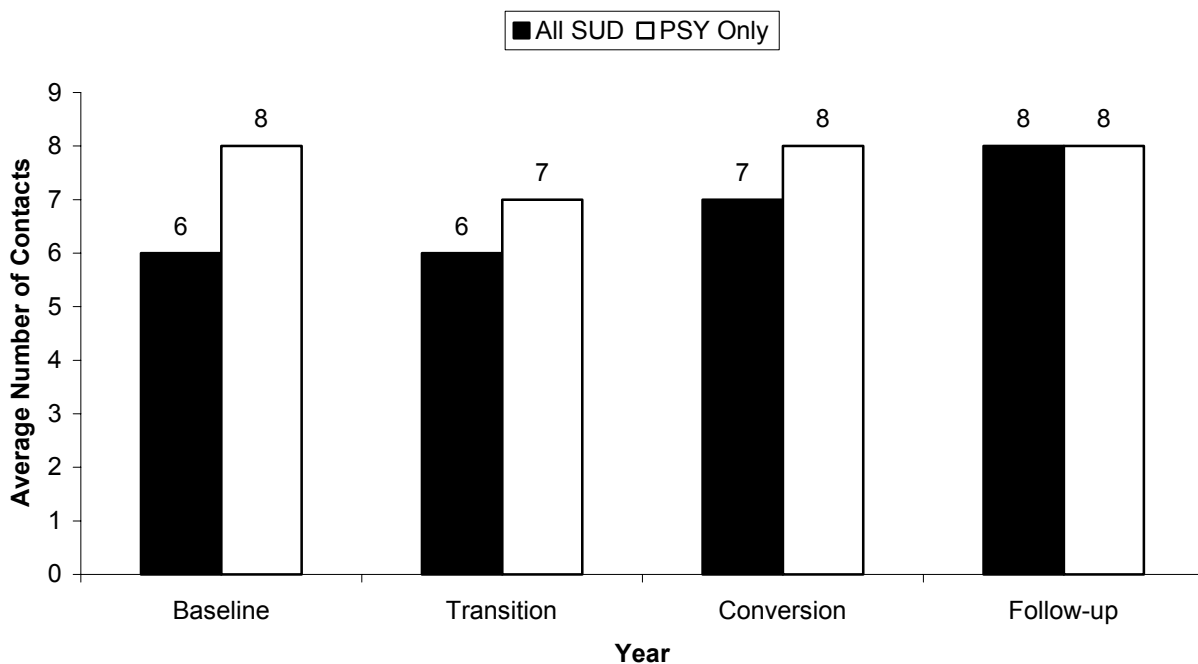


Figure 1. Average Number of Psychiatric Clinic Contacts by SUD and PSY Patients by Year

Were There Changes in SUD Patients' Outpatient Medical and Other Care?

Overall, mental health patients made 54% more contacts for medical and other types of outpatient care¹⁸ at follow-up than at baseline (Table 7). SUD outpatients' medical and other clinic contacts increased by 153%, whereas contacts for PSY patients' increased by 33%. Further analyses revealed that SUD outpatients who had inpatient treatment experienced a greater increase in medical and other clinic contacts than SUD outpatients who received no inpatient care.

More than half (51%) of SUD outpatients' additional clinic contacts comprised services used to aid their adjustment in the community. Of the extra outpatient contacts, 44% were for the incentive and compensated work therapy program and 7% covered social work services.

SUD outpatients' medical and other clinic contacts also expanded by 7% for primary care medicine, 8% for laboratory, 12% for nursing. SUD patients may have previously received these services as inpatients. Thus, increases in these services are consistent with the idea that the decline in specialized inpatient SUD care may have led to SUD patients' increased use of outpatient medical care.

Table 7. Total Medical and Other Clinic Contacts by Mental Health Outpatients by Diagnostic Type and Fiscal Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 6,400 | 8,100 | 12,300 | 16,200 | +153% |
| PSY Only | 30,500 | 32,200 | 35,600 | 40,600 | + 33% |
| Total | 36,900 | 40,300 | 47,900 | 56,800 | + 54% |

Both SUD and PSY patients received more intensive treatment in medical and other clinics at follow-up than at baseline (Figure 2). SUD outpatients' use of these outpatient services rose sharply over the 4-year period; their average¹⁹ number of medical and other clinic contacts increased 83% from 6 to 11 contacts. PSY patients' clinic contacts showed a more modest 23% increase, from 13 to 16 contacts.

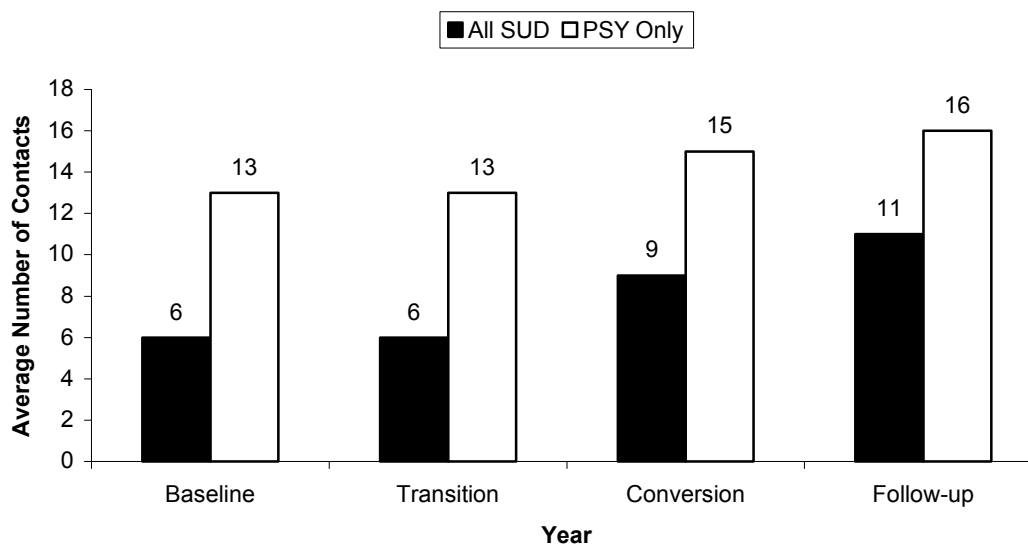


Figure 2. Average Number of Medical and Other Clinic Contacts by SUD and PSY Patients by Year

Summary

The total number of unique SUD outpatients who were treated at Tuscaloosa increased by 330, or 27%. This increase more than compensated for the loss of 140 SUD inpatients. In contrast, psychiatric patients increased by 2%.

Over the 4-year period, outpatient activity in SUD clinics showed more than an eightfold increase, reflecting greater outpatient workload in PCSAC. Treatment intensity also rose, from an average of 4 contacts at baseline to 12 at follow-up. Less dramatic changes in utilization occurred in psychiatric clinics. SUD patients' psychiatric clinic contacts rose by 148% and PSY patients' psychiatric contacts rose by 6%. The average number of psychiatric clinic contacts that SUD patients received increased from six to eight.

Mental health patients' total number of medical and other clinic contacts increased by 54%. Among SUD patients, medical and other clinic contacts rose 153%. PSY patients showed a smaller 33% increase. More than half of these added clinic contacts were for services to assist patients' adjustment in the community, such as work therapy programs and social work services. Another 27% of the extra clinic contacts were for primary care, laboratory, and nursing services. Increases in these services are consistent with the idea that the decline in specialized inpatient SUD care may have led to an increase in the use of outpatient medical care.

V. Direct Cost of Mental Health Patients' Care

Anticipated cost savings were a key impetus for the conversion. In this section we identify changes in direct costs associated with providing inpatient and outpatient care to mental health patients at Tuscaloosa from the baseline to the follow-up year.

When we refer to costs, we mean direct costs for personal services (salaries and benefits) and all other costs (supplies and services). We determined costs of inpatient care (including extended care) for each group of patients by multiplying days of care in a given bedsection for that group by the average cost per day in that bedsection. Similarly, we determined outpatient costs for SUD and PSY only outpatients by multiplying patients' contacts in a specific clinic by the average cost of that contact. For details of cost methods, see Appendix C.

Here, we present total combined direct costs for inpatient and outpatient care for mental health patients (SUD and PSY). For detailed information on the breakdown of costs for inpatient and outpatient care for SUD and PSY patients, see Appendix E.

Total Direct Costs for Mental Health Patients' Inpatient and Outpatient Care

The following questions guided the combined inpatient and outpatient cost analyses:

- Was there a change in the combined annual direct total cost of inpatient and outpatient care provided to SUD patients at Tuscaloosa? Was there a comparable change in the annual costs for inpatient and outpatient care provided to patients who have only PSY disorders?
- Was there a change in the combined annual per capita cost of inpatient and outpatient care provided to SUD patients at Tuscaloosa? Was there a comparable change in the annual per capita cost for inpatient and outpatient care provided to patients who have only PSY disorders?

Did the combined annual cost of care for SUD and PSY patients change?

We used workload (inpatient days and clinic contacts) to determine the combined direct costs of inpatient and outpatient care provided to SUD and PSY patients.²⁰ SUD patients' overall direct costs increased by 3%, or \$230,000 (Table 8), while costs for PSY patients rose by 11%, or nearly \$1.2 million. The combined inflation-adjusted direct costs of inpatient and outpatient care for mental health patients increased 9%, or nearly \$1.4 million. A \$690,000 decrease in inpatient costs was offset by an increase

of over \$2 million in outpatient costs. (Note: These costs do not include outpatient pharmacy costs; total costs would increase about 4% if pharmacy costs were added.)

Table 8. Total Direct Costs of Inpatient and Outpatient Care for Mental Health Patients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 5,550 | 7,120 | 6,600 | 5,700 | 230 (+ 3%) |
| PSY Only | 10,020 | 10,040 | 10,650 | 11,170 | 1,150 (+11%) |
| Total Cost | 15,570 | 17,160 | 17,250 | 16,950 | 1,380 (+ 9%) |

Note: Costs are in thousands of dollars.

In addition to the costs reported here, Tuscaloosa spent \$60,000 in the conversion year and \$100,000 in the follow-up year for contract halfway house services provided by Phoenix House to PCSAC patients. There were also unspecified on-site costs for lodging provided to PCSAC patients in the Tuscaloosa Hoptel in the follow-up year. Tuscaloosa did not track Hoptel costs in that year, but in the subsequent year, it reported total costs of \$460,000 for the Hoptel. The Hoptel provided lodging to a variety of patients; the portion of Hoptel costs attributed to SUD patients is unknown.

Did the combined annual per capita cost of care for SUD and PSY patients change?

The average annual per capita combined cost of inpatient and outpatient treatment for an individual mental health patient at Tuscaloosa remained unchanged. Tuscaloosa spent \$3,900 in direct care costs on each unique mental health patient both in the baseline and the follow-up years (Table 9). Increased numbers of outpatients who received no inpatient care (with relatively low per capita costs) combined with decreased numbers of patients who were hospitalized (with high per capita costs) resulted in a stable average per capita cost over the 4-year period. Although overall per capita costs did not change, there was considerable variation in per capita costs among different groups of patients. Inflation-adjusted per capita costs for SUD patients decreased by \$800, while per capita costs for PSY patients increased by \$300.

Table 9. Per Capita Costs of Inpatient and Outpatient Care for Mental Health Patients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-------------------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 4,600 | 4,700 | 4,800 | 3,800 | - 800 (-17%) |
| PSY Only | 3,600 | 3,500 | 3,800 | 3,900 | 300 (+ 8%) |
| Average Per Capita Cost | 3,900 | 3,900 | 4,100 | 3,900 | 0 (+ 0%) |

Additional analyses showed that, as expected, per capita combined costs were higher for patients who received inpatient treatment, in part, because they obtained more intensive outpatient treatment. Overall per capita combined costs for SUD inpatients increased \$200 over the 4-year period. Among inpatients who had only a SUD diagnosis, per capita combined costs decreased \$900, while DDX patients showed an \$1,000 increase. Per capita combined costs for PSY inpatients increased by \$2,500.

Among patients who received only outpatient care, per capita combined costs showed a substantial, but more modest, increase of \$200 overall, with patients increasing at twice the rate of those for PSY patients. The \$800 increase in per capita combined costs for all SUD patients' outpatient care (Table E-4; Appendix E) more than offset the \$600 decrease in their inpatient costs reported in Table E-1, Appendix E.

Summary

The combined total inflation-adjusted direct costs for inpatient and outpatient care provided to mental health patients at Tuscaloosa increased 9% (nearly \$1.4 million). The \$680,000 decline in costs for inpatient care was more than offset by the \$2.1 million rise in costs for outpatient care. Overall, the costs of care for SUD patients increased \$230,000, while those for PSY patients increased by nearly \$1.2 million.

Although the average combined inpatient and outpatient per capita cost of treating mental health patients overall remained unchanged, there were changes in per capita costs for SUD and PSY patients. Per capita costs for SUD patients decreased by \$800, while those for PSY patients increased by \$300.

VI. PCSAC Patients' Outcomes

Here we present findings from a prospective follow-up of 529 patients who received outpatient SUD treatment in the first two and a half years that PCSAC's intensive day treatment program operated. Several key questions guided our analyses:

- What types of SUD patients received treatment in PCSAC? How many of these patients had psychiatric disorders and how many had prior treatment for SUD problems?
- How much did PCSAC patients improve between entry to treatment and one year later? Did patients who remained longer in the program and participated more actively in it have better 1-year outcomes?
- Did patients who participated in PCSAC's intensive day treatment program show similar or better 1-year outcomes than comparable patients who were discharged from inpatient SUD care directly to the community?

Prospective Follow-Up of PCSAC Patients

During the 2.5-year data gathering period, 662 patients entered PCSAC's intensive day treatment program. Of these, 618 (93%) completed an Intake Information Form at entry to treatment (Appendix A). PCSAC staff also completed a Discharge Checklist (Appendix B) for 99% of the 618 patients when they left day treatment.

Patients completed a mailed Follow-Up Information Form that covered the same material as the IIF and also assessed their satisfaction with PSCAC services. The median length of time between completing day treatment and follow-up was 14 months. Of the 618 patients assessed at intake, 11 died prior to follow-up. We obtained follow-up data on 529 (87%) of the 607 patients who were not known to have died. The analyses that follow focus on the 529 PCSAC patients for whom we have both intake and follow-up data.

PCSAC Patients' Characteristics

We compared the 529 patients who completed the follow-up with the 89 who did not on age, education, marital status, ethnicity, income, employment status, and on symptoms of alcohol dependence at intake, alcohol and drug use in the prior three months, or psychiatric symptoms. Follow-up patients did not differ significantly on any of these variables from those who were not followed.

Of the 529 followed patients, nearly all (98%) were men; 41% were Caucasian and 56% were African American (Figure 3). Their mean age was 44 years (SD = 8.5). On average, they had completed 13 years of education (SD = 1.8). Only 19% were married; 62% were divorced or separated and 19% were single or widowed. Many, (60%) served during the Vietnam era. Nearly all (94%) were in VA means test Category A and 22% had service-connected disabilities.

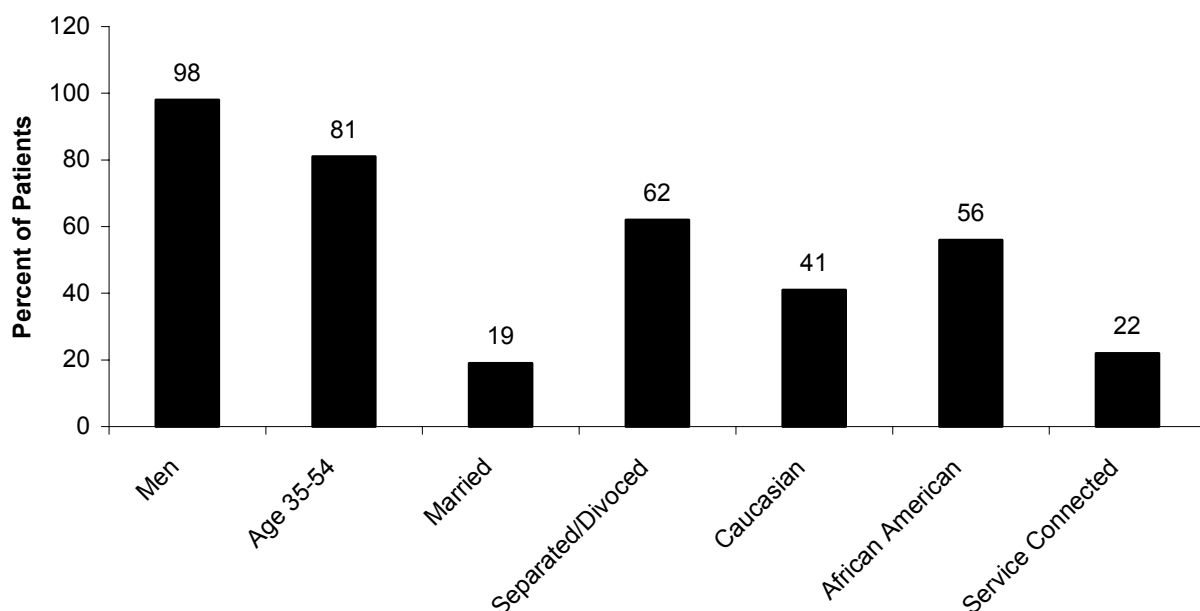


Figure 3. PCSAC Patients' Demographic Characteristics (N=529)

Altogether, 65% of the followed patients experienced VA inpatient mental health (SUD or psychiatric) treatment in the year prior to PCSAC admission. A substantial number of followed patients (31%) had VA inpatient SUD treatment in the year before their admission to PCSAC; a slightly higher proportion (39%) had VA inpatient psychiatric treatment in the prior year. In addition, 20% of the patients had VA inpatient medical treatment in the previous year.

Next, we identified patients who had an index episode of inpatient care immediately prior to their admission to PCSAC. Of the 529 followed patients, 61% had an inpatient mental health admission within 30 days of entry to PCSAC. As shown in Figure 4, 22% of these patients had an alcohol but not a drug diagnosis, 12% had a

drug but not an alcohol diagnosis, and 66% had both an alcohol and drug diagnosis. Among PCSAC patients with a SUD diagnosis in their inpatient index episode, 27% had a concomitant psychiatric diagnosis, including 4% with a personality disorder, 12% with a depressive disorder, 9% with an anxiety or stress disorder, and 5% with a psychotic disorder.

Medical problems tend to be quite prevalent among SUD patients. Among the followed PCSAC patients who had a mental health diagnosis in their index episode of inpatient care, 79% had one or more medical diagnoses and 59% had two or more medical diagnoses.

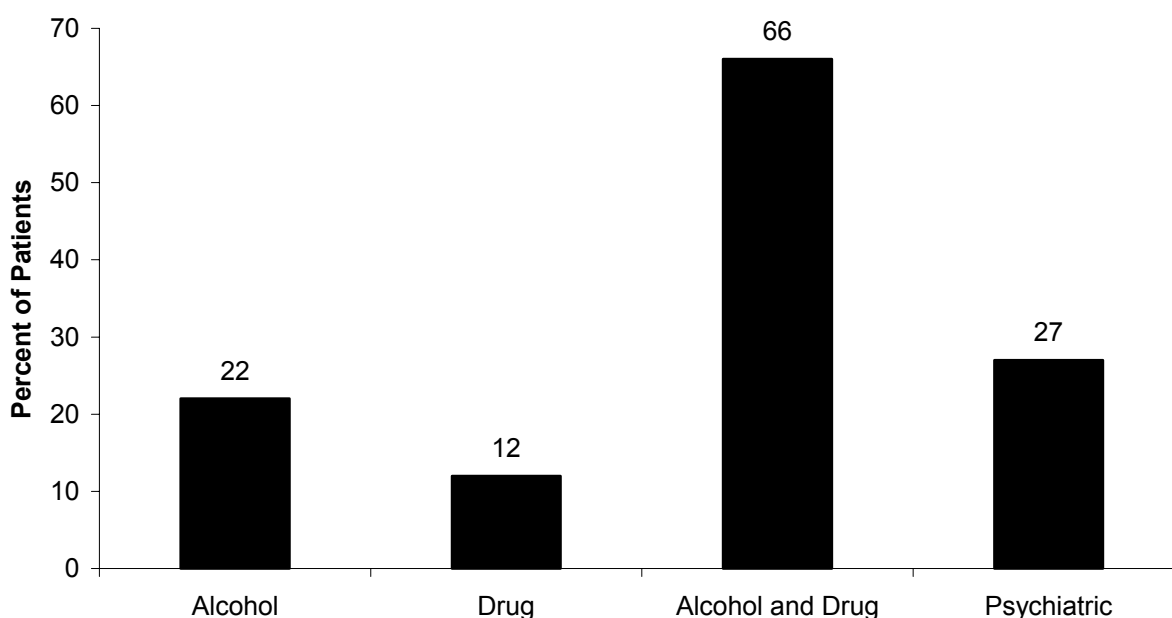


Figure 4. SUD and Psychiatric Diagnoses for PCSAC Patients Who Had an Index Episode of Inpatient Mental Health Care

Patients' Participation in PCSAC and Their Outcomes at Discharge

Data from the Discharge Checklist provided information about patients' participation in PCSAC program activities, such as counseling and skills training (individual and/or group counseling, social skills training, and/or work therapy), self-

help activities (Alcoholics and Narcotics Anonymous, peer counseling), and social activities (physical fitness activities, lectures, discussion, games).

Length of Stay and Participation in the PCSAC Program

PCSAC's intensive day program was a 1-month, 5-day per week treatment program. The majority of patients, 89%, completed the program. The median number of days that follow-up patients received treatment in PCSAC's intensive day program was 20 days. A total of 11% of patients stayed in the program for 14 days or less, 24% stayed from 5 to 19 days, 65% stayed for 20 or more days (Figure 5).²⁰

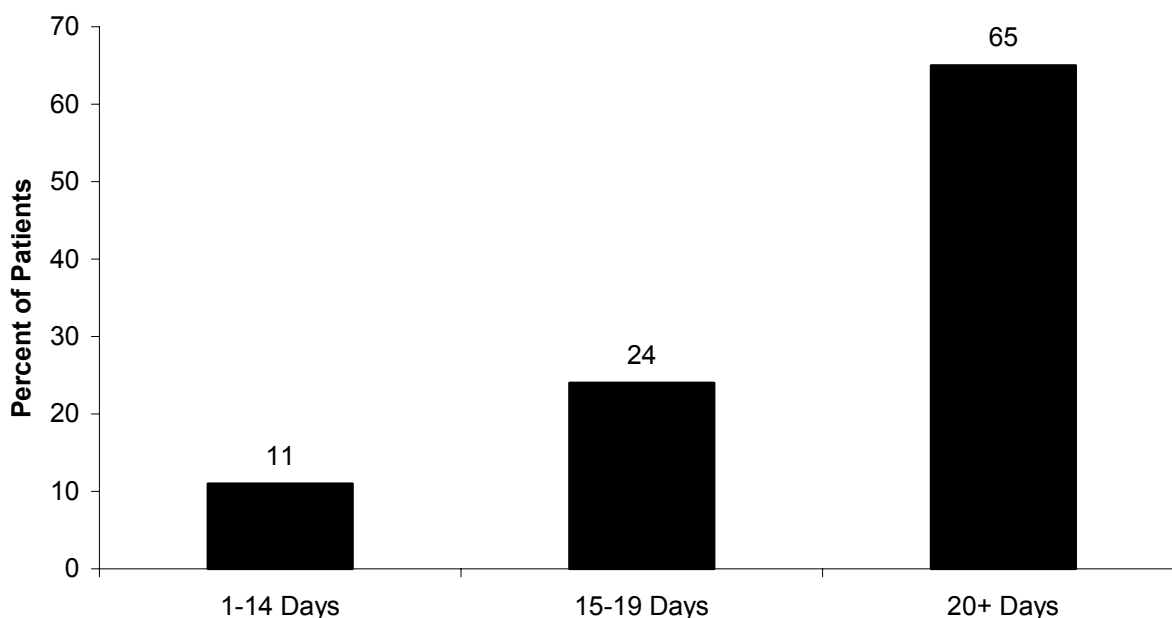


Figure 5. Number of Days of Day Treatment Provided to PCSAC Patients (N=529)

Three indices of patients' participation in PCSAC were used:

1. **Counseling and Skills Training** - 11 items rated on 4-point scales varying from "not at all" to "11 times or more," including individual and group counseling, social skills training, and work therapy and training.

2. **Self-Help Activities** - 3 items rated on 4-point rating scales varying from "not at all" to "11 times or more," including AA, NA, and peer counseling.

3. **Social Activities** - 9 items rated on 4-point rating scales varying from "not at all" to "11 times or more," consisting of exercise and physical fitness activities, classes or lectures, discussion groups, and cards or other games.

Followed patients engaged in an average of 31 counseling and skills training sessions: 9% of patients took part in 15 or fewer sessions, 27% in 16 - 25 sessions, 37% in 26 - 35 sessions, and 27% in 36 or more sessions. Patients also participated in an average of 15 self-help activities and 49 social activities.

Outcomes at Discharge from PCSAC's Day Treatment Program

We examined three patient outcomes at discharge: (1) a staff member's confidence in the patient's recovery a year after discharge (rating of 6 or more on a 10-point scale ranging from not at all to extremely), (2) stable residence at discharge (for example, a house, apartment, rooming house, halfway house or group home (yes/no), and (3) employment at discharge (yes/no).

Figure 6 shows that PCSAC staff expressed confidence that a year after discharge 50% of the patients would still be in recovery. Most patients (93%) were discharged to a stable residence and 27% were employed at discharge. In contrast, at entry to PCSAC, only 68% of patients reported experiencing residential stability in the prior year and 23% were employed.

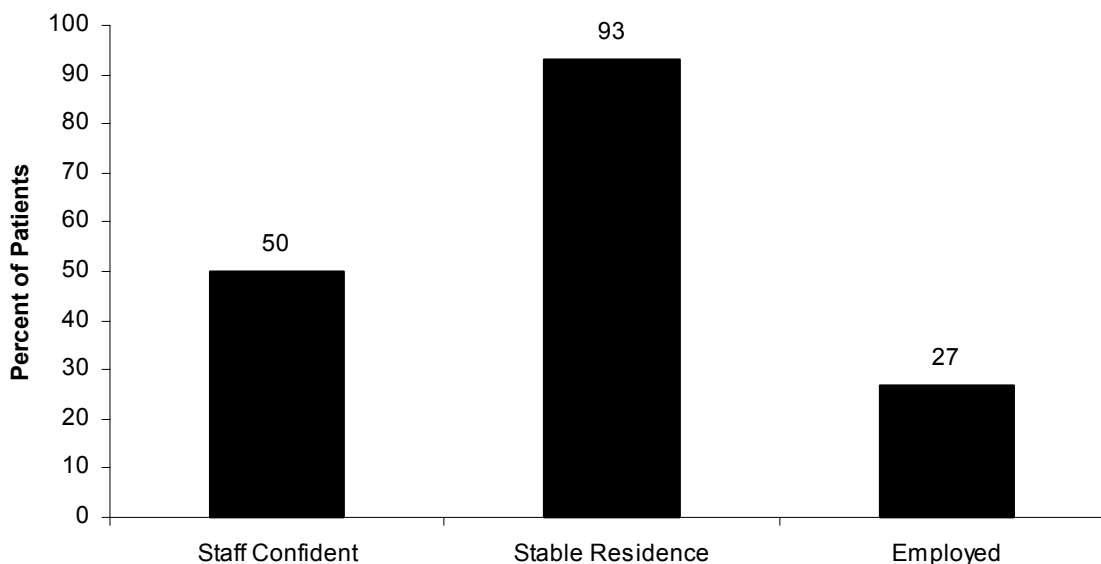


Figure 6. Patients' Outcomes at Discharge From PCSAC's Day Treatment Program

Participation in PCSAC and Patients' Discharge Outcomes

Except for the staff confidence in their recovery, patients who participated in PCSAC's day treatment program for a longer period of time did not have better outcomes at discharge than those with shorter stays (Figure 7). Among patients who were in the program 14 days or less, staff expressed confidence that 22% would be in recovery a year after discharge. In comparison, staff were confident that 56% of patients who participated in the program for 20 or more days would be in recovery a year later. However, the length of time that patients participated in the program showed little or no relationship to their living or employment situation at discharge.

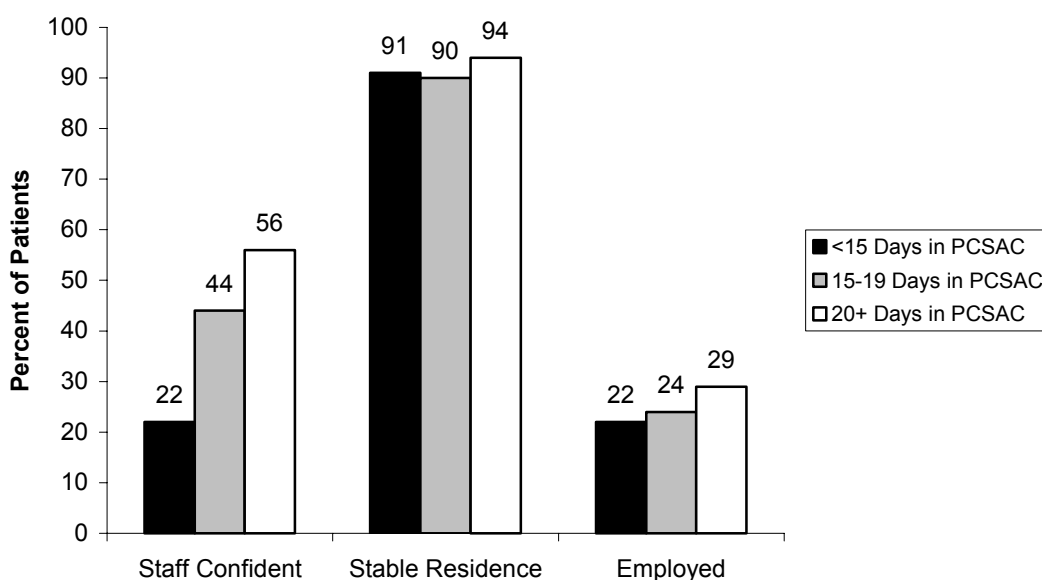


Figure 7. Patients' Outcomes at Discharge from PCSAC's Day Treatment Program by Number of Days of Care

The relatively short length of PCSAC's program (median 20 days) may have provided insufficient time for staff to intervene successfully in patients' employment situation. On the other hand, it may have been easier for staff to help patients secure a stable living situation within the program's abbreviated timeframe, even for those who had very brief stays.

In a study of SUD patients who received care in a community residential facility (CRF) that used identical intake, discharge, and outcome measures, greater

improvements in patients' discharge outcomes (staff's confidence in recovery, residential stability, and employment) were noted (Moos, 1998). However, the average length of time that patients spent in the CRFs was 59 days, nearly three times the average amount of time that PCSAC patients spent in their day treatment program. The additional time that patients spent in the program may have provided staff with more opportunities to work with patients to improve their living and employment situations.

Patients' Participation in PCSAC and Their 1-Year Outcomes

We assessed eight indices of patients' 1-year outcomes, including two each that assessed their substance use, psychological symptoms, and psychosocial outcomes, and one each that assessed their living situation and readmission for additional treatment.

The two substance use outcomes comprise the patient's status in the three months before entry to PCSAC and the three months prior to follow-up. They include: (1) abstinence from alcohol and drugs and (2) no current problems due to substance use, such as health, employment, legal or financial problems or arguments with spouse, partner, or family members.

The two psychological outcomes also reflect the patient's status in the three months before PCSAC treatment and the three months prior to follow-up. They include: (1) clinically significant distress on the Depression and Anxiety Scales of the Brief Symptom Inventory (BSI; Derogotis, 1993), and (2) clinically significant psychiatric symptoms on the BSI Paranoid Ideation and Psychoticism Scales.

The two psychosocial outcomes assessed whether the patient was: (1) arrested in the last year (yes/no) and (2) employed either part- or full-time at follow-up (yes/no).

Residential stability was assessed as the patient's living in a house, apartment, rooming house or halfway house for most of the past 12 months and never or seldom losing a place to live in the three months before the follow-up.

Readmission was considered additional VA hospital-based acute or residential care that the patient received in the year between discharge from PCSAC and the follow-up.

Outcomes at Follow-Up

Patients showed substantial improvement in their status between entry to treatment at PCSAC and the follow-up (Figure 8). A total of 32% of followed patients were abstinent from alcohol and drugs in the three months before the follow-up. In

contrast, only 2% of patients were abstinent prior to entry to treatment. In addition, at follow-up, 32% of PCSAC patients indicated that they had no current problems due to alcohol or drug use; at entry to treatment, only 3% had no SUD problems. Moreover, the median number of current drinking problems that patients reported at entry to treatment was 8, whereas at follow-up it dropped to 4.

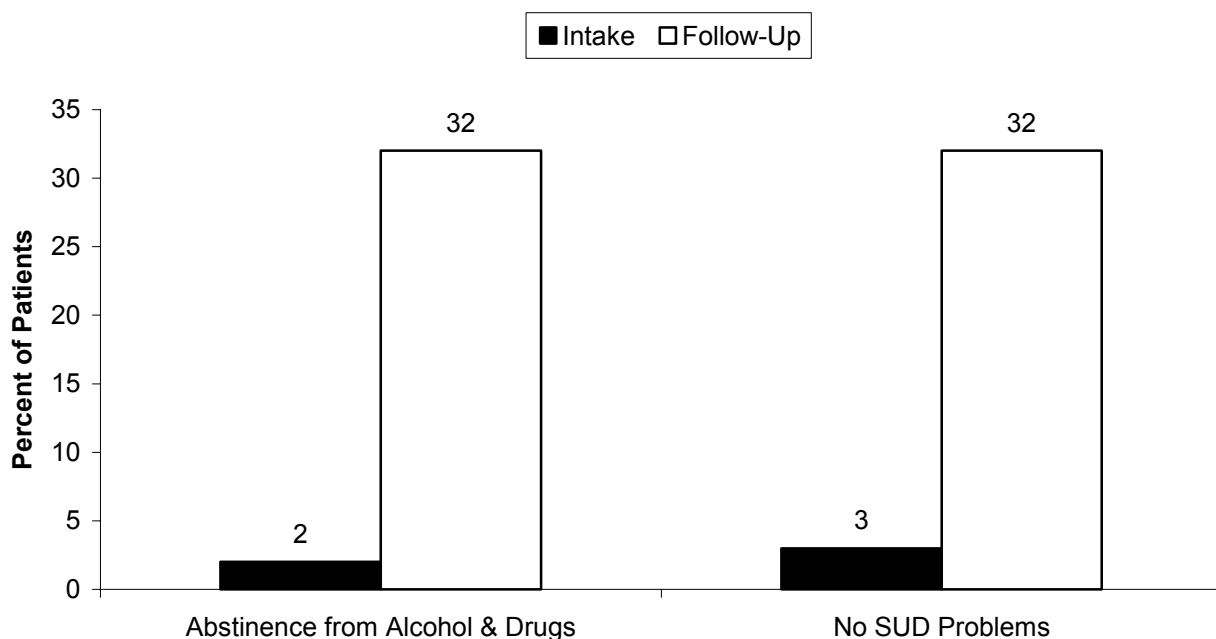


Figure 8. PCSAC Patients' Substance Use at Baseline and 1-Year Follow-up

PCSAC patients also experienced less distress and fewer psychiatric symptoms at follow-up than at intake (Figure 9). At intake, 43% of patients reported clinically significant distress (depression and anxiety) versus 33% at follow-up. Moreover, fewer patients reported psychiatric symptoms (paranoid ideation and psychoticism) at follow-up than at intake, 33% vs 38%.

PCSAC patients also had fewer psychosocial problems at follow-up than at entry to treatment, that is, fewer patients were arrested and more were employed (Figure 10). One year after treatment, 31% of patients indicated that they had been arrested within the past 12 months. This was down from the 43% who had been arrested in the year prior to treatment. The percent of patients who were employed increased from 23% to 39% between intake and the 12-month follow-up. However, patients' annual

income did not improve over time. At follow-up, patients' median annual income (\$7,741) was lower than at intake (\$8,516).

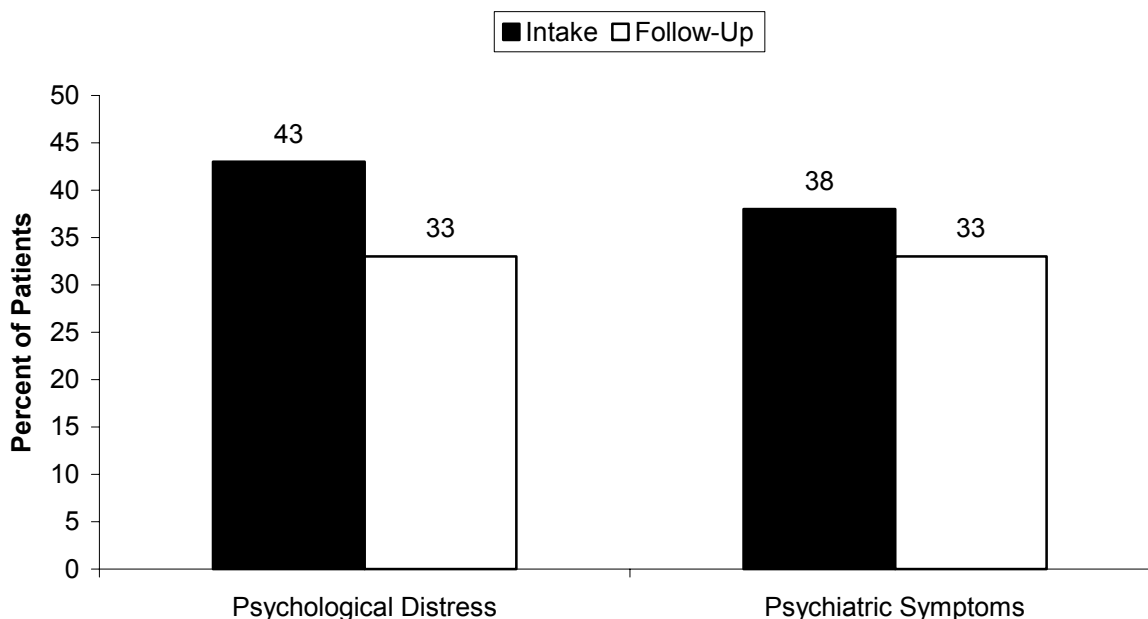


Figure 9. PCSAC Patients' Psychological Distress and Psychiatric Symptoms At Baseline and 1-Year Follow-Up

Patients' living situations were basically unchanged between intake and follow-up. Specifically, the percent of patients in residentially stable situations at intake and follow-up was 68% and 70% respectively. Moreover, at intake, 6% of patients were homeless compared with 7% at follow-up.

The number of patients who received inpatient mental health treatment did change over time. Fewer patients, 29%, were admitted for VA hospital-based or residential care in the 1-year follow-up period than in the year prior to their entry to PCSAC, when 72% had been inpatients.

Patients' Participation in PCSAC and Follow-Up Outcomes

Next, we examined the relationship between patients' participation (length of stay, number of counseling/skills training sessions) in the PCSAC program and their 12-month follow-up outcomes (abstinence, psychological distress, psychiatric symptoms, employment and arrest status, and residential stability). In all of these

analyses, we controlled for casemix differences by controlling for patients' intake functioning on the corresponding outcome criterion.

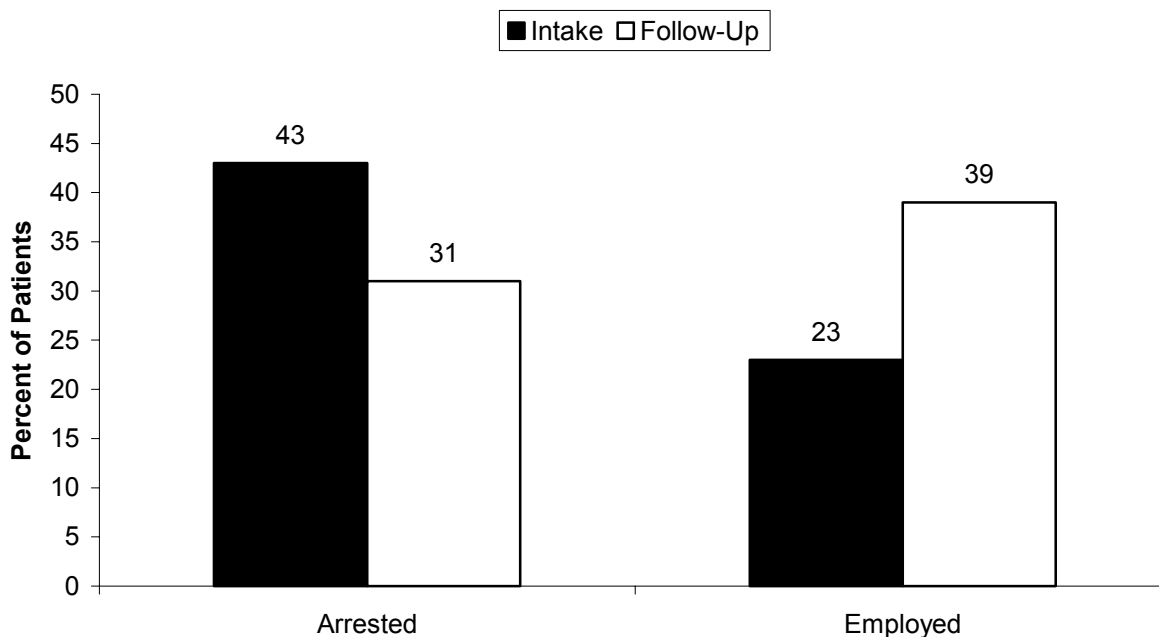


Figure 10. PCSAC Patients' Psychosocial Functioning at Baseline and 1-Year Follow-Up

Length of stay was related to only one patient outcome. Patients who attended PCSAC for a longer period of time were more likely to be abstinent from drugs and alcohol at the 1-year follow-up. Only 16% of patients who received 14 or fewer days of treatment in PCSAC were abstinent at follow-up, compared with 36% of patients whose stay lasted 20 or more days (Figure 11). Length of stay was not related to other patient outcomes, such as whether or not patients experienced psychological or psychosocial problems or were residentially stable. Patients' participation in PCSAC services, that is, the amount of counseling/skills training sessions they received, also was unrelated to patient outcomes.

PCSAC and Comparison Patients' 1-Year Outcomes

We wanted to know whether PCSAC patients experienced adjusted 1-year outcomes that were similar to or better than VA SUD patients who received inpatient treatment and then obtained usual follow-up outpatient care. Data were not available on the symptoms and functioning of patients who received SUD inpatient treatment at

Tuscaloosa prior to the conversion. Therefore, we used data from a comparison group of patients who were treated in other VA SUD inpatient programs.

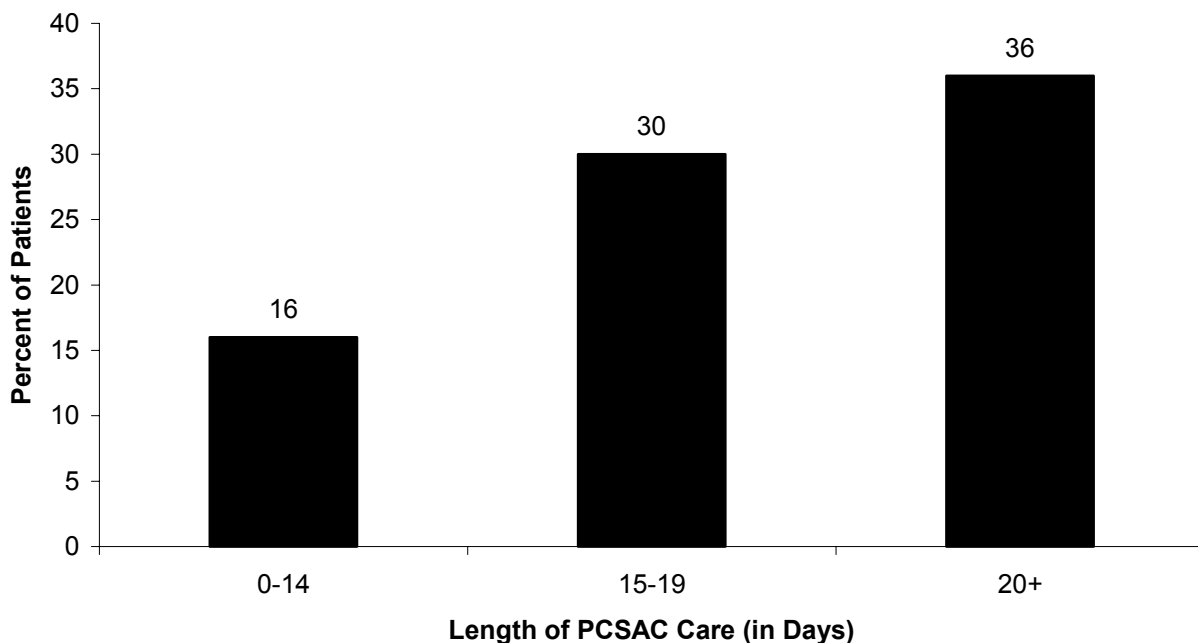


Figure 11. Percent of Patients Abstaining from Alcohol and Drugs at 1-Year Follow-Up by Length of PCSAC Care

Comparison Sample

The comparison group was drawn from a sample of more than 3,000 inpatients who received specialized inpatient SUD care in one of 15 representative VA programs and were followed for one year (Ouimette, Finney, & Moos, 1997). To ensure that the comparison group matched the PCSAC patients as closely as possible, we drew a matched sample of patients from the comparison group. Patients were drawn from seven programs located in states with population densities most similar to Alabama and matched on gender, age, education (years), married (yes/no), ethnicity (African American, White, Other minority), SUD (alcohol only, drug only, alcohol & drug), and dual diagnosis (yes/no). The matching resulted in 496 patients each in the PCSAC and Inpatient samples. The resulting samples comprised men with an average age of 44 and 13 years of education. Few patients (16%) were married. More than half (55%) were African American and 42% were white. Many patients (58%) had SUDs that included alcohol and drug problems; 29% had only alcohol problems, and 13%

had only drug problems. Thus, the comparison sample was very similar to the PCSAC sample in terms of these background characteristics.

In both groups, 98% of patients reported substance use problems at intake. The PCSAC and comparison patients also had comparable psychological functioning at intake. Among the PCSAC patients, 43% reported significant distress at intake, whereas 41% of patients in the Inpatient sample reported distress. The two groups also were comparable with regard to psychiatric symptoms at intake; 38% of the PCSAC patients and 35% of patients in the Inpatient sample experienced psychiatric symptoms.

In contrast, the groups showed small differences in psychosocial functioning at intake. The percentage of PCSAC patients who had been arrested in the 12 months prior to treatment (43%) was slightly higher than that of patients in the Inpatient sample (38%). Slight differences in patient employment also were noted. Among the PCSAC patients 23% were employed at entry to treatment, compared with 29% of patients in the Inpatient sample. Patients in the PCSAC and Inpatient samples reported about the same amount of residential stability at intake (67% and 64% respectively).

Patients' 1-Year Outcomes

We compared the two samples on their 1-year outcomes after controlling for the intake values of the corresponding outcome criteria. Readmission outcome was not adjusted. In general, PCSAC patients' outcomes were worse than those of patients who received inpatient treatment. At follow-up, substantially fewer PCSAC patients were abstinent (32%) compared to the inpatients (42%; Figure 12). PCSAC and comparison patients experienced similar amounts of SUD-related problems. About one third of patients in each group indicated that they had no current problems (e.g. health, employment, financial, family) due to substance use.

PCSAC patients also showed noticeably more psychological problems in the year after treatment (Figure 13) than did inpatients. Whereas 32% of PCSAC patients reported clinically significant distress (depression/anxiety) and psychiatric symptoms, only 21% of inpatients experienced distress and 22% had psychiatric symptoms. Less dramatic differences in psychosocial functioning were noted (Figure 14). Thirty percent of PCSAC patients were arrested in the year prior to follow-up, compared with 24% of inpatients. The groups' employment outcomes were comparable; 40% of PCSAC patients were employed compared with 41% of inpatients.

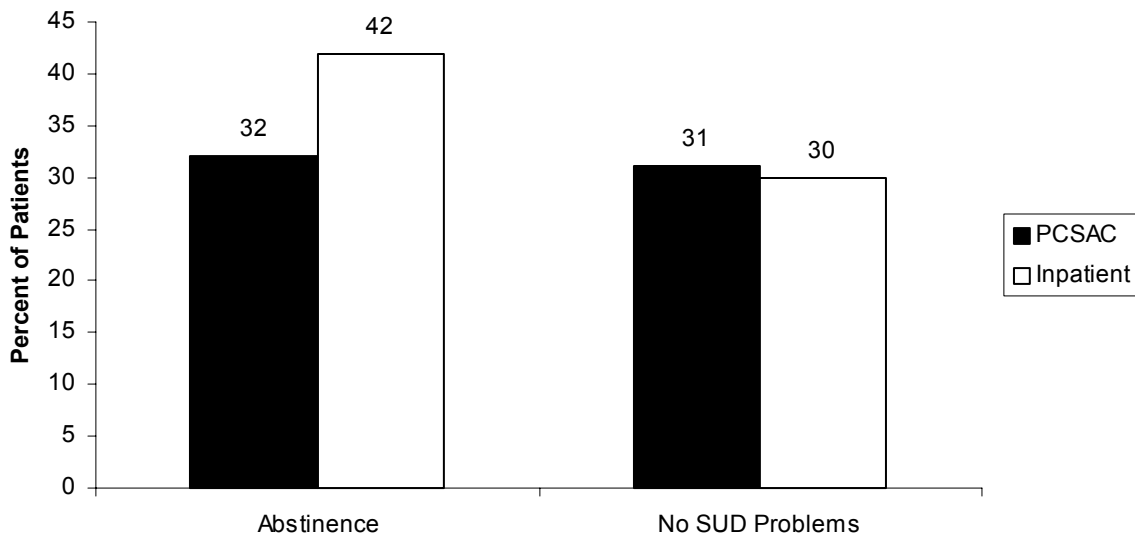


Figure 12. PCSAC and Comparison Patients' Adjusted 1-Year Outcomes for Abstinence and SUD Problems

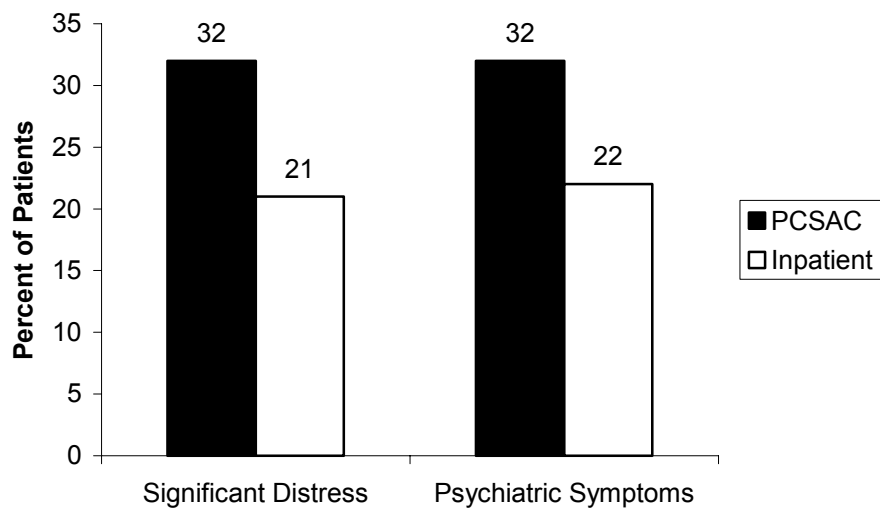


Figure 13. PCSAC and Comparison Patients' Adjusted 1-Year Outcomes for Psychological Functioning

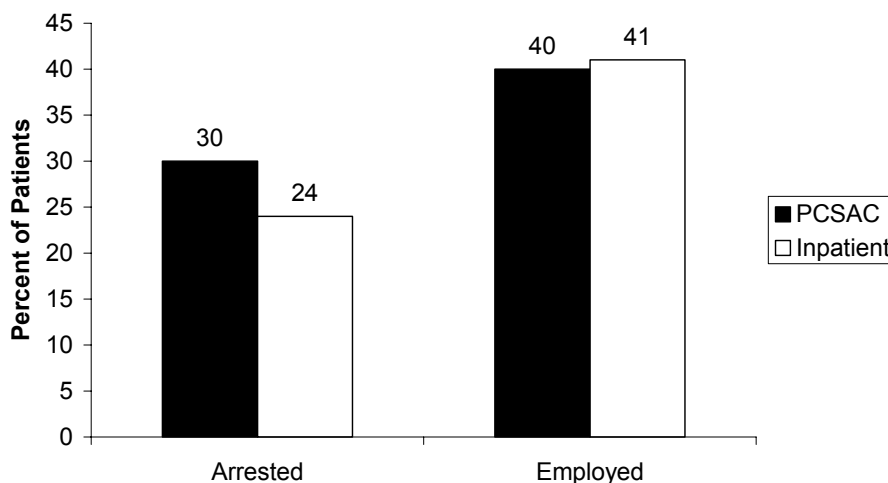


Figure 14. PCSAC and Comparison Patients' Adjusted 1-Year Outcomes for Psychosocial Functioning

PCSAC patients' residential stability also differed from the comparison group (Figure 15). Somewhat fewer PCSAC patients (70%) had stable living situations at follow-up than did inpatients (77%). Readmission was the only outcome on which PCSAC patients did somewhat better than inpatients. Among PCSAC patients, 30% were readmitted to a VA hospital for acute or residential care in the year after discharge from SUD treatment compared with 35% of inpatients. Readmission may have been lower for PCSAC patients because they lacked access to inpatient care as a result of the closure of all inpatient SUD beds and cutbacks in psychiatric beds at Tuscaloosa after the conversion.

The clinical effectiveness of new treatment programs has been shown to improve over time (Ho, Tsuang, Liberman, Wang, Wilkins, Eckman, & Shaner, 1999). In order to determine whether the novelty of the PCSAC program contributed to poorer PCSAC patient outcomes initially, we compared outcomes for PCSAC patients treated in the first year of PCSAC's operation with those of patients treated two and three years after the program began. PCSAC patients' poorer outcomes were not explained by the newness of the program; outcomes were similar each year.

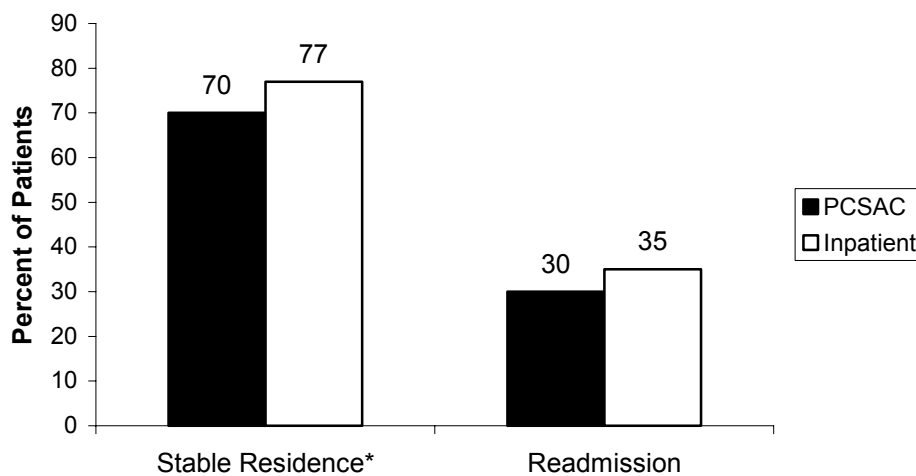


Figure 15. PCSAC and Comparison Patients' 1-Year Outcomes for Residential Stability and Readmission

Summary

PCSAC patients' symptoms and functioning improved substantially between intake and the 1-year follow-up. Among the followed PCSAC patients, 32% were abstinent from alcohol and drugs and 32% had no problems due to alcohol or drug use in the 3 months prior to follow-up. The percentage of patients' with psychological distress dropped from 43% at intake to 33% at follow-up. Their psychiatric symptoms showed less improvement, but the percentage did decrease by 5% between intake and follow-up. Psychosocial outcomes also improved. The percentage of patients who had been arrested in the past year dropped from 43% at intake to 31% at follow-up, while the percentage of patients who were employed increased from 23% to 39% during the same period.

In general, PCSAC patients' 1-year outcomes were not as good as those of patients who were treated in inpatient SUD programs. Compared to the inpatients, fewer PCSAC patients were abstinent at follow-up. In addition, more PCSAC patients were clinically distressed, had psychiatric symptoms, and lacked residential stability. Although PCSAC patients had slightly fewer readmissions in the year after discharge than did inpatients, this positive finding should be viewed with caution. Lower readmission rates among PCSAC patients may be indicative of a lack of access to inpatient SUD or psychiatric beds at Tuscaloosa. Other findings suggest that this is the case rather than the lower readmission rate being an indicator of better treatment outcome.

VII. Conclusions and Recommendations

The initiation of the Primary Care SUD Clinic marked the beginning of a series of changes in SUD and mental health programming at Tuscaloosa that affected veterans' access to and utilization of inpatient and outpatient services and the costs of care.

Implementation

- **Implementation of PCSAC took longer than anticipated. Delays may have contributed to lower than expected patient “demand” for PCSAC services initially.**

A 5-month delay in the opening of PCSAC may have contributed to patients' seeking treatment elsewhere. Workload increased gradually, with staff treating 96 patients in the day treatment program during the initial 9 months of operation of PCSAC and 208 patients in the second year. Moreover, patients received more than twice as many clinic contacts in the second year than the first.

Access to and Utilization of Inpatient Care

- **SUD patients' access to inpatient care declined; this was also true for psychiatric patients.**

Overall, 13% fewer mental health patients obtained inpatient care at Tuscaloosa in the follow-up than in the baseline year. During this period, 13% fewer unique inpatients with SUD were treated; the number of inpatients with only psychiatric disorders also declined 13%.

- **SUD patients' utilization of inpatient care declined; this also occurred among psychiatric patients, but the decline was not as large.**

Total days of inpatient care for patients with SUD declined 42%, with SUD only patients experiencing a bigger decline (69%) than DDX patients (15%). PSY patients' days of care declined 26%.

- **In the absence of an inpatient SUD unit, there may have been a short-term shift of SUD patients to psychiatric beds.**

Overall, there was a 32% decline in the total amount of inpatient care that mental health patients received at Tuscaloosa. As expected with the closure of the ATU, days of care in SUD units declined substantially; there were 71% fewer bed days in the follow-up than in the baseline year. An initial increase of 8,500 days in inpatient psychiatric units almost offset the decline of 10,100 days in SUD units. However, the

increase in psychiatric days was temporary. By the follow-up year, when two psychiatric units had closed, days of inpatient psychiatric care were 20% below baseline levels.

Access to and Utilization of Outpatient Care

- **SUD patients' overall access to outpatient care increased substantially; in contrast, there was only a slight increase among psychiatric patients.**

The total number of SUD outpatients seen at Tuscaloosa rose 27%. In comparison, the number of unique PSY outpatients increased only 2%.

- **SUD patients' utilization of outpatient SUD and psychiatric services increased. Psychiatric patients' use of psychiatric services also increased, but at a more modest rate.**

SUD patients' SUD clinic contacts increased by 850%, reflecting greater outpatient workload in PCSAC. The intensity of their treatment also increased, from 4 contacts at baseline to 12 contacts, on average at follow-up.

SUD patients also had 148% more psychiatric clinic contacts over the 4-year period; PSY patients' contacts increased only 6%. These data indicate that SUD patients may have received more outpatient psychiatric care to compensate for more limited inpatient SUD treatment.

- **SUD patients' utilization of outpatient medical and other clinic services increased. Psychiatric patients' use of these services also increased.**

SUD patients made 153% more medical and other clinic contacts in the follow-up than in the baseline year; among PSY patients, there was a smaller 33% increase. Both SUD and PSY patients received more intensive treatment in medical and other clinics. Over the 4-year period, the average number of medical and other clinic contacts increased from 6 to 11 for SUD patients and from 13 to 16 for PSY patients.

Over half of the additional medical and other clinic contacts that SUD patients had were for services to assist them in their transition back to the community, such as work therapy and social work services. Another 27% of the contacts were for primary care, laboratory and nursing services. Increases in these services lend support to the idea that the decrease in specialized inpatient SUD care may have contributed to SUD patients' expanded use of outpatient medical care.

- **The overall gain in SUD outpatients more than offset the loss of SUD inpatients.**

The increase in the number of unique SUD outpatients more than offset the decline in SUD inpatients, for an overall net increase in SUD patients of 25%. In contrast, the total number of unique PSY patients remained essentially the same, with a 1% increase.

Total Combined Direct Costs of Inpatient and Outpatient Care

- **The total combined direct inpatient and outpatient costs for mental health outpatients increased; no cost savings were achieved. However, the cost increases for all inpatient and outpatient care provided to SUD patients were smaller than increases for inpatient and outpatient costs for PSY patients.**

Adjusting for inflation, total combined inpatient and outpatient direct costs for mental health patients at Tuscaloosa increased 9% or nearly \$1.4 million between baseline and follow-up. A 6% savings of \$690,000 for inpatient care was more than offset by a 58%, or \$2.1 million increase in outpatient care costs. Thus, despite Tuscaloosa's closure of its inpatient SUD unit, no cost savings were realized in the treatment of mental health patients overall. The increase in total combined costs occurred in conjunction with a 3% reduction in staff and an increase of 10% in unique mental health patients treated. In the four years, combined inpatient and outpatient costs for SUD patients increased 3% or \$230,000. Those for PSY patients increased 11% or \$1.2 million.

- **Per capita direct costs for SUD patients decreased while those for PSY patients increased.**

Although total costs increased, the average per capita combined costs of inpatient and outpatient care for all mental health patients did not change. However, there was considerable variation in per capita costs between SUD and PSY patients. SUD patients' per capita costs decreased 17% or \$800. In contrast, per capita costs for PSY patients increased 8% or \$300.

Costs of Inpatient Care

- **Total inpatient cost savings for SUD patients were moderate - \$1.2 million. No cost savings for psychiatric inpatients were noted.**

Total inflation-adjusted direct costs for SUD patients' inpatient care decreased 24%, or \$1.2 million, between baseline and follow-up years. Costs for SUD only patients decreased 62%, while costs for DDX patients increased 20%. Inpatient costs

for PSY patients increased by 77% or \$500,000 over the 4-year period. In general, Tuscaloosa realized cost savings in its treatment of SUD only patients, but it incurred added expenses when it treated patients who had psychiatric problems, with or without a SUD diagnosis.

- **Inpatient care costs declined in SUD units but rose in psychiatric units.**

Costs for SUD beds declined considerably (\$1.6 million). However, these cost savings were largely offset by a \$1.2 million increase in costs of care in psychiatric units. Over 40% of the \$1.2 million increase in psychiatric care costs was associated with the care of SUD patients.

Costs of Outpatient Care

- **Total direct costs of outpatient care for SUD outpatients rose substantially; outpatient costs for psychiatric patients showed a more moderate increase.**

Over the four years, total inflation-adjusted direct outpatient costs for SUD patients increased 210%, or \$1.4 million. In contrast, total outpatient costs for PSY patients increased only 23%, or \$660,000. Costs for treating SUD patients in SUD clinics increased by 350%, or \$630,000. Costs for care of SUD patients in psychiatric clinics increased by 156%, or \$280,000; in medical and other clinics, their costs rose 162%, or \$520,000. Rising costs reflect a substantial increase in the number of SUD outpatients, the intensity of outpatient treatment, and the staff required to provide it.

PCSAC Patient Outcomes

- **PCSAC patients improved substantially between entry to treatment and the 1-year follow-up.**

Considerable improvement in patients' symptoms and functioning occurred between intake and the 1-year follow-up. At entry to treatment 2% of patients were abstinent and only 3% reported having no alcohol- or drug-related problems. However, in the 3 months prior to follow-up, 32% of followed PCSAC patients were abstinent from alcohol and drugs; the same percentage reported no problems due to alcohol or drug use. PCSAC patients' psychological functioning also improved, with 33% of patients reporting psychological distress at follow-up compared to 43% at intake. Psychiatric symptoms decreased by 5% between intake and follow-up. Psychosocial outcomes also improved. The percent of patients who had been arrested in the past year dropped from 43% at intake to 31% at follow-up, and the percent of patients who were employed increased from 23% to 39% during the same period.

- **PCSAC patients' 1-year outcomes were not as good as those of SUD patients who received inpatient treatment followed by usual outpatient care.**

We compared PCSAC patients to a matched sample of VA patients who received inpatient SUD treatment and usual follow-up outpatient care. For the most part, PCSAC patients' outcomes were less favorable than those of the Inpatient sample. Compared to patients who received inpatient treatment, fewer PCSAC patients were abstinent at follow-up. PCSAC patients also experienced poorer psychological and psychosocial functioning and less residential stability than the inpatients.

These findings are consistent with results from a randomized clinical trial that compared outcomes of SUD patients assigned to day or residential treatment. Greenwood, Woods, Guydish, and Bein (2001) found that day treatment patients were more likely to relapse six months after entry to treatment than were residential patients. Day treatment patients also showed less improvement in psychiatric problems and social problems than did residential treatment patients at the six-month follow-up (Guydish, Werdegar, Clark & Sorensen, 1998).

It is important to keep in mind that this study reports treatment outcomes from a single VA intensive outpatient treatment program. SUD program outcomes may vary considerably in other VA day treatment programs, depending on such factors as case mix, staffing, treatment and services provided in the programs and continued follow-up participation in outpatient care and self-help groups. Other limitations of this study include lack of random assignment to day hospital or inpatient treatment, as well as lack of information about the content of care and patients' engagement in continuing care.

Recommendations

- **The duration of intensive outpatient SUD care should be flexible; patients should not be discharged from care until they have stable housing and staff are relatively confident of their long-term recovery.**

Patients with severe or chronic SUDs may require more than the four weeks of treatment that is typical of many intensive outpatient programs. Staff may need added time to assess and provide the services required to meet the complex psychological and psychosocial needs of some patients, such as those with severe or chronic SUDs.

- **Alternative SUD treatment programs that combine inpatient/residential, intensive outpatient, and standard outpatient care should be implemented and evaluated.**

Intensive outpatient care “by itself” seems to result in no better and possibly worse outcomes than inpatient care followed by “usual” outpatient care. SUD programs with varying levels of care and treatment modalities may enable staff to provide more individualized treatment that is better able to address the range of problems that SUD patients confront, and to facilitate their retention in treatment.

- **Evaluations should focus more on examining patients’ overall service episodes.**

Aspects of continuing care may be better predictors of SUD patients’ outcomes than any one aspect of intensive treatment. The total “package” of services that SUD patients’ receive during an episode of care should be studied in order to identify the sequence and combination of treatments that provide the best patient outcomes.

- **New SUD treatment programs that appear to promise improved patient outcomes and cost savings should be monitored carefully to assess actual outcomes and potential unexpected costs and cost shifting.**

Closure of resource-intensive inpatient SUD programs may have unanticipated impacts, such as SUD patients using more psychiatric and medical inpatient and outpatient services. Costs of care for SUD patients need to be examined within the context of overall combined inpatient and outpatient costs for the health care system.

VIII. Acknowledgements

Many people helped us over the course of this evaluation. We thank the staff at the Tuscaloosa and Birmingham VAMCs and Phoenix House for their assistance and cooperation. Some individuals moved to other positions during the course of the evaluation. Their affiliations during the time they helped us with the evaluation are noted.

The PCSAC Clinic staff provided valuable assistance to us. They obtained patient data and helped us to understand how the program was implemented and its operations. Special thanks go to Carey Mason, Program Coordinator; Harrison Goodall, Medical Director; and the other clinical staff - Bonnie Fields, Joy Folkerts, Dianne Guthrie, Judith Holman, Wayne Hudson, Donna Lowery, William Meyer, Susan Smith, Stewart Spears, Jill Stokely, Joe Stone, Howard Wells.

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IX. Footnotes

1. FY93 through FY96.
2. A mental health inpatient was defined as a patient who received an ICD-9-CM code for a SUD or PSY diagnoses in any bedsection stay during the fiscal year. We included ICD-9-codes 290-319. We based the count of the total number of unique mental health inpatients in a year on discharges.

Patients who were admitted in one fiscal year and discharged in a subsequent year were counted in the year in which they were discharged. To count the number of unique patients, patients with multiple admissions were counted once in each year during which they experienced a discharge. When we calculated total bed days of care for patients, we counted only bed days of care that occurred within the year.

3. Specific diagnostic groups were determined as follows: (1) Patients who received one or more SUD diagnoses and no PSY diagnoses in the index bedsection episode were classified into the SUD only group. (2) Patients who received one or more PSY diagnoses and no SUD diagnoses during the index bedsection episode were classified into the PSY only group. (3) Patients with SUD and PSY diagnoses in the index bedsection were placed into the DDX group.
4. All individuals with the following DRG codes in the PTF during a bedsection stay were classified as detox patients (434 – detoxification; 435 – detoxification with co-morbidity or complication; 437 – detoxification with rehabilitation). For patients with a DRG code of 437, we could not determine what portion of the length of stay was in detox and what portion was in rehab. Thus, we assigned the median length of stay for detox-only patients (DRGs 434 and 435) within a given bedsection to patients with DRG 437. In some cases, the stays of patients with a detox/rehab DRG were shorter than the median number of detox days. When that occurred, we coded all of the days in the stay as detox days.
5. For each year, we summed the FTEE for SUD, psychiatric, and medical and extended care treating specialties in CDR cost centers 200 through 399.
6. We defined patients' time to readmission as the number of days between their first hospital discharge at Tuscaloosa in a given fiscal year and their first hospital readmission for SUD or psychiatric care at any VAMC.

7. Baseline year costs were adjusted for inflation by multiplying them by 1.086 (8.6%); transition year costs were multiplied by 1.059 (5.9%), and conversion year costs were multiplied by 1.030 (3.0%).
8. Inpatient dual diagnosis program costs for the baseline and transition years were credited to psychiatry bedsections in the CDR; in the conversion and follow-up years, these costs were credited to SUD bedsections. In order to make longitudinal comparisons, we recoded inpatient dual diagnosis program costs for the conversion and follow-up years from the SUD CDSs to the psychiatry CDA. Specifically, in the conversion year, we subtracted \$606,704 from CDA 1313 (SUD) and added it to CDA 1310 (psychiatry). In the follow-up year, we subtracted \$851,057 from CDA 1313 and CDA 1317 (SUD STAR Program) and added it to CDA 1310.
9. Birmingham's inpatient FTEE for SUD dropped from 14 to 7; Decatur's declined from 45 to 28, and Charleston's shrunk from 27 to 4. Inpatient FTEE in neighboring facilities in Tennessee remained fairly stable during this period.
10. Outpatient FTEE at Birmingham, Tuskegee, Columbia and Charleston remained stable or increased slightly (a gain of 3 or fewer FTEE). Decatur and Augusta showed larger increases of 7 to 10 FTEE over the 4-year period.
11. After the closure of the ATU, some inpatient SUD workload still occurred. During the conversion and follow-up years, Tuscaloosa coded inpatient days for patients who were treated in the detox unit on the medical unit as SUD bed days.

During the baseline and transition years, Tuscaloosa coded activity in the dual diagnosis program as psychiatric workload; from the conversion year through July of the follow-up year, when the dual diagnosis program closed, dual diagnosis program activity was coded as SUD workload. In order to make interpretable longitudinal comparisons, we recoded dual diagnosis program activity for the conversion and follow-up years from SUD to psychiatric workload. We used the names and social security numbers of dual diagnosis inpatients that were provided by Tuscaloosa staff to identify dual diagnosis program activity in the PTF.

12. Data on marital status and race are not available in the OPC file.
13. At the time of this study, the National Patient Care Database was not yet available. The OPC did not contain diagnostic information. Consequently, we could not identify outpatients with mental health disorders who did not have

either inpatient episodes or extended care in the fiscal year or SUD or PSY clinic contacts.

14. In the analyses that follow, we focus only on patients who used outpatient services at Tuscaloosa.
15. These analyses focused on SUD outpatients with and without inpatient stays. We labeled outpatients who had no inpatient stays as DDX patients if they had both SUD and PSY clinic contacts.
16. The average number of SUD clinic contacts is based on SUD patients who had one or more SUD clinic contacts.
17. The average number of PSY clinic contacts is based on SUD and PSY patients who had one or more PSY clinic contacts.
18. We included in the “other” clinic contacts category not only medical clinic contacts, but all other contacts that were not SUD or PSY clinic contacts. All other contacts included contacts for such services as compensated work therapy, post-residential care, and social work.
19. The average number of medical clinic contacts is based on SUD and PSY patients who had one or more medical clinic contacts.
20. Length of stay in PSAC’s intensive day treatment program includes the total number of days that a patient participated in the day program, excluding days for inpatient hospitalization that occurred while he/she was in the day treatment program. A number of patients underwent screening by PCSAC staff and were admitted to an inpatient unit for detox within a few days. We did not count the initial screening day or the inpatient days for detox as days in the day treatment program. To determine length of stay in PCSAC, we used data from the Discharge Checklist on the dates patients entered and left the program. We used data from the PTF, OPC, and entry and exit dates from Phoenix House to verify the Discharge Checklist treatment dates and to resolve discrepancies between data sources.

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APPENDIX A

Intake Information Form

APPENDIX B

Discharge Checklist

APPENDIX C

Cost Analyses Methods

Calculating Total Direct Inpatient Care Costs for Mental Health Patients

The basic method for determining direct inpatient care costs involved multiplying the workload for mental health patients (bed days of care in a specific bedsection or extended care unit) by the average direct cost of a bed day of care in that bedsection.

Methods for Calculating Bedsection Per Diems

We calculated bedsection per diems by dividing the direct costs of care for all patients (mental health and non-mental health) treated in a given bedsection by the total bed days of care for all patients (mental health and non-mental health) treated there.

Computing Direct Costs for All Patients in Each Bedsection. We used the Cost Distribution Report (CDR) to identify the costs in a given fiscal year for all patients in relevant cost distribution accounts (CDAs). CDAs include costs for broad categories of patient care, such as SUD, psychiatry, and medicine.

The inpatient bedsection file of the PTF assigns each patient stay to a cost distribution account using the variable BEDCDR. The BEDCDR variable indicates in which CDR account the stay is costed. For example, a patient with a PTF inpatient episode in a SUD bedsection has a BEDCDR value of 1313 (SA), and the stay is costed to CDA 1313 (SA) in the CDR. For purposes of this report, when we report costs in a particular bedsection, we mean the costs associated with the BEDCDR values.

We identified the BEDCDR values from the PTF inpatient bedsection file for all episodes of care for our mental health sample. We assigned the BEDCDRs to SUD, psychiatric, medical, and extended care groups.

We computed the direct costs for all patients in each BEDCDR group. To do so, we summed the direct costs of all CDAs in each BEDCDR group. For example, to compute medical BEDCDR total costs for the baseline year, we summed the costs for CDAs 1110 (general acute medicine), 1113 (rehabilitative medicine), 1117 (medical ICU) and 1610 (intermediate medicine). Table C-1 presents inflation-adjusted costs (in follow-up year dollars) by year for each BEDCDR group.

Computing Total Bed Days of Care for All Patients in Each Bedsection.

The direct costs reported in the CDR reflect the total bed days of care provided in the fiscal year. The CDR counts census days (bed days within a given fiscal year for patients who have been admitted but not discharged) as workload, but it does not count discharged patients' leave days (days when an admitted patient is on leave from a bedsection). Therefore, in the cost analyses, we summed census days for non-

discharged patients (found in the Census File) and total bed days for discharged patients (i.e., total days minus leave days - found in the PTF and Extended Care Files) in order to obtain the total bed days of care in a bedsection.

Bedsection Per Diems. For each bedsection, we divided the direct costs for all patients in a given bedsection (Table C-1) by the total days for all patients in a given bedsection (Table C-2) to obtain the average daily direct cost of care (or per diem) in each bedsection (Table C-3).

Table C-1. Inflation-Adjusted Costs by Bedsection for All Patients at Tuscaloosa by Year

| Bedsection | Baseline | Transition | Conversion | Follow-up |
|---------------|------------|------------|------------|------------|
| SUD | 2,145,530 | 2,154,759 | 541,861 | 436,423 |
| Psychiatric | 10,920,290 | 11,570,194 | 12,547,655 | 13,594,856 |
| Medical | 9,849,626 | 10,401,089 | 9,622,768 | 7,953,180 |
| Extended Care | 7,499,423 | 7,660,530 | 7,405,698 | 7,354,089 |

Table C-2. Total Bed Days of Care for All Patients in the PTF and Census Files by Bedsection at Tuscaloosa by Year

| Bedsection | Baseline | Transition | Conversion | Follow-up |
|---------------|----------|------------|------------|-----------|
| SUD | 14,362 | 14,712 | 3,468 | 3,926 |
| Psychiatric | 85,161 | 89,650 | 86,019 | 69,547 |
| Medical | 46,111 | 47,521 | 41,772 | 25,393 |
| Extended Care | 70,112 | 69,138 | 65,864 | 70,147 |

Table C-3. Average Direct Cost Per Day for All Patients by Bedsection at Tuscaloosa by Year

| Bedsection | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|---------------|----------|------------|------------|-----------|-----------------------------------|
| SUD | 149.39 | 146.46 | 156.25 | 111.16 | 38.23 (- 26%) |
| Psychiatric | 128.23 | 129.06 | 145.87 | 195.48 | 67.25 (+52%) |
| Medical | 213.61 | 218.87 | 230.36 | 313.20 | 99.59 (+47%) |
| Extended Care | 106.96 | 110.80 | 112.44 | 104.84 | 2.12 (- 2%) |

Calculating Direct Costs of Care for Mental Health Patients

We used the bedsection per diems (Table C-3) to calculate the direct costs of care for all mental health patients and for each diagnostic group. To obtain direct costs of care for mental health patients, we multiplied the appropriate bedsection per diem by the mental health workload (total bed days for a particular diagnostic group of mental health patients or for a bedsection).

Calculating the Direct Costs of Detox Care

The CDR does not have a specific account to which costs for detox care are assigned. Therefore, the costs for detox care are based on costs of all care provided in a given bedsection, not just detox care. We used methods similar to those described above for all mental health patients to calculate costs of detox care for detox patients. We multiplied the total days of care for detox that patients in each diagnostic group spent in each type of bedsection by the corresponding per diem for each bedsection. We summed costs across bedsections to obtain the direct costs of care for detox for mental health patients in each diagnostic group.

Calculating Direct Costs of Outpatient Care for Mental Health Patients

We used methods similar to those for the inpatient cost analyses to calculate outpatient costs. To determine the direct outpatient care costs for mental health patients, we multiplied the workload for mental health patients (clinic contacts in the OPC in specific clinics - SUD, psychiatric, medical) by the average direct cost of a

clinic contact in a specific clinic to obtain the cost of care for mental health patients treated there.

Methods for Calculating the Direct Cost of a Clinic Contact

We calculated the average cost of a clinic contact by dividing the direct costs of care for all patients (mental health and non-mental health) treated in a specific type of clinic (SUD, psychiatric, medical) by the total number of clinic contacts within each clinic type.

Computing Direct Costs for All Patients in Each Type of Clinic. We used the CDR to identify the costs for a given fiscal year for all patients in CDAs in which clinic contacts for mental health patients occurred. For example, clinic stop 101 is included under CDA account 2310 - Medical Administration. If the OPC file showed that a mental health patient had a contact for clinic stop 101, we included CDR costs for all patients in the Medical Administration CDA 2310 in our analyses. We assigned clinic stops to SUD, psychiatric, and medical and other clinics.

We computed the direct costs for all outpatients in each clinic by summing the costs of all CDAs for each clinic.

Computing Total Clinic Contacts for All Outpatients in Each Clinic Group. We summed clinic contacts for all outpatients seen in each clinic as reported in the OPC.

Average Costs of Clinic Contacts. For each clinic group, we divided the direct costs for all patients in each clinic by the total clinic contacts for all outpatients who were treated in a given clinic to obtain the average direct cost of a clinic contact in each clinic (Table C-4).

Calculating Direct Costs of Outpatient Care for Mental Health Patients

We used the average cost of a clinic contact (Table C-4) to calculate the direct costs of care for mental health outpatients. We calculated direct costs for outpatients by diagnostic group and clinic type. To obtain the direct costs of care for mental health outpatients, we multiplied the appropriate average cost of a clinic contact by the mental health workload (total clinic contacts for mental health outpatients in a particular diagnostic group, or clinic). In this calculation of direct mental health costs, the total workload does not correspond to the total clinic contacts reported in Table 9 of the outpatient utilization section because we did not have sufficient data to assign costs to all of the workload reported in the OPC. We counted only the workload that had costs associated with it.

Table C-4. Average Direct Cost of an Outpatient Clinic Contact for All Outpatients by Clinic at Tuscaloosa VAMC by Year

| Clinic | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-------------------------|----------|------------|------------|-----------|-----------------------------------|
| SUD | 144.59 | 112.18 | 124.66 | 71.22 | 73.37 (- 51%) |
| Psychiatric | 73.13 | 78.28 | 69.46 | 77.07 | 3.94 (+ 5%) |
| Medical | 55.54 | 51.31 | 54.59 | 54.71 | 0.83 (- 1%) |
| Average for all clinics | 62.35 | 61.37 | 62.39 | 60.95 | 1.40 (- 2%) |

APPENDIX D

Comparison of SUD Services at Tuscaloosa VA
Before and After the Implementation of PCSAC

SUD Services
before PCSAC

Inpatient Services

31-bed Addictions Treatment Unit for Rehabilitation (ATUR)

13-bed Addictions Treatment Unit for detox (ATUD)

Overflow detox occurs on scatter beds in medical and psychiatric units

12-bed dual diagnosis program with 3 detox beds^a

Outpatient Services

SUD clinic run by ATU medical director

Dual diagnosis inpatient staff follow a small number of DDX inpatients as outpatients

Community Services Program - 1 on-site and 4 off-site satellite SUD clinics

SUD Services
after PCSAC

Inpatient Services

No inpatient SUD treatment program.

8-10 bed detox unit on a 28-bed general medical unit

Overflow detox occurs on scatter beds in medical and psychiatric units

15-bed dual diagnosis program with 5 detox beds

Outpatient Services

PCSAC Daily Treatment Program - Phase 1 (day treatment with halfway house placement), Phases 2 and 3 (day and/or evening groups, classes, counseling sessions)

PCSAC Outpatient Treatment Program- Outpatient clinic with counseling provided on an as needed basis

Dual diagnosis inpatient staff follow a small number of DDX inpatients as outpatients

Community Services Program - 1 on-site and 4 off-site satellite SUD clinics

^aWorkload for the dual diagnosis program detox beds was coded as psychiatric workload during the transition and conversion years.

APPENDIX E

Breakdown of Mental Health Patients' Inpatient and Outpatient Care Costs

Breakdown of Mental Health Patients' Inpatient and Outpatient Care Costs

We determined the direct costs and per capital costs of inpatient care provided to mental health patients in each diagnostic group at Tuscaloosa in each year. We also calculated the costs of inpatient care by bedsection. For outpatients, we identified the total and per capita direct costs of all outpatient care (SUD, psychiatric, medical and other) provided to mental health patients. We also obtained data on changes in outpatient pharmacy costs over the 4-year period.

Costs of Inpatient Care for Mental Health Patients

We used the Cost Distribution Report (CDR) to calculate inpatient costs. Direct costs reported in the CDR are primarily salary costs. Because the CDR does not report FTEE for specific groups of patients (e.g. detox patients) or by bedsection, we could not determine the costs for specific groups of patients or bedsections based on the salary costs connected to FTEE assigned to them. Consequently, we used a workload-based method to calculate costs. Total inpatient costs for each diagnostic group of patients in each bedsection were obtained by multiplying the workload (bed days of care) for each group in a specific bedsection by the corresponding per diem for the bedsection (Table C-3, Appendix C). Then, costs for each diagnostic group in each bedsection were summed to obtain the total cost for each group.

The total inflation-adjusted cost of inpatient care for mental health patients decreased 6% (Table E-1). Costs for SUD patients declined by 24%, whereas those for PSY patients increased 7%.

To obtain the per capita costs for inpatient care, we divided the total costs of all inpatient and extended care stays for patients in each diagnostic group (Table E-1) by the number of unique patients in each diagnostic group (Table 1). Over the 4-year period, per capita costs rose from \$6,400 to \$6,900 or by 8% (Table E-2). Overall, there was a \$600 decrease in per capita costs for the entire group of SUD patients. This contrasted with a \$2,100 increase in per capita costs for patients with only a PSY diagnosis.

Table E-1. Direct Costs of All Inpatient Care for Mental Health Patients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 4,880 | 6,070 | 4,920 | 3,690 | -1,190 (-24%) |
| PSY Only | 7,130 | 7,120 | 7,670 | 7,630 | 500 (+ 7%) |
| Total costs | 12,010 | 13,190 | 12,590 | 11,320 | - 690 (- 6%) |

Note: Costs are in thousands of dollars.

Table E-2. Per Capita Direct Costs of All Inpatient Care for Mental Health Patients by Diagnostic Type and Year

| Diagnostic Type | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-------------------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD | 4,500 | 5,000 | 4,900 | 3,900 | - 600 (- 13%) |
| PSY Only | 9,000 | 9,300 | 10,400 | 11,100 | 2,100 (+23%) |
| Average Per Capita Cost | 6,400 | 6,600 | 7,300 | 6,900 | 500 (+ 8%) |

Cost of Inpatient Care by Bedsection

To obtain the costs of care in a bedsection, we multiplied the total days of care provided to mental health patients in the bedsection (Table 3) by the bedsection per diem for all patients (Table C-3, Appendix C).

Direct costs of care for patients in SUD bedsections decreased by \$1.6 million (Table E-3). However, these savings were largely offset by an increase of \$1.2 million in costs of care for patients in PSY units. In any case, overall costs for inpatient care for mental health treatment at Tuscaloosa declined modestly. There were also modest declines in the costs for mental health patients in medical and extended care bedsections. Further analyses revealed that of the \$2 million increase in costs on PSY units, \$530,000 or 42%, was linked to providing care to SUD patients, especially those with dual diagnoses.

Table E-3. Direct Costs of Inpatient Care for Mental Health Patients by Bedsection and Year

| Bedsection | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|---------------|----------|------------|------------------|-----------|-----------------------------------|
| SUD | 2,010 | 2,060 | 510 ^a | 430 | -1,580 (- 79%) |
| Psychiatry | 5,640 | 6,790 | 7,660 | 6,880 | 1,240 (+22%) |
| Medicine | 3,820 | 3,810 | 3,970 | 3,630 | - 190 (- 5%) |
| Extended Care | 540 | 540 | 450 | 380 | - 160 (- 30%) |
| Total | 12,010 | 13,200 | 12,590 | 11,320 | - 690 (- 6%) |

Note: Costs are in thousands of dollars.

^aSUD costs in the conversion and follow-up years are for detox care in SUD beds on a medical unit.

Summary of Inpatient Costs

Total direct costs of all inpatient care for mental health patients at Tuscaloosa decreased 6% between baseline and follow-up. The total direct costs of inpatient care for SUD patients declined by 24%, whereas that for PSY patients increased 7%. Similarly, per capita costs for SUD inpatients declined by 13%, whereas those for PSY patients increased by 23%.

As expected, the closure of Tuscaloosa's inpatient substance beds and subsequent decrease in SUD staff resulted in decreased inpatient SUD costs. However, inpatient SUD cost savings of \$1.6 million were substantially offset by a \$1.2

million increase in the cost of care for mental health patients in psychiatric units. Importantly, over 40% of the increase in psychiatric inpatient costs was attributable to care for SUD patients.

Costs of Outpatient Care for Mental Health Patients

The direct costs for treating mental health outpatients increased in all three types of outpatient clinics, but increases varied considerably by type of patient and clinic. In SUD clinics, costs rose 350% (Table E-4). Rising costs for patients treated in SUD clinics reflect 10,200 more SUD clinic contacts in the follow-up than in the baseline year. Costs for treating SUD patients in psychiatric and medical and other clinics rose more slowly, increasing by 156% and 162% respectively.

Table E-4. Direct Costs of Outpatient Care for Mental Health Outpatients by Diagnostic Type and Clinic and Year

| Type of Patient | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|--------------------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD Patients | | | | | |
| SUD Clinic ²⁴ | 180 | 400 | 810 | 810 | 630 (350%) |
| PSY Clinic | 180 | 290 | 280 | 460 | 280 (156%) |
| MED & Other Clinics | 320 | 380 | 620 | 840 | 520 (162%) |
| PSY Only Patients | | | | | |
| PSY Clinic | 1,410 | 1,440 | 1,280 | 1,530 | 120 (+ 8%) |
| MED & Other Clinics | 1,470 | 1,460 | 1,670 | 1,990 | 520 (+ 35%) |
| Total Costs | 3,560 | 3,970 | 4,660 | 5,630 | 2,070 (+ 58%) |

Note: Costs are in thousands of dollars.

Total direct costs for all outpatient clinic care for mental health patients increased 58% (\$2,070,000). Costs for all SUD patients rose more rapidly than those for PSY patients – a 210% (\$1,430,000) versus a (\$640,000) increase respectively (Figure E-1).

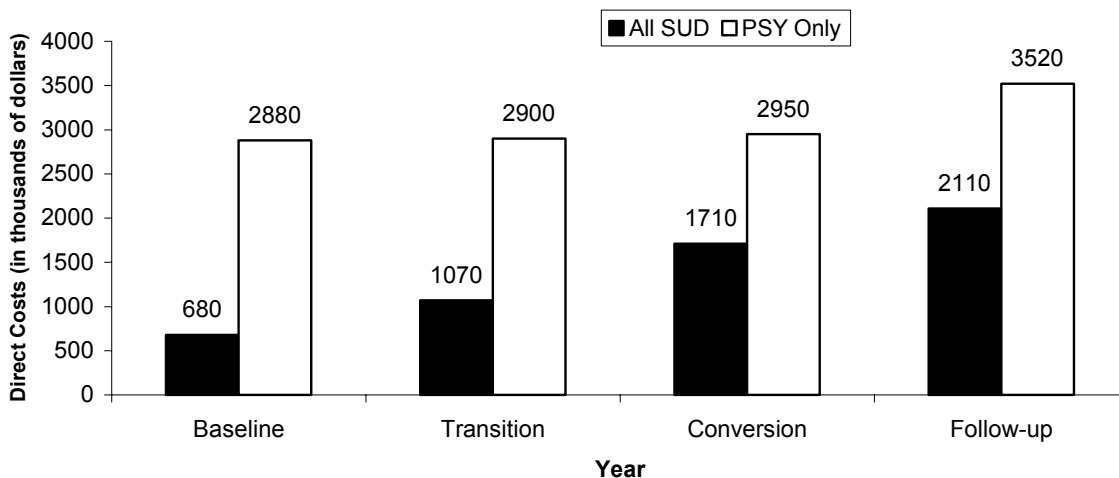


Figure E-1. Direct Costs of All Outpatient Care for SUD and PSY Patients by Year

Per capita outpatient costs for each diagnostic group of mental health patients were calculated by dividing the total costs for each group by the number of unique patients in each diagnostic group.

Overall, Tuscaloosa spent more to treat an individual mental health outpatient at follow-up than at baseline. Taking inflation into account, the per capita direct cost for mental health outpatients rose 44%. Per capita costs of treating a SUD patient in a SUD clinic increased from \$500 to \$800 (Table E-5). Per capita costs for SUD patients who were treated in psychiatric clinics rose more sharply than did costs for PSY patients (50% vs 0% increase respectively). Per capita costs for SUD patients treated in medical and other clinics also showed a sharper rise of 100% than did those for PSY patients, whose costs increased 33%.

There was a marked 133% increase in per capita costs for all clinic care for SUD patients from \$600 to \$1,400 (Figure E-2). In contrast, costs for PSY patients increased 20%, from \$1,000 to \$1,200. Expanding per capita outpatient costs for SUD patients reflect a substantial increase in the intensity of outpatient treatment and the staff needed to provide it.

Pharmacy Costs

We used the CDR to obtain data on total outpatient pharmacy costs. In addition, Tuscaloosa VAMC provided data on pharmacy costs for each outpatient clinic. We

Table E-5. Per Capita Costs of Outpatient Care for Mental Health Outpatients by Diagnostic Type and Clinic and Year

| Type of Patient | Baseline | Transition | Conversion | Follow-up | Change From Baseline to Follow-up |
|-----------------------------------------------------------------------------|----------|------------|------------|-----------|-----------------------------------|
| All SUD Patients | | | | | |
| SUD Clinic | 500 | 600 | 1,200 | 800 | 300 (+ 60%) |
| PSY Clinic | 400 | 500 | 500 | 600 | 200 (+ 50%) |
| MED and Other Clinics | 300 | 300 | 500 | 600 | 300 (+100%) |
| PSY Only Patients | | | | | |
| PSY Clinic | 600 | 600 | 500 | 600 | 0 (0%) |
| MED and Other Clinics | 600 | 600 | 700 | 800 | 200 (+ 33%) |
| Average per capita costs for all clinic care for all mental health patients | 900 | 900 | 1,100 | 1,300 | 400 (+ 44%) |

estimated pharmacy costs for patients in a particular diagnostic group by multiplying total pharmacy costs for a particular clinic by the percent of unique patients in each diagnostic group who were treated at the clinic. We then summed total pharmacy costs for each major type of clinic, that is SUD, psychiatric, medical and other clinics.

Total outpatient pharmacy costs for mental health patients increased 60% or \$910,000; this increase mirrored the 58% increase in costs for all outpatient care for this group of patients. Overall, outpatient pharmacy costs for all mental health patients rose from \$1.5 million at baseline to \$2.4 million at follow-up. Total pharmacy costs for SUD patients increased 106% (\$350,000) over the 4-year period, while costs for PSY patients increased by 47% (\$560,000). Pharmacy costs for SUD patients treated in SUD clinics decreased 50% (\$10,000). However, pharmacy costs for SUD patients who received treatment in psychiatric clinics rose a substantial 220% (\$220,000).

pharmacy costs for SUD patients treated in medical and other clinics increased 70% (\$140,000).

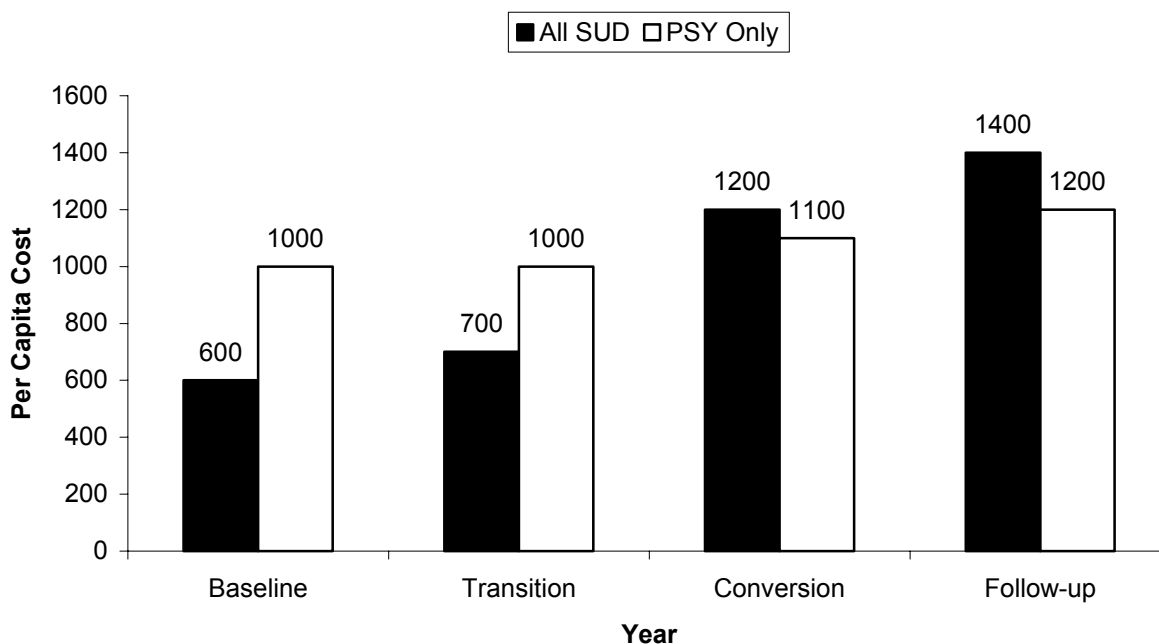


Figure E-2. Per Capita Outpatient Costs for All Outpatient Care for SUD and PSY Patients by Year

Summary of Outpatient Costs

Total inflation-adjusted direct costs for mental health patients' outpatient care increased 58% (more than \$2 million). These escalating costs reflect a 35% increase in staff who were used to deliver more intensive outpatient services and a 10% increase in mental health outpatients. Over the four years, the direct cost of care provided in SUD clinics increased by 350% (\$630,000), while costs for treating SUD patients in psychiatric and medical and other clinics increased by 156% (\$280,000) and 162% (\$520,000), respectively.

Per capita direct costs for mental health patients rose 44% (\$400). Per capita costs for all outpatient care for SUD patients increased 133% (\$800) over the 4-year period, while costs for PSY patients increased only 20% (\$200). Rising per capita costs for SUD patients reflected an increase in the intensity of treatment and the staff

needed to provide it. In contrast, per capita costs for PSY patients' treatment in psychiatric clinics remained unchanged over the 4-year period.

Outpatient pharmacy costs for mental health patients increased by 60% (\$910,000). Pharmacy costs for SUD patients rose 106% (\$350,000), while those for PSY patients increased by 47% (\$560,000).