

**Outcomes Monitoring for Patients with Substance Use Disorders:**  
**V. Cohort 3 Patients' Characteristics, Treatment, and Treatment Outcomes**

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## Executive Summary

This report describes the results of the follow-up of the third cohort of patients with substance use disorders included in a nationwide VA outcomes monitoring program. Cohort 3 consisted of 19,980 patients were initially assessed within 14 days of entering a new treatment episode, while a total of 10,062 patients were initially assessed during treatment during FY1999. The Addiction Severity Index (ASI) was used to measure the severity of these patients' substance use problems, psychiatric and medical problems, and family/social, legal, and employment problems. Because patients who are in treatment tend to obtain lower ASI problem scores, the data for these two groups were analyzed separately.

This report (1) compares the followed patients with the overall sample of patients from which they were drawn, (2) contrasts the followed patients' baseline and follow-up ASI scores, (3) describes patients' diagnoses and index episodes of care, and identifies preliminary associations between characteristics of service episodes and patients' risk-adjusted outcomes.

### Patients Initially Assessed at Treatment Entry

As a group, the 19,980 patients initially assessed at treatment entry and later followed had relatively severe current problems. At treatment entry, 57% of these patients had used alcohol to intoxication and 51% had used one or more drugs in the past 30 days. In addition, 56% had had psychological problems in the past month; almost half reported serious depression or anxiety. Large numbers of patients also experienced severe current medical, family/social, and employment problems.

**Changes Between Baseline and Follow-up.** On average, the 19,980 patients initially assessed at treatment entry showed a decline in ASI composite scores over time. Patients' improvement was especially evident in alcohol and drug usage and in a reduction in the number of pending legal sanctions. For example, at follow-up, 53% of patients had used alcohol and 20% had used drugs in the previous 30 days, compared with 75% and 51%, respectively, at baseline.

**Diagnoses and Services Provided.** We used the nationwide VA health care utilization databases to examine the diagnoses, inpatient, and extended care, and outpatient mental health services patients received in the index episode of care. Among followed patients initially assessed at treatment entry, 23% had only alcohol dependence diagnoses, 8% had only drug dependence diagnoses, and 66% had both alcohol and drug dependence diagnoses. Among the drug-dependent patients, 39% were dependent on cocaine, 5% were dependent on opioids, and 28% were dependent on marijuana. A total of 53% of the patients also had psychiatric diagnoses; the most prevalent diagnoses were depression and posttraumatic stress disorder.

These followed patients received a substantial amount of VA care in their index episode, which, on average, lasted for 3.3 months. More than half (52%) of the patients received inpatient and/or extended care. Inpatients in substance abuse or psychiatric units received an average of about two weeks of hospital-based care. More than 90% of the patients received outpatient mental health care, and on average, these patients had 49 outpatient mental health contacts.

**Service Episodes and Risk-Adjusted Outcomes.** Among the followed patients initially assessed at treatment entry, older patients tended to have somewhat better outcomes; patients with psychiatric diagnoses tended to have worse psychiatric, family, and employment outcomes. Patients who remained in treatment longer were much more likely to be abstinent and somewhat more likely to be free of psychiatric problems at follow-up.

### **Patients Initially Assessed During Treatment**

As a group, the 5,428 patients who were initially assessed during treatment and were later followed had moderately severe problems. At initial assessment, 43% of these patients had used alcohol to intoxication and 37% had used one or more drugs in the past 30 days. In addition, 66% had had psychological problems in the past month; at least half reported serious depression and/or anxiety. A substantial proportion of patients also experienced current medical, family/social, and/or employment problems.

**Changes Between Baseline and Follow-up.** On average, among the followed patients who were initially assessed during treatment, there were reductions between baseline and follow-up in the ASI alcohol, drug, medical, family/social, legal, and employment composite scores.

**Diagnoses and Services Provided.** Among followed patients initially assessed during treatment, 18% had only alcohol dependence diagnoses, 6% had only drug dependence diagnoses, and 74% had both alcohol and drug dependence diagnoses. Among the drug-dependent patients, 24% were dependent on cocaine, 5% were dependent on opioids, and 19% were dependent on marijuana. More than 70% of the patients also had psychiatric diagnoses; the most prevalent diagnoses were depression, posttraumatic stress disorder, and schizophrenia or paranoid psychoses.

These patients also received a substantial amount of VA care in their index episode, which lasted for an average of 6.3 months. In all, 63% of the patients received inpatient and/or extended care. Inpatients in substance abuse or psychiatric units received an average of two to three weeks of hospital-based care. A total of 97% of the patients received outpatient mental health care; on average, followed patients had 74 outpatient mental health contacts.

**Service Episodes and Risk-Adjusted Outcomes.** Among the followed patients

initially assessed during treatment, older patients tended to have somewhat better outcomes; patients with psychiatric diagnoses tended to have poorer psychiatric, family, and employment outcomes. Patients who had longer index episodes of care had better risk-adjusted outcomes on several of the domains.

## **Government Performance Results Act**

As part of its participation in the Government Performance Results Act (GPRA), the VA adopted a performance goal for FY99 that, at a six-month follow-up, 50% of patients who enter treatment in a specialized substance abuse program will show at least 5% improvement from treatment entry on the ASI alcohol and drug composite scores. Among followed patients initially assessed at treatment entry who had specialized substance abuse care, 86% improved 5% or more on the ASI alcohol composite, 67% improved 5% or more on the ASI drug composite, and 60% improved 5% or more on both the alcohol and drug composites. Because of the low follow-up rate, these percentages must be interpreted with caution. It is also important to note that the population of veterans served varies across VA substance abuse programs.

## **Conclusions and Recommendations**

Consistent with prior literature, our findings show that patients with substance use disorders improve substantially with treatment. Specifically, among both patients initially assessed at treatment entry and patients initially assessed during treatment, those who remained in treatment longer tended to have better risk-adjusted outcomes.

Although these findings are of potential clinical relevance, they should be interpreted with caution. The findings are limited by the low follow-up rate, the fact that clinicians followed some of the patients and may have obtained overly positive patient reports, differences between interview and self-report ASI scores, variations in the length of the follow-up interval, and the fact that many of the followed patients were still in treatment and may have had fewer current problems than patients who were not followed. In addition, little or no information was obtained on the process and content of care.

Notwithstanding these limitations, the information provided in this report is a step toward an outcomes monitoring system that will enable the VA to understand the connections between the process and outcome of substance abuse care. The findings highlight the severe nature and extent of many VA substance use disorder patients' problems, as well as the extensive amount of treatment resources devoted to these patients' care. More specific information about the associations between the type, amount, and duration of care and patients' outcomes should enable the VA to provide evidence-based and cost-effective substance abuse treatment.



## Introduction

This report is the fifth in a series describing the results of a nationwide program in the Department of Veterans Affairs (VA) to monitor the treatment and treatment outcomes of patients with substance use disorders. As a first step toward an evaluation of substance abuse treatment in each facility and Network, the Office of Quality and Performance established a guideline that called for administration of the Addiction Severity Index (ASI) to patients with substance use disorders who obtained VA health care between July and September 1997. Later guidelines mandated readministration of the ASI at a six-month follow-up of all patients initially assessed at baseline.

### **Cohort 1 (FY97-FY98) - Reports I and II**

The first report in this series described the history and baseline substance abuse and psychosocial problems of the first cohort of 34,251 patients with substance use disorders who were assessed with the ASI between July and September 1997 (Moos, Finney, et al., 1998). The second report described the results of the clinician-based follow-up of this cohort of patients (Moos, Federman, et al., 1999a).

The first two reports described how the ASI was used to measure the severity of patients' substance use problems, psychiatric and medical problems, and family/social, legal, and employment problems. More than 17,000 of the first cohort of patients were assessed within 14 days of entry into a new treatment episode; the rest were assessed during treatment. Because patients who are in treatment tend to obtain lower ASI problem scores, the data for these two groups were analyzed separately.

Between October 1997 and September 1998 (FY98), clinicians readministered the ASI to 12,341 of the 34,251 patients (37% of the patients still alive). Of the 17,000 patients initially assessed at treatment entry, 5,100 (30%) were given the ASI again an average of 8.5 months later. By this point, these patients had improved substantially in several problem areas, especially in the alcohol, drug, psychiatric, and family domains.

Patients who had longer index episodes of care experienced better risk-adjusted outcomes in six of the seven ASI domains. For example, at follow-up, 79% of patients treated for 13 months or more were abstinent from alcohol and 51% were free of psychiatric problems, compared to 50% and 38%, respectively, of patients treated for 3 months or less. Moreover, patients who received more outpatient mental health care reported fewer problems at follow-up in the alcohol, psychiatric, medical, and family domains.

Of the 16,900 patients in the first cohort who were initially assessed during treatment, 7,200 (43%) were given the ASI again an average of 9.1 months later. These patients had improved somewhat between baseline and follow-up. The patients showed slight declines in six of the seven ASI domains (all except employment problems).

Patients who had longer index episodes of care had better risk-adjusted outcomes in all seven ASI domains. More specifically, at follow-up, 78% of patients treated for 13 months or more were abstinent from alcohol and 47% were free of psychiatric problems, compared to 61% and 36%, respectively, of patients treated for 3 months or less.

### **Cohort 2 (FY98-FY99)- Reports III and IV**

The third report focused on the history and baseline problems of the second cohort of 67,279 patients with substance use disorders who were given an initial ASI between October 1997 and September 1998 (Moos, Federman, et al., 1999b). The fourth report in this series described the results of the follow-up self-report and the clinician-based follow-up of this cohort of patients (Moos, Finney, et al., 2000).

Between October 1998 and September 1999 (FY99), clinicians re-administered the ASI to 21,119 of the original cohort of 67,279 patients (44% of the patients still alive). Of the 38,883 patients initially assessed at treatment entry, 16,398 completed the 6-12 month follow-up. By this point, these patients had improved substantially in several problem areas, especially in the alcohol, drug, psychiatric, and family domains.

Patients who had longer index episodes of care experienced better risk-adjusted outcomes in six of the seven ASI domains. Of the 28,224 patients in the second cohort who were initially assessed during treatment, 12,694 completed the 6-12 month follow-up. These patients had improved somewhat between baseline and follow-up. The patients showed slight declines in all seven ASI domains.

As in Cohort 1, patients who had longer index episodes of care had better risk-adjusted outcomes in all six of the seven ASI domains.

### **Cohort 3 (FY99-FY00)- Report V**

The present report, unlike prior reports, describes both the baseline and follow-up results for the third cohort of patients.

### **The Addiction Severity Index (ASI)**

The Addiction Severity Index (ASI; McLellan et al., 1992) was chosen as the most appropriate assessment procedure because many VA substance abuse programs use it as part of their standard intake assessment battery. The ASI covers a broad range of problem areas, including psychiatric, medical, and social problems, as well as substance use. The ASI is suitable for repeated administration at a baseline, typically intake to treatment, and at subsequent follow-ups. Thus, it can measure stability and change in patients' symptoms and functioning over time.

The ASI is used widely in studies of the outcome of treatment in both VA and non-VA substance abuse programs. Thus, it is suitable for comparing VA substance use disorder patients' characteristics and outcomes to those of patients in other public and in private systems of care. The Fifth Edition of the ASI was used in the current assessment.<sup>1</sup>

The ASI obtains summary scores in the seven domains listed below. The scoring key for these seven summary or composite indices is provided in Appendix A.

- Substance use problems
  1. Alcohol use
  2. Drug use
  
- Health problems
  3. Psychiatric symptoms
  4. Medical problems
  
- Social functioning problems
  5. Family and social problems
  6. Legal problems
  7. Employment problems

## **Training Procedures**

The VA organized a nationwide program to train staff members to conduct ASI interviews in a consistent and reliable way. The VA contracted with the Treatment Research Institute (TRI) at the University of Pennsylvania for the services of expert ASI interviewers to conduct staff training. The St. Louis Center of the VA Employee Education System coordinated a series of eight 2-day training sessions prior to the administration of the ASI to the first cohort of patients.

Each training session included information about the rationale and purpose of the ASI, a detailed review of ASI interview procedures (Fureman et al., 1990), videotaped presentations of ASI interviews, and work with the VA computer system and ASI data entry procedures. A minimum of two staff members at each VA facility completed the training. These individuals were chosen primarily from staff in substance abuse treatment programs. Some facilities and Networks contracted with ASI experts from TRI to conduct on-site sessions to train additional staff. Staff training sessions continued throughout 1997 and 1998.

## Patients and Methods

Cohort 3 consisted of 31,009 people who completed the ASI at baseline, during FY1999.<sup>2</sup> The current report focuses primarily on the 15,116 patients who completed the ASI either as a clinician-administered follow-up (N=6,498) or as a mailed self-report follow-up (N=8,623) conducted between October 1999 and December 2000.<sup>3,4,5</sup> A total of 803 of the patients (2.6%) who were not followed had died; thus, the 15,116 followed patients represent 49.97% of those still alive.

On average, the 15,116 patients who completed the ASI at baseline and were followed were 48 years of age (SD = 9.3) and had 12.6 years of education (SD = 2.3). Almost all (97%) were men; 57% were Caucasian, 37% were African American, 6% were Hispanic/Latino, and 2% were of other racial groups. Only 23% of the patients were currently married; 53% were separated or divorced, 3% were widowed, and 20% were single. With respect to their usual living arrangements in the past three years, 61% of the patients lived with family members or friends, 29% lived alone, 3% lived in a controlled environment (hospital or jail), and 7% had no stable living arrangement. The demographic characteristics of these followed patients were comparable to those of the overall sample of patients from which they were drawn, and were virtually identical to the overall sampling characteristics of Cohort 2.

### History of Substance Use Problems and Treatment

Most of the followed patients had a long history of alcohol and/or drug use. 76% had regularly used alcohol to intoxication for five years or more. A total of 48% of the patients had regularly used at least one illegal drug for five years or more; 27% had used cocaine, 9% had used heroin, 5% had used other opiates, 41% had used marijuana for five years or more; and 43% of the followed patients had used more than one illegal drug for five years or more.

Many of the patients also had medical and psychiatric problems. Over half (59%) reported a chronic medical problem that interfered with their daily life. More than two-thirds reported a significant episode of depression at some time in their life; 39% had had serious thoughts of suicide and 22% reported a suicide attempt. Moreover, 35% had had problems controlling their violent behavior and 20% had a history of hallucinations. A total of 20% reported having been physically or sexually abused by family members or friends.

Among patients initially assessed at treatment entry, a total of 53% of the patients had a psychiatric diagnosis.<sup>20</sup> Almost all (96%) of these patients were dually diagnosed, but about 4% had only a psychiatric diagnosis. The most prevalent psychiatric diagnoses among these patients were depression (63%) and posttraumatic stress disorder (30%), which characterized 34% and 16% of all followed patients, respectively. A total of 8% of the patients were diagnosed with schizophrenia or

paranoid psychoses, 7% with a manic or bipolar disorder, and 9% with a borderline, sociopathic, or other personality disorder.

In addition to their substance use and psychiatric problems, many patients reported a history of legal and social problems. More than half (56%) had one or more lifetime arrests, 45% had one or more convictions for criminal behavior, and 37% had spent some time in jail. In addition, 54% had one or more arrests for driving under the influence of alcohol or drugs.

According to their responses to the ASI, the majority of patients had had prior treatment for substance use or psychiatric problems or both. In all, 58% reported prior treatment for alcohol abuse, 35% reported prior treatment for drug abuse, and 34% reported prior treatment for psychological or emotional problems. With respect to hospitalization for any reason, 84% reported a history of hospitalization; 30% had had one or more hospitalizations in the past year. In general, the followed patients' history of substance use and psychosocial problems was comparable to that of the overall sample of patients assessed at baseline.

## **Diagnoses and Service Episodes**

At the time of their initial ASI assessment, the 15,116 followed patients were in varied types and stages of treatment. Using information from the FY98 and FY99 VA nationwide inpatient (Patient Treatment File) and outpatient (Outpatient Clinic File) databases, we specified an index episode of care. We also used the nationwide files to determine patients' diagnoses and the inpatient and outpatient treatment they received in the index episode.<sup>6</sup>

We defined an index episode of care as beginning with the first day of mental health treatment (inpatient, extended, or outpatient) after an interval of 30 days or more without such treatment. The end of the index episode was defined as the last day of mental health care that was followed by a minimum of 30 days without any mental health care.<sup>7, 8</sup> More specifically, we chose the episode of mental health care in which, or closest to which, the patient completed the baseline ASI. Our goal was to characterize mental health service episodes that encompassed different levels of care, such as inpatient, residential, intensive outpatient, and outpatient. For patients who had no relevant outpatient mental health care, we used the dates of outpatient medical care in which patients had a mental health diagnosis.<sup>9</sup>

Many of the ASI questions focus on patients' problem status in the past 30 days. As a result, compared to patients who have recently entered treatment, patients who have been in treatment for some time tend to obtain somewhat lower ASI problem scores. Accordingly, we divided the 15,116 patients who completed the ASI at baseline and follow-up into two groups: Patients who completed an ASI at baseline within 14 days of initiating a new treatment episode (N=9,631 of the followed patients and N=19,980 of the overall cohort), and patients who completed an ASI at baseline outside this 14-day window (N=5,428 of the followed patients and N=10,062 of the overall

cohort). An additional 62 patients completed an ASI at both baseline and follow-up, but were missing either their admission date or their interview date and are thus in neither group because we could not classify them. For convenience, we refer to these two groups as the patients initially assessed at treatment entry and the patients initially assessed during treatment, respectively.<sup>10, 11, 12</sup>

### **Patients Initially Assessed at Treatment Entry**

We first compared the to-be-followed patients assessed at treatment entry with published ASI norms for patients entering private substance abuse treatment programs (McLellan et al., 1992).<sup>13</sup> The normative group is composed primarily of patients with alcohol and cocaine disorders. These patients include inpatients in 20- to 30-day rehabilitation programs, partial hospital patients in 30- to 60-day programs with a minimum of 25 hours of treatment per week, and outpatients in 30- to 60-day programs with less than 20 hours of treatment per week.

Compared with patients in private programs (see comparison group bars in Figure 1), the VA patients had more problems in every area, especially in the psychiatric, medical, legal, and employment domains. These differences most likely reflect the high percentage of VA patients who have both substance use and psychiatric disorders (Piette & Fong, 2001) and who are court-mandated to treatment, the fact that the vast majority of VA patients is men, and VA patients' lower socioeconomic status.

Figure 1

## Substance Use Problems at Baseline and Follow-up

Most of the followed patients assessed at treatment entry completed the ASI in the first week of treatment (median = 3 days). On average, the length of time between the baseline and follow-up ASIs for patients initially assessed at treatment entry was 14.8 months (SD = 4.8; range from less than 1 month to 27 months). The 9,631 followed patients constitute a 31% sample of the initial group of 31,009 patients who were assessed at treatment entry.<sup>14</sup>

To provide a comprehensive picture of the followed patients' status at baseline and at follow-up, we describe patients' problems in each of the seven ASI domains. At baseline, the to-be-followed patients (N=9,631) were comparable to the complete sample from which they were drawn (Tables 1-7). Of course, these findings do not necessarily mean that the followed patients' ASI scores at follow-up are representative of what those of patients in the larger sample would have been had they been followed.

**Alcohol Use Problems.** At baseline, among the patients who were later followed, 75% had used alcohol and 58% had been intoxicated at some time in the past 30 days (Table 1). A total of 57% of these patients stated that they had had problems with alcohol in the past 30 days. More than a quarter of them had spent \$100 or more on alcohol in the past 30 days. A total of 59% were troubled by their alcohol problems and 59% reported a need for treatment for these problems.

The patients reported fewer alcohol-related problems at follow-up. A total of 53% had used alcohol and 35% had been intoxicated in the past 30 days, down from 75% and 58%, respectively, at baseline (Table 1). In addition, fewer patients at follow-up reported spending \$100 or more on alcohol in the past 30 days and fewer were troubled by their alcohol-related problems. There also was a substantial overall decline in the ASI alcohol composite score, which, as is the case for all seven of the ASI composites, can vary from 0 to 1.

**Table 1. Alcohol Use Problems and ASI Alcohol Composite Score  
(For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
D1. Used alcohol in past 30 days (%)	75	75	53
D2. Intoxicated in past 30 days (%)	57	58	35
D23. Spent \$100 or more on alcohol in past 30 days (%)	26	26	13
D26. Problems with alcohol in past 30 days (%)	56	57	34
D28. Troubled by alcohol problems (%) <sup>1</sup>	58	59	35
D30. Need treatment for alcohol problems (%) <sup>1</sup>	58	59	35
ASI alcohol composite score (SD)	.44 (.32)	.44 (.32)	.29 (.28)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Drug Use Problems.** At baseline (see Table 2), 48% of the to-be-followed patients had used drugs in the past month. A total of 30% of these patients had used cocaine, 8% had used heroin, and 4% had used other opiates or analgesics; in addition, 23% had used marijuana. Overall, 38% of these patients had had problems with drugs in the past 30 days and 37% had used more than one substance per day.

The patients reported fewer drug-related problems at follow-up.<sup>15</sup> A total of 20% had used one or more drugs and 25% reported drug-related problems in the past 30 days, down from 48% and 37%, respectively, at baseline (Table 2). There were declines in the percentages of patients using cocaine (30% to 7%), and marijuana (23% to 15%). There also was an overall decline in the ASI drug composite score, which, as is the case for all seven of the ASI composites, can vary from 0 to 1.

**Table 2. Drug Use Problems and ASI Drug Composite Score  
(For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
Used 1 or more drugs in past 30 days (%)	51	48	20
D3. Used heroin (%)	8	8	2
D4. Used nonprescription methadone (%)	2	2	1
D5. Used other opiates or analgesics (%)	4	4	2
D6. Used barbiturates (%)	1	1	1
D7. Used other sedatives, hypnotics, or tranquilizers (%)	5	5	2
D8. Used cocaine (%)	34	30	7
D9. Used amphetamines (%)	3	3	1
D10. Used marijuana (%)	24	23	15
D11. Used hallucinogens (%)	1	1	0
D13. Used more than 1 substance a day (%)	39	37	12
D27. Problems with drugs in past 30 days (%)	42	38	25
D29. Troubled by drug problems (%) <sup>1</sup>	44	40	27
D31. Need treatment for drug problems (%) <sup>1</sup>	50	45	32
ASI drug composite score (SD)	.13 (.14)	.12 (.14)	.07 (.12)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Psychiatric Problems.** At baseline, 57% of the patients who were later followed had experienced psychological or emotional problems in the past month (Table 3). With respect to specific symptoms, 48% reported serious anxiety, 45% reported serious depression and 16% had serious thoughts of suicide, 36% reported impaired concentration or memory, 13% had problems controlling their violent behavior, and 9% had hallucinations. Overall, 54% of the patients were troubled by their psychiatric problems and 55% reported a need for treatment of these problems.

The patients reported about the same amount of psychiatric problems at follow and at baseline, in contrast to the larger differences found for alcohol and drug problems noted above. Moreover, at follow-up, about half of the patients still reported psychological or emotional problems and serious anxiety and/or depression, as well as the need for additional treatment for these problems.

**Table 3. Psychiatric Problems and ASI Psychiatric Composite Score (For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
P11. Psychological or emotional problems in past 30 days (%)	56	57	56
P4. Serious anxiety or tension (%)	47	48	53
P3. Serious depression (%)	44	45	46
P8. Serious suicidal thoughts (%)	16	16	15
P9. Attempted suicide (%)	3	3	3
P5. Hallucinations (%)	9	9	14
P6. Impaired concentration or memory (%)	35	36	43
P7. Trouble controlling violent behavior (%)	13	13	15
P10. Was prescribed medication for psychological or emotional problem (%)	22	24	33
P12. Troubled by psychiatric problems (%) <sup>1</sup>	53	54	55
P13. Need treatment for psychiatric problems (%) <sup>1</sup>	54	55	50
ASI psychiatric composite score (SD)	.26 (.24)	.27 (.24)	.25 (.28)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Medical Problems.** This patient population had a high prevalence of medical problems. At baseline, 54% of the to-be-followed patients had experienced medical problems in the past 30 days, 54% were troubled by these problems, and 53% reported a need for treatment in this area (Table 4). ASI medical composite scores remained about the same at follow-up.

**Table 4. Medical Problems and ASI Medical Composite Score  
(For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
M6. Medical problems in past 30 days (%)	51	54	62
M7. Troubled by medical problems (%) <sup>1</sup>	47	51	59
M8. Need treatment for medical problems (%) <sup>1</sup>	49	53	56
ASI medical composite score (SD)	.39 (.39)	.42 (.39)	.40 (.37)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Family and Social Problems.** At baseline, a substantial minority of the to-be-followed patients reported problems in this area. A total of 21% had experienced serious conflicts with a family member in the past 30 days (Table 5). Conflict with a spouse or partner was most common (20% of the patients); conflicts with parents, children, and brothers and sisters also were relatively common. Overall, 33% of the patients were troubled by these problems and wanted counseling for them.

At follow-up, 88% of the patients reported satisfaction with their marital situation, compared with roughly three-quarter of the patients at baseline. In addition, the followed patients reported modest declines in their family and social problems over time.

At follow-up, about a third were still troubled by and reported a need for treatment of family problems, and about a quarter reported serious recent conflict with a family member. The overall family and social problem composite score showed a small decline.

**Table 5. Family and Social Problems and ASI Family/Social Composite Score  
(For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
F3. Satisfied with marital situation(%)	73	73	88
F18/19. Conflict with mother and/or father (%)	10	10	8
F20. Conflict with brothers and sisters (%)	9	9	11
F21. Conflict with spouse or partner (%)	21	20	20
F22. Conflict with children (%)	7	6	10
F23. Conflict with other family members (%)	4	3	8
F24. Conflict with friends (%)	6	6	10
F25. Conflict with neighbors (%)	4	4	8
F26. Conflict with coworkers (%)	6	5	8
F30. Serious conflict with a family member in past 30 days (%)	22	21	23
F32. Troubled by family problems (%) <sup>1</sup>	34	33	37
F34. Need treatment for family problems (%) <sup>1</sup>	34	32	31
ASI family/social composite score (SD)	.22(.22)	.21 (.22)	.16 (.21)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Legal Problems.** A small minority of patients had legal problems at baseline. Of the to-be followed patients, 19% were on probation or parole, 18% had been mandated to treatment (Table 6). A total of 22% of the patients were troubled by their legal problems and 18% wanted counseling for them.

There was little or no change in patients' illegal activities over time. At follow-up, 3% (versus 4% at baseline) reported illegal activities in the past 30 days. There also was little or no change in the percentage of patients who were troubled by their legal problems and wanted counseling for them.

**Table 6. Legal Problems and ASI Legal Composite Score  
(For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
On probation or parole <sup>1</sup>	20	19	21
Treatment mandated by criminal justice system <sup>1</sup>	18	18	15
Detained or jailed in past 30 days <sup>1</sup>	10	10	6
L24. Presently awaiting charges, trial, or sentence (%)	14	14	8
L27. Illegal activities in past 30 days (%)	5	4	3
E17. Illegal income in past 30 days (%)	3	2	2
L28. Troubled by legal problems (%) <sup>2</sup>	22	22	21
L29. Need counseling for legal problems (%) <sup>2</sup>	19	18	17
ASI legal composite score (SD)	.11 (.18)	.10 (.18)	.07 (.15)

<sup>1</sup>These items are not scored.

<sup>2</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Employment Problems.** Although at baseline most of the to-be-followed patients reported a usual pattern of full-time or part-time employment in the past 3 years, only 42% had worked in the past 30 days (Table 7). Slightly more than half (53%) of the patients had a valid driver's license, but only 38% had access to a car. Overall, 43% of the patients were troubled by their employment problems and 41% wanted counseling in this area. These percentages are comparable to those for the overall sample of patients from which the followed patients were drawn.

Patients' employment status and problems remained quite stable over time. At follow-up, only 42% of the patients had worked in the past 30 days, comparable to the 42% at baseline. Although the overall severity of patients' employment problems had not changed, patients were somewhat less troubled by these problems and expressed somewhat less need for counseling in this area.

**Table 7. Employment Status and Problems and ASI Employment Composite Score (For Patients Initially Assessed at Treatment Entry)**

ASI Item Number and Content	All Patients (N=19,980)	Followed Patients at Baseline (N=9,631)	Followed Patients at Follow-up (N=9,631)
E11. Worked in past 30 days (%)	45	42	42
E12. Median earned income in past 30 days in dollars (for all patients)	0	0	0
E12. Median earned income in past 30 days in dollars (for patients earning >\$0)	720	750	824
E4. Valid driver's license (%)	51	53	57
E5. Available automobile (%)	35	38	41
E20. Troubled by employment problems (%) <sup>1</sup>	45	43	36
E21. Need counseling for employment problems (%) <sup>1</sup>	43	41	35
ASI employment composite score (SD)	.65 (.29)	.64 (.30)	.62 (.31)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely. These two items are not scored.

**Change from Baseline to Follow-up.** Figure 2 summarizes the overall changes in ASI composite scores between baseline and follow-up among patients initially assessed at treatment entry. On average, these patients showed a decline in ASI composite scores over time.<sup>16</sup>

To obtain a clinically meaningful estimate of the magnitude of change among these patients, we selected and dichotomized one key ASI item in each of the seven domains: use of (1) alcohol and (2) drugs, presence of (3) psychiatric and (4) medical problems and (5) serious family conflict, (6) pending criminal charges, trial, or sentence; and (7) not being employed.<sup>17</sup>

As shown in Figure 3, the percentage of patients who used alcohol or drugs declined between baseline and follow-up. There also were moderate reductions in the percentage of patients who reported pending legal sanctions. In general, the changes on these individual items parallel the changes on the composites, and illustrate more concretely patients' improvement in substance use, symptoms, and social functioning.

Figure2

Figure 3

**Government Performance Results Act.** As part of its participation in the Government Performance Results Act (GPRA), the VA adopted a performance goal for FY99 that, at a six-month follow-up, 50% of patients who enter treatment in a specialized substance abuse program will show at least 5% improvement from treatment entry on the ASI alcohol and drug composite scores. Among followed patients initially assessed at treatment entry who had specialized substance abuse care, 86% improved 5% or more on the ASI alcohol composite, 67% improved 5% or more on the ASI drug composite, and 60% improved 5% or more on both the alcohol and drug composites.<sup>18</sup> Because of the low follow-up rate, these percentages must be interpreted with caution. It is also important to note that the population of veterans served varies across VA substance abuse programs.

**Scores for Patients in Each Facility and Network.** There were substantial differences among the 148 facilities and 22 Networks in the ASI baseline and follow-up scores of the patients who were initially assessed at treatment entry (see Appendix B).

### **Diagnoses and Service Use**

We focus next on the followed patients' substance use, psychiatric, and medical diagnoses, their VA treatment in the index episode, and the relationship between the treatment they received and risk-adjusted changes in their ASI scores between baseline and follow-up.

Among followed patients initially assessed at treatment entry, 23% had only an alcohol dependence diagnosis, 8% had only a drug dependence diagnosis, and 66% had both alcohol and drug dependence diagnoses.<sup>19</sup> These percentages are comparable to those in the larger sample from which the followed patients were drawn (Table 8). Among the drug-dependent patients, 39% were dependent on cocaine, 5% were dependent on opioids, and 28% were dependent on marijuana. Among patients with drug dependence diagnoses, 46% were dependent on two or more drugs.

**Table 8. Diagnostic Characteristics of Patients Initially Assessed at Treatment Entry**

Diagnoses (% of Patients)	All Patients (N = 19,980)	Followed Patients (N = 9,631)
<b>Substance Use</b>	<b>98</b>	<b>97</b>
Alcohol Dependence only	21	23
Drug Dependence only	10	8
Alcohol and Drug Dependence	66	66
<b>Psychiatric</b>	<b>50</b>	<b>53</b>
Schizophrenia or Paranoid Psychoses	8	8
Manic or Bipolar Affective Psychoses	6	7
Depression	31	34
Posttraumatic Stress Disorder	14	16
Personality Disorder	9	9
<b>Medical</b>	<b>86</b>	<b>87</b>

A total of 53% of the patients had a psychiatric diagnosis.<sup>20</sup> Almost all (96%) of these patients were dually diagnosed, but about 4% had only a psychiatric diagnosis. The most prevalent psychiatric diagnoses among these patients were depression (63%) and posttraumatic stress disorder (30%), which characterized 34% and 16% of all followed patients, respectively (Table 8, column 2). A total of 8% of the patients were diagnosed with schizophrenia or paranoid psychoses, 7% with a manic or bipolar disorder, and 9% with a borderline, sociopathic, or other personality disorder (Table 8).

The majority of the followed patients (n=9,631) also had medical problems. A total of 87% had one or more medical diagnoses in the index episode; 35% had three or more medical diagnoses. The most common diagnoses were for musculoskeletal (35%), circulatory (30%), digestive (29%), nervous (23%), endocrine (21%), and miscellaneous (35%) disorders. A total of 4% of the patients had cirrhosis of the liver.

**Treatment in the Index Episode of Care.** The average length of the index episode among followed patients initially assessed at entry to treatment was 3.3 months (SD = 4.3 months; range from less than one month to 24 months).<sup>21</sup> As part of their index episode, 52% of these patients had inpatient and/or extended care for an average of 52 days (Table 9a). A total of 15% were in specialized substance abuse programs for an average of 13 days, 14% were in psychiatric programs for an average of 14 days, 4% were in medical detox for an average of 7 days, and 29% were in any type of extended care for an average of 78 days. Overall, 28% of the patients who had inpatient or extended care were treated in more than one type of unit.

Compared with the 48% of followed patients who received only outpatient care, patients who received inpatient or extended care reported more severe alcohol, drug, psychiatric, family, and employment problems; the exception to this was a reporting of fewer legal problems. On average, patients treated in substance abuse inpatient units had the most severe alcohol problems, patients treated in psychiatric units had the most severe psychiatric problems, and patients treated in medical units had the most severe medical problems. Thus, there was some overall matching between patients' problem severity and the type of treatment they received.

A total of 92% of the followed patients had outpatient mental health care in the index episode (Table 9a). On average, these patients had 49 mental health clinic contacts.<sup>22</sup> Patients (84%) who had outpatient substance abuse care had an average of 39 contacts. Patients (62%) who had outpatient psychiatric care had an average of 20 contacts. In addition, 83% of the patients had an average of 14 outpatient medical care contacts.

Compared with all patients who were initially assessed at treatment entry, the followed patients received about the same types of care; that is, a comparable proportion received inpatient or extended care and outpatient substance abuse psychiatric, and medical care. The followed patients received slightly more outpatient mental health care; that is, an average of 49 contacts compared to 44 contacts for all patients initially assessed at treatment entry (Table 9a).

**Table 9a. Type and Amount of Services Provided in the Index Episode of Care For Patients Initially Assessed at Treatment Entry**

Type of Care	All Patients (N = 19,980)		Followed Patients (N = 9,631)	
	% of Pts	Days or Contacts	% of Pts	Days or Contacts
<b>Inpatient or Extended Care (Days)</b>	<b>51</b>	<b>48</b>	<b>52</b>	<b>52</b>
Substance Abuse	15	13	15	13
Psychiatric	14	14	14	14
Detox	3	7	4	7
Medical	4	10	5	10
Extended Care	28	70	29	78
<hr/>				
<b>Outpatient Care (Contacts)</b>	<b>99</b>	<b>52</b>	<b>99</b>	<b>58</b>
Substance Abuse Care	85	34	84	39
Individual	79	9	79	10
Group	60	25	61	28
Methadone	3	98	4	131
Psychiatric Clinic Care	60	19	62	20
Individual	44	6	47	6
Group	18	13	19	14
Day Treatment	2	17	3	22
Mental Health Care	92	44	92	49
Medical Care	82	13	83	14

**Diagnoses and Treatment in the Prior Year.** A substantial proportion of the patients initially assessed at treatment entry had had inpatient or extended care (11%) and/or outpatient care (61%) in the year prior to the index episode (Table 9b). A total of 10% of the patients had had specialized outpatient substance abuse care for an average of 6

contacts, and 21% had had outpatient psychiatric care for an average of 6 contacts. As seen on Table 9b, inpatient substance abuse care decreased from an average of 17 contacts in the year prior to the index episode to 8 contacts in the index episode. A substantial group of patients (58%) had outpatient medical care.

In general, patients were somewhat less likely to have substance abuse and psychiatric diagnoses in their prior episodes of care (N of patients receiving any care = 12,201) than in their index episode. Specifically, in prior episodes, 42% of the patients had a substance use disorder diagnosis, 15% had both an alcohol and a drug diagnosis, and 21% had both a substance use and a psychiatric disorder. A total of 95% had one or more medical diagnoses.

These findings illustrate the high level of chronicity of many of these patients' disorders. To examine the association between prior care and the severity of patients' problems at baseline, we compared the ASI scores of patients who had prior episodes of inpatient or extended care with those of patients who had no prior care. As expected, patients who had had prior care had more problems in the ASI alcohol, drug, psychiatry, medical, and family domains.

**Table 9b. Type and Amount of Services Provided in the Year Before the Index Episode of Care (For Patients Initially Assessed at Treatment Entry)**

Type of Care	FY98 Patients (N = 41,531)		FY99 Patients (N=19,980)	
	% of Pts	Days or Contacts	% of Pts	Days or Contacts
<b>Inpatient or Extended Care (Days)</b>	<b>21</b>	<b>27</b>	<b>11</b>	<b>18</b>
Substance Abuse	5	17	1	8
Psychiatric	9	18	4	14
Detox	2	8	1	6
Medical	8	11	6	10
Extended Care	3	71	1	56
-----				
<b>Outpatient Care (Contacts)</b>	<b>73</b>	<b>18</b>	<b>61</b>	<b>10</b>
Substance Abuse Care	25	11	10	6
Individual	21	4	8	3
Group	11	12	3	9
Methadone	1	55	1	27
Psychiatric Clinic Care	33	10	21	6
Individual	24	5	24	4
Group	5	11	3	8
Day Treatment	1	25	1	9
Mental Health Care	44	14	25	44
Medical Care	68	10	58	8

## Service Episodes and Risk-Adjusted Outcomes

Next, we examined the associations between selected characteristics of the index episode and patients' risk-adjusted ASI outcomes. Prior analyses of this dataset and another dataset composed of more than 5,000 VA patients with substance use disorders (Moos, 1998; Ouimette, Finney, & Moos, 1997) led us to develop a preliminary risk-adjustment index composed of patients' demographic characteristics (age, gender, and married status), the presence of a psychiatric diagnosis in addition to the substance use disorder diagnosis, and the baseline value of the outcome criterion. Controlling for these variables helps to adjust for baseline differences in patients' prognoses before examining associations between characteristics of treatment and treatment outcome.

After conducting initial analyses, we identified three main characteristics of service episodes that tended to predict patients' risk-adjusted ASI outcomes. These predictors were (1) the length of the index episode (in months), (2) whether or not the patient had mental health inpatient or extended care, and (3) the number of outpatient mental health contacts (coded in multiples of six).

Table 10 shows the findings for five of the seven ASI problem domains. For each domain, the composite score at baseline was the best predictor of the composite score at follow-up.<sup>23</sup> In general, late-middle-aged and older patients had somewhat better outcomes. Patients with psychiatric diagnoses had worse outcomes in the psychiatric, family, and employment domains.

Consistent with prior literature (Moos, Pettit, & Gruber, 1995; Simpson, Joe, & Brown, 1997), patients who had longer service episodes tended to experience better outcomes in all five domains (Table 10).<sup>24</sup>

Figures 4 and 5 illustrate the associations between the length of the index episode and the risk-adjusted percentages of patients who were abstinent from alcohol and free of psychiatric problems. As the figures show, patients who remained in treatment longer were much more likely to be abstinent and somewhat more likely to be free of psychiatric problems at follow-up.

Figure 4

Figure 5

**Table 10. Regression Analyses Predicting ASI Composite Score Outcomes for Patients Initially Assessed at Treatment Entry (N = 9,631)**

Predictors	ASI Composite Score Outcomes				
	Alcohol	Drug	Psych	Family	Employ
<b>Patient Characteristics</b>					
Age (55+)	-.07**	-.06**	-.09**	-.11**	.00
Gender (1 = male)	.02*	.03**	.01	-.01	.01
Married (1 = yes)	-.02*	-.03**	.01	.12**	-.05**
Psychiatric Dx (1 = yes)	.00	-.01	.14**	.08**	.03**
Intake Value of Outcome	.39**	.46**	.44**	.21**	.55**
<b>Service Episode Characteristics</b>					
Inpt or Ext. Care (1 = yes)	.01	-.01	.01	.03**	.04**
Length of Index Episode	-.13**	-.08**	-.04**	-.06**	-.08**
Outpatient Mental Health Care	-.01	.02	.00	-.01	.03*
R	.43**	.49**	.53**	.29**	.57**

Note. Entries for the predictors are Beta coefficients.

\*p < .05.; \*\*p < .01

## **Patients With and Without Psychiatric Disorders**

Because of growing interest in the characteristics and treatment of dually diagnosed patients, and the high prevalence of such patients in this sample, we compared patients with and without psychiatric diagnoses. These two groups of patients did not differ substantially in the severity of their alcohol or drug abuse problems at baseline, or in their legal problems (Figure 6). As expected, patients with psychiatric diagnoses had much more severe psychiatric problems; they also had somewhat more severe medical, family, and employment problems.

At follow-up, dually diagnosed patients had statistically significantly different alcohol, drug, psychiatric, medical, family, and employment composite ASI scores ( $p < 0.05$ ), when compared with substance abuse patients without a psychiatric diagnosis (Figure 7).

Figure 6

Figure 7

### **Patients Initially Assessed During Treatment**

At baseline, 10,062 patients were assessed during treatment, that is, outside of the 14-day window at the beginning of a new treatment episode. A total of 5,428 (54%) of these patients obtained a follow-up assessment.<sup>14</sup> Among the followed patients assessed during treatment, the median time between treatment entry and administration of the ASI was 31 days. On average, there was an interval of 15.9 months between the baseline and follow-up ASIs (SD = 7.3).

At baseline, the 5,428 to-be-followed patients were reasonably comparable to the larger sample from which they were drawn (Tables 11-17). Again, this finding should not be construed to imply that the followed patients' ASI scores at follow-up are representative of what those of the patients in the larger sample would have been had they been followed.

### **Substance Use Problems at Baseline and Follow-up**

**Alcohol Use Problems.** At baseline, among the patients who were later followed, 57% had used alcohol and 43% had been intoxicated in the past 30 days (Table 11). A total of 50% of the patients stated that they had had problems with alcohol in the past 30 days. A total of 52% of the patients were troubled by their alcohol problems, but 52% reported a need for treatment of these problems. On average, these patients' alcohol problems had improved somewhat at follow-up, and a somewhat lower percentage reported a need for treatment. The alcohol composite score dropped from 0.35 at intake to 0.27 at follow-up.

**Table 11. Alcohol Use Problems and ASI Alcohol Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
D1. Used alcohol in past 30 days (%)	57	57	46
D2. Intoxicated in past 30 days (%)	42	43	30
D23. Spent more than \$100 on alcohol in past 30 days (%)	15	15	11
D26. Problems with alcohol in past 30 days (%)	49	50	32
D28. Troubled by alcohol problems (%) <sup>1</sup>	52	52	33
D30. Need treatment for alcohol problems (%) <sup>1</sup>	52	52	33
ASI alcohol composite score (SD)	.35 (.28)	.35 (.29)	.27 (.26)

<sup>1</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Drug Use Problems.** As shown in Table 12, at baseline, 37% of the to-be-followed patients had used 1 or more drugs in the past month.<sup>15</sup> A total of 20% of these patients had used cocaine, 5% had used heroin, and 4% had used other opiates or analgesics; in addition, 16% had used marijuana. Overall, 31% of these patients had had problems with drugs in the past 30 days and 26% had used more than one substance per day. A total of 35% were troubled by their drug problems, but 44% recognized that they needed treatment for these problems. Overall, these patients' drug problems declined between baseline and follow-up. The drug composite score dropped from 0.09 at intake to 0.06 at follow-up.

**Table 12. Patients' Drug Use Problems and ASI Drug Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
Used 1 or more drugs in past 30 days (%)	39	37	17
D3. Used heroin (%)	5	5	1
D4. Used nonprescription methadone (%)	3	3	1
D5. Used other opiates or analgesics (%)	4	4	2
D6. Used barbiturates (%)	1	1	1
D7. Used other sedatives, hypnotics, or tranquilizers (%)	6	7	3
D8. Used cocaine (%)	22	20	6
D9. Used amphetamines (%)	2	2	1
D10. Used marijuana (%)	17	16	13
D11. Used hallucinogens (%)	0	0	0
D13. Used more than 1 substance a day (%)	27	26	10
D27. Problems with drugs in past 30 days (%)	33	31	20
D29. Troubled by drug problems (%) <sup>1</sup>	37	35	23
D31. Need treatment for drug problems (%) <sup>1</sup>	47	44	29
ASI drug composite score (SD)	.09 (.12)	.09 (.12)	.06 (.11)

<sup>1</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Psychiatric Problems.** At baseline, 66% of the patients who were later followed had experienced psychological or emotional problems in the past month (Table 13). With respect to specific symptoms, 55% reported serious anxiety, 50% reported serious depression, 19% had serious thoughts of suicide, 45% reported impaired concentration or memory, 14% had problems controlling violent behavior, and 14% had hallucinations. Overall, 63% of the patients were troubled by their psychiatric problems and 65% reported a need for treatment of these problems. As noted in Table 13, the psychiatric composite remained stable from baseline to follow-up.

**Table 13. Psychiatric Problems and ASI Psychiatric Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
P11. Psychological or emotional problems in past 30 days (%)	65	66	65
P4. Serious anxiety or tension (%)	54	55	59
P3. Serious depression (%)	49	50	53
P8. Serious suicidal thoughts (%)	19	19	19
P9. Attempted suicide (%)	4	4	4
P5. Hallucinations (%)	13	14	20
P6. Impaired concentration or memory (%)	44	45	51
P7. Trouble controlling violent behavior (%)	14	14	19
P10. Was prescribed medication for psychological or emotional problem (%)	45	47	50
P12. Troubled by psychiatric problems (%) <sup>1</sup>	61	63	63
P13. Need treatment for psychiatric problems (%) <sup>1</sup>	64	65	58
ASI psychiatric composite score (SD)	.32 (.25)	.33 (.25)	.33 (.29)

<sup>1</sup> Sum of percent of patients' ratings of moderately, considerably, or extremely

**Medical Problems.** At baseline, 60% of the to-be-followed patients had experienced medical problems in the past 30 days, 57% were troubled by these problems, and 59% reported a need for treatment in this area. These problems remained relatively stable between baseline and follow-up.

**Table 14. Medical Problems and ASI Medical Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
M6. Medical problems in past 30 days (%)	58	60	67
M7. Troubled by medical problems (%) <sup>1</sup>	55	57	64
M8. Need treatment for medical problems (%) <sup>1</sup>	57	59	62
ASI medical composite score (SD)	.45 (.39)	.47 (.39)	.44 (.36)

<sup>1</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Family and Social Problems.** At baseline, a substantial minority reported problems in this area; 19% had experienced serious conflicts with a family member in the past 30 days (Table 15). Conflict with a spouse or partner was most common (18% of the patients); conflicts with parents, children, and brothers and sisters were somewhat less common. Overall, 33% of the patients were troubled by these problems and wanted counseling for them.

The followed patients' family and social problems remained basically stable over time. At follow-up, more than a third were troubled by and reported a need for treatment of family problems, and a quarter reported serious recent conflict with a family member.

**Table 15. Family and Social Problems and ASI Family/ Social Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
F3. Satisfied with marital situation(%)	73	74	89
F18/19. Conflict with mother and/or father (%)	8	8	9
F20. Conflict with brothers and sisters (%)	10	9	13
F21. Conflict with spouse or partner (%)	18	18	20.5
F22. Conflict with children (%)	6	7	10.8
F23. Conflict with other family members (%)	4	4	10
F24. Conflict with friends (%)	6	5	12
F25. Conflict with neighbors (%)	4	4	9
F26. Conflict with coworkers (%)	5	5	7
F30. Serious conflict with a family member in past 30 days (%)	18	19	25
F32. Troubled by family problems (%) <sup>1</sup>	33	33	38
F34. Need treatment for family problems (%) <sup>1</sup>	33	33	34
ASI family/social composite score (SD)	.21 (.22)	.20 (.22)	.17 (.22)

<sup>1</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Legal Problems.** A moderate proportion of patients had legal problems. Of the to-be-followed patients, 20% were on probation or parole at baseline and 16% had been mandated to treatment (Table 16). A total of 22% of these patients were troubled by their legal problems and 18% wanted counseling for them. These patients' legal problems remained essentially the same at follow-up. A total of 20% were on probation or parole and 7% were awaiting charges, trial, or sentence. The percentage of patients who were troubled by their legal problems and wanted counseling for them also remained about the same.

**Table 16. Legal Problems and ASI Legal Composite Score  
(For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
On probation or parole <sup>1</sup>	21	20	20
Treatment mandated by criminal justice system <sup>1</sup>	17	16	13
Detained or jailed in past 30 days <sup>1</sup>	6	6	4
L24. Presently awaiting charges, trial, or sentence (%)	13	12	7
L27. Illegal activities in past 30 days (%)	3	2	2
E17. Illegal income in past 30 days (%)	2	1	2
L28. Troubled by legal problems (%) <sup>2</sup>	22	22	20
L29. Need counseling for legal problems (%) <sup>2</sup>	19	18	17
ASI legal composite score (SD)	.09 (.17)	.09 (.17)	.06 (.15)

<sup>1</sup>These items are not scored.

<sup>2</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely.

**Employment Problems.** Of the to-be-followed patients at baseline, only 29% had worked in the past 30 days (Table 17). A total of 54% of the patients had a valid driver's license, but only 40% had access to a car. Overall, 39% of the patients were troubled by their employment problems and 38% wanted counseling in this area.

Patients' employment status and problems remained relatively stable over time. At follow-up, only 31% of the patients had worked in the past 30 days, basically the same as the 29% at baseline. The severity of patients' employment problems improved only slightly over time.

**Table 17. Employment Status and Problems and ASI Employment Composite Score (For Patients Initially Assessed During Treatment)**

ASI Item Number and Content	All Patients (N=10,062)	Followed Patients at Baseline (N=5,428)	Followed Patients at Follow-up (N=5,428)
E11. Worked in past 30 days (%)	30	29	31
E12. Median earned income in past 30 days In dollars (for all patients)	0	0	0
E12. Median earned income in past 30 days in dollars (for patients earning >\$0)	600	600	809
E4. Valid driver's license (%)	53	54	58
E5. Available automobile (%)	36	40	43
E20. Troubled by employment problems (%) <sup>1</sup>	41	39	32
E21. Need counseling for employment problems (%) <sup>1</sup>	41	38	33
ASI employment composite score (SD)	.69 (.29)	.68 (.29)	.65 (.29)

<sup>1</sup>Sum of percent of patients' ratings of moderately, considerably, or extremely. These two items are not scored.

**Change From Baseline to Follow-up.** As summarized in Figure 8, there were moderate reductions between baseline and follow-up in the ASI alcohol, drug, family, legal, and employment composite scores among the followed patients initially assessed during treatment. However, these patients' ASI psychiatric and medical composite scores remained essentially the same, on average.<sup>25</sup>

As before, we selected and dichotomized one key ASI item in each of the seven domains to obtain a clinically meaningful estimate of the magnitude of change among these patients.<sup>17</sup> As shown in Figure 9, the percentage of patients who used alcohol and/or drugs declined, as did the percentage who reported pending legal charges.

We also applied the VA's GPRA performance standard to the changes shown by patients initially assessed during treatment who received specialized substance abuse care. A total of 81% improved 5% or more on the ASI alcohol composite, 67% improved 5% or more on the ASI drug composite, and 60% improved 5% or more on both the alcohol and drug composites.<sup>26</sup>

**Scores for Patients in Each Facility and Network.** Appendix C provides the average scores for the seven ASI problem severity indices at baseline and follow-up for patients initially assessed during treatment in each facility and Network. The total number of patients assessed at baseline is also shown, as is the number and percentage of patients who were followed.

Figure 8

Figure 9

## Diagnoses and Service Use

Among followed patients who were initially assessed during treatment, 18% had only an alcohol dependence diagnosis, 6% had only a drug dependence diagnosis, and 74% had both alcohol and drug dependence diagnoses.<sup>19</sup> These percentages are comparable to those in the larger sample from which the followed patients were drawn (Table 18). Among the drug-dependent patients (n=4,329), 24% were dependent on cocaine, 5% were dependent on opioids, and 19% were dependent on marijuana. Among patients with drug dependence diagnoses, 31% were dependent on two or more drugs.

**Table 18. Diagnostic Characteristics of Patients Initially Assessed During Treatment**

Diagnoses (% of Patients)	All Patients (N = 10,062)	Followed Patients (N = 5,428)
<b>Substance Use</b>	<b>98</b>	<b>98</b>
Alcohol Dependence Only	17	18
Drug Dependence Only	7	6
Alcohol and Drug Dependence	74	74
<b>Psychiatric</b>	<b>74</b>	<b>76</b>
Schizophrenia or Paranoid Psychoses	19	20
Manic or Bipolar Affective Psychoses	15	16
Depression	51	53
Posttraumatic Stress Disorder	27	30
Personality Disorder	17	16
<b>Medical</b>	<b>95</b>	<b>95</b>

A striking 76% of the followed patients had a psychiatric diagnosis.<sup>20</sup> Almost all of these patients were dually diagnosed; however, 3% had only a psychiatric diagnosis. The most prevalent psychiatric diagnoses among these patients were depression and posttraumatic stress disorders, which characterized 53% and 30% of all patients, respectively. A total of 20% of the patients were diagnosed with schizophrenia or paranoid psychoses, 16% with a manic or bipolar disorder, and 16% with a borderline, sociopathic, or other personality disorder (Table 18).

In all, 95% of the followed patients initially assessed during treatment had a diagnosed medical disorder in the index episode of care; 56% had three or more medical diagnoses. The most common diagnoses were for circulatory (42%), digestive (44%), musculoskeletal (51%), endocrine (31%), respiratory (32%), and infectious (26%) disorders; 6% of the patients had cirrhosis of the liver.

**Treatment in the Index Episode of Care.** The followed patients initially assessed during treatment received a substantial amount of treatment (Table 19a). The average length of the index episode was 6.3 months (SD = 6.4 months; range less than 1 month to 141 months).<sup>27</sup> As part of their index episode, 63% of these patients had inpatient and/or extended care for an average of 67 days. Overall, 12% of patients were treated in specialized substance abuse programs for an average of 16 days, 28% were treated in psychiatric programs for an average of 22 days, and 38% received any type of extended care for an average of 86 days. A total of 45% of the patients who had inpatient or extended care were treated in more than one type of unit.

The followed patients initially assessed during treatment had an average of 93 outpatient clinic contacts<sup>22</sup> in the index episode of care (Table 19a); 97% had outpatient mental health care for an average of 74 contacts. A total of 86% of the patients were seen for outpatient substance abuse care (an average of 50 contacts) and 80% were seen for outpatient psychiatric care (an average of 34 contacts). In addition, 93% of the patients had outpatient medical care (an average of 23 contacts).

Compared with the full sample of patients who were initially assessed during treatment, the followed patients received about the same types of care. However, followed patients received somewhat more outpatient mental health care (an average of 74 contacts versus 67 contacts for the whole group).

**Table 19a. Type and Amount of Services Provided in the Index Episode of Care for Patients Initially Assessed During Treatment**

Type of Care	All Patients (N = 10,062)		Followed Patients (N = 5,428)	
	% of Pts	Days or Contacts	% of Pts	Days or Contacts
<b>Inpatient or Extended Care (Days)</b>	<b>63</b>	<b>65</b>	<b>63</b>	<b>67</b>
Substance Abuse	13	15	12	16
Psychiatric	28	22	28	22
Detox	4	10	5	10
Medical	11	13	11	13
Extended Care	38	82	38	86
<hr/>				
<b>Outpatient Care (Contacts)</b>	<b>99.8</b>	<b>85</b>	<b>99.7</b>	<b>93</b>
Substance Abuse Care	86	46	86	50
Individual	80	13	81	13
Group	65	30	66	33
Methadone	4	135	4	171
Psychiatric Care	80	31	80	34
Individual	65	9	67	9
Group	27	19	28	21
Day Treatment	7	44	8	49
Mental Health Care	97	67	97	74
Medical Care	92	22	93	23

**Diagnoses and Treatment in the Prior Year.** Among patients initially assessed during treatment, a majority (74%) had had outpatient care in the year before the index episode of care, and many (21%) had had inpatient or extended care (Table 19b). A total of 18% of the patients had had specialized outpatient substance abuse care for an average of 12 contacts, and 41% had had outpatient psychiatric care for an average of 15 contacts. A total of 70% of the patients had outpatient medical care.

Similar to patients initially assessed at treatment entry, these patients also were less likely to have substance abuse and psychiatric diagnoses in their prior episodes of care than in their index episodes. Specifically, in prior episodes, 55% of the patients had a substance use disorder diagnosis, 24% had both an alcohol and a drug diagnosis, 37% had both a substance use and a psychiatric disorder, and 55% had a psychiatric disorder. As expected, these percentages are substantially higher than those among patients initially assessed at treatment entry. Moreover, 95% of the patients also had one or more medical diagnoses. These findings illustrate the high level of comorbidity and chronicity among many of these patients.

We again compared the ASI scores of patients who did versus those who did not have a prior episode of mental health care. As before, patients who had had prior care had more problems in the ASI alcohol, drug, psychiatric, medical, and family domains (Table 19b).

**Table 19b. Type and Amount of Services Provided in the Year Before the Index**

### Episode of Care (For Patients Initially Assessed During Treatment)

Type of Care	FY98 Patients (N = 23,404)		FY99 Patients (N=10,062)	
	% of Pts	Days or Contacts	% of Pts	Days or Contacts
<b>Inpatient or Extended Care (Days)</b>	<b>32</b>	<b>47</b>	<b>21</b>	<b>27</b>
Substance Abuse	7	22	2	9
Psychiatric	16	27	11	23
Detox	2	9	2	7
Medical	11	13	8	13
Extended Care	7	103	3	61
-----				
<b>Outpatient Care (Contacts)</b>	<b>85</b>	<b>42</b>	<b>74</b>	<b>22</b>
Substance Abuse Care	35	34	18	12
Individual	29	9	15	5
Group	19	20	7	11
Methadone	4	140	1	83
Psychiatric Care	52	21	41	15
Individual	40	8	41	7
Group	11	19	8	14
Day Treatment	4	49	3	37
Mental Health Care	62	37	47	67
Medical Care	79	15	70	11

### Service Episodes and Risk-Adjusted Outcomes

We conducted regression analyses to predict ASI composite score outcomes for patients initially assessed during treatment. These analyses were comparable to those described earlier for patients initially assessed at treatment entry.

Consistent with the findings for followed patients initially assessed at treatment

entry, the baseline value was the strongest predictor of each outcome criterion (see Table 20). Older patients tended to experience somewhat better outcomes. Married patients had fewer alcohol and employment problems, but more psychiatric and family problems at follow-up. Patients with psychiatric diagnoses experienced more psychiatric, family, and employment problems.<sup>28</sup>

Consistent with the findings on followed patients initially assessed at treatment entry, patients who had longer service episodes experienced better outcomes on several of the domains.<sup>29</sup>

Figures 10 and 11 illustrate the association between the length of the index episode and the risk-adjusted percentage of patients who were abstinent from alcohol and free of psychiatric problems. Patients who remained in treatment longer were more likely to be abstinent at follow-up; however, there was little if any relationship between the length of the index episode and being free of psychiatric problems.

Figure 10

Figure 11

**Table 20. Regression Analyses Predicting ASI Composite Score Outcomes for Patients Initially Assessed During Treatment (N=5,428)**

Predictors	ASI Composite Problem Score Outcomes				
	Alcohol	Drug	Psych	Family	Employ
<b>Patient Characteristics</b>					
Age (55+)	-.03**	-.06**	-.07**	-.11**	.01
Gender (1 = male)	.03*	.01	.02	.01	.03**
Married (1 = yes)	-.04**	-.05**	.03**	.15**	-.04**
Psychiatric Dx (1 = yes)	.03*	.03*	.17**	.11**	.05**
Intake Value of Outcome	.38**	.40**	.47**	.20**	.55**
<b>Service Episode Characteristics</b>					
Inpt or Ext. Care (1 = yes)	.01	-.01	.01	.02	.05**
Length of Index Episode	-.08**	-.08**	-.01	-.02	-.07**
Outpatient Mental Health Care	-.03	.05**	.00	.01	.00
R	.41**	.43**	.59**	.31**	.57**

Note. Entries for the predictors are Beta coefficients.

\*p < .05.; \*\* p < .01

### **Patients With and Without Psychiatric Disorders**

To examine the generality of our prior findings on dually diagnosed patients, we again compared patients with and without psychiatric diagnoses. As before, these two groups of patients did not differ in the severity of their alcohol or drug abuse problems, or in their legal problems (Figure 12-13). However, patients with psychiatric diagnoses had much more severe psychiatric problems; in addition, they had somewhat more severe medical, family, and employment problems.

At follow-up, dually diagnosed patients had statistically significantly different psychiatric, medical, family, and employment composite ASI scores ( $p < 0.05$ ), when compared with substance abuse patients without a psychiatric diagnosis (Figure 13).

Figure 12

Figure 13

## **Conclusions and Recommendations**

We have reported the results of the baseline and follow-up assessments of the third cohort of patients in a nationwide outcomes monitoring program for VA patients with substance use disorders. In FY99, more than 31,000 patients in 148 facilities received a baseline assessment with the Addiction Severity Index (ASI). In all, 15,116 of these patients were reassessed 6-12 months later. Many of these patients had long histories of substance use and psychosocial problems. A total of 76% had regularly used alcohol to intoxication for five years or more; 48% had regularly used illegal drugs for five years or more. A total of 56% reported one or more lifetime arrests and more than 37% had spent some time in jail.

We divided the followed patients into two groups: Patients who completed an ASI at baseline within 14 days of initiating a new treatment episode (N=9,631) and patients who completed an ASI at baseline outside this 14-day window (N=5,428).

### **Patients' Substance Use Problems at Baseline and Follow-up**

In the 30 days prior to assessment with the ASI, 58% of the patients who were initially assessed at treatment entry had used alcohol to intoxication and 48% had used one or more drugs. Most of these patients had also experienced recent psychiatric and medical problems, as well as family, legal, and employment problems.

Compared to patients with substance use disorders treated in private programs, the VA patients had more severe problems in all areas, especially in the psychiatric, medical, legal, and employment domains. These findings illustrate the chronic and complex nature of the VA substance use disorder patient population and these patients' need for extensive services.

Among patients initially assessed at treatment entry, there were some substantial changes in ASI composite scores between baseline and follow-up. These declines were especially evident in the ASI alcohol, psychiatric, and family domains. Among patients initially assessed during treatment, there were small improvements over the follow-up interval in their alcohol and psychiatric problems.

These findings are consistent with prior literature indicating that patients with substance use disorders improve significantly during treatment (Finney & Monahan, 1996; Ouimette, Finney, & Moos, 1997). However, the current findings are limited by the low follow-up rate, the fact that clinicians followed some of the patients and may have obtained overly positive patient reports, differences between interview and self-report ASI scores, variations in the length of the follow-up interval, and the fact that some followed patients were still in their index episode of treatment.

## **Patients' Diagnoses and Service Utilization**

Among followed patients initially assessed at treatment entry, 66% had both alcohol and drug dependence diagnoses and 53% also had a concomitant psychiatric diagnosis. The most prevalent psychiatric diagnoses were depression and posttraumatic stress disorder.

On average, these patients' index episode of care lasted for 3.3 months. A total of 52% received inpatient and/or extended care for an average of 52 days; almost all of these patients also received outpatient care. Virtually all (99%) of patients received outpatient care. Overall, 92% of the patients received an average of 49 outpatient mental health care contacts in the index episode.

Among followed patients initially assessed during treatment, 74% had both alcohol and drug dependence diagnoses and a striking 76% had a concomitant psychiatric diagnosis. The most prevalent psychiatric diagnoses were depression, posttraumatic stress disorder, and schizophrenia or paranoid psychoses.

On average, these patients' index episode of care lasted for 6.3 months. A total of 63% received inpatient and/or extended care for an average of 67 days; almost all of these patients also received outpatient care. Overall, the patients who received outpatient mental health care (97%) had an average of 74 outpatient mental health care contacts in the index episode.

## **Service Episodes and Risk-Adjusted Outcomes**

Among both patients initially assessed at treatment entry and patients initially assessed during treatment, older patients tended to have somewhat better outcomes. Consistent with prior research (Ouimette, Gima, Moos, & Finney, 1999), patients with psychiatric diagnoses tended to have somewhat worse outcomes, especially in the psychiatric, family, and employment domains.

For both groups of patients, those who remained in treatment longer experienced better risk-adjusted outcomes. For example, among patients initially assessed at treatment entry, over three quarters of those treated for over a year were abstinent from alcohol (Figure 4) and over half were free of psychiatric problems (Figure 5).

## **Government Performance Results Act**

As part of its participation in the Government Performance Results Act (GPRA), the VA adopted a performance goal that, at a six-month follow-up, 50% of patients who enter treatment in a specialized substance abuse program will show at least 5% improvement from treatment entry on the ASI alcohol and drug composite scores.

Among followed patients initially assessed at treatment entry, 86% improved 5% or more on the ASI alcohol composite, 67% improved 5% or more on the ASI drug composite, and 60% improved 5% or more on both the alcohol and drug composites. Because of the low follow-up rate, these percentages must be interpreted with caution.

### **Conclusion**

In a continuing phase of this outcomes monitoring program, patients with primary substance use disorder diagnoses who enter treatment in FY00 were assessed at baseline and are being followed over time. The findings on these VA patients' changes during treatment and their treatment outcome will be compared with findings on patients in other systems of care.

Overall, this outcomes monitoring program should help the VA to provide evidence-based and cost-effective substance abuse care.

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## Footnotes

- <sup>1</sup> The family history section of the Fifth Edition of the ASI was not included.
- <sup>2</sup> We created a file of unique patients by selecting, for each patient, the ASI that was administered closest to the date of entry into a treatment episode.
- <sup>3</sup> To be placed into the group that completed the ASI, patients had to have ASI composite scores for both the alcohol and drug use composites and scores for three or more of the other five composites.
- <sup>4</sup> ASI interviewers were asked to provide two confidence ratings for each of the seven sections of the ASI. These yes/no ratings reflect whether or not the interviewer believed that the information in the section was significantly distorted due to the patient's misrepresentation or inability to understand. As described in Report IV, clinicians rated the answers to an average of less than 1.9% of the sections as potentially distorted. In each problem area, the mean ASI scores for the sections rated as potentially distorted were generally comparable to those rated as not distorted. Accordingly, we opted to retain all the scores.
- <sup>5</sup> Our prior findings have shown that the psychometric characteristics (Cronbach's alpha; corrected item-subscale correlations) of interviewer-based and self-report ASI scores are closely comparable (Rosen et al., 2000a; 2000b). However, based on an analysis of 11,118 Cohort 3 patients who completed both interview and self-report ASIs at follow-up, we found that patients endorsed more of each type by self-report. Thus, we adjusted downward the scores of patients who had only self-report follow-up data by the mean difference between the interview-based and self-report scores of patients who completed a follow-up ASI under both conditions.
- <sup>6</sup> ASI interviewers identified the patients' type of treatment program at the time of the ASI administration with respect to 21 categories. Using the Cohort 2 data, Moos et al. (2000) coded these 21 categories into five sets: detox, inpatient, residential rehabilitation, outpatient, and consultation or referral. They found little or no correspondence between these five categories and patients' treatment as documented in the VA data files. In addition, we wanted to define mental health service episodes on the basis of a combination of inpatient, residential, and outpatient care. Accordingly, we opted to characterize patients' treatment on the basis of information obtained from the nationwide VA databases.
- <sup>7</sup> The index episodes described in this report are different than those described in the initial report on this cohort of patients (Moos, Federman, et al., 1999b). In this report, we focused on all services received during FY99 and FY00, whereas in the initial report we focused only on services received in FY98.
- <sup>8</sup> Because we wanted to identify index episodes in which patients had mental health treatment, patients had to have a substance abuse and/or psychiatric diagnosis in

order for an inpatient or extended care stay to be counted as part of the index episode. As noted above, a readmission for an inpatient or extended care stay that occurred within 30 days of discharge from a prior stay, and in which the patient had a substance abuse or psychiatric diagnosis, was considered part of the index episode. In order for a readmission to trigger the beginning of a new episode, patients had to have had an interval of at least 30 days without inpatient or extended mental health care.

- <sup>9</sup> We defined outpatient care that addressed patients' mental health problems (or relevant outpatient care) as outpatient mental health care or outpatient care for which the patient had a substance abuse and/or psychiatric diagnosis. We assumed that the presence of the diagnosis reflected some assessment or treatment directed at the disorder. We included outpatient mental health telephone contacts as part of the index episode of care.
- <sup>10</sup> Some dates in the FY99 ASI file for the baseline ASI administration were prior to October 1, 1998. We assumed that these dates reflected keyentry errors and changed the October, November, and December dates to 1998 and the January to September dates to 1999. Some dates in the FY00 ASI file for the follow-up administration of the ASI were earlier than October 1, 1999, and earlier than the baseline administration. We again assumed that these dates reflected keyentry errors; we changed the October, November, and December dates to 1999, and the January to September dates to 2000.
- <sup>11</sup> Because previous analyses showed that patients who completed the ASI within 7 days of entering treatment obtained baseline ASI scores that were comparable to those who completed the ASI between 8 and 14 days of entering treatment, we opted to use the 14-day window to categorize patients.
- <sup>12</sup> Some patients are not included because we could not find any record of mental health inpatient, extended care, or outpatient treatment for them in the FY99 or FY00 VA Patient Treatment or Outpatient Clinic File databases.
- <sup>13</sup> The normative group of patients treated in private programs is composed of 81 inpatients, 99 patients in partial hospitalization, and 155 outpatients. The ASI composite means and standard deviation for these patient groups are shown in Table 5 in McLellan et al. (1992).
- <sup>14</sup> The number of patients included in the tables varies somewhat due to missing and incomplete data.
- <sup>15</sup> As previously reported (Moos et al., 2000), the original ASI findings showed that the percentage of patients who reported methadone use increased from baseline to follow-up. We surmised that this increase was due to the use of prescription

methadone rather than street methadone. Accordingly, when patients reported the use of methadone but no other drug, we assumed that they were in methadone maintenance treatment.

- <sup>16</sup> The correlations between patients' baseline and follow-up ASI composite scores were as follows: alcohol (.40), drug (.31), psychological (.51), medical (.39), family (.23), legal (.22), and employment (.56).
- <sup>17</sup> The specific items in each composite were: alcohol (D1), drug (the dichotomized sum of items D3-D11), psychiatric (P11), medical (M6), family (F30), legal (L24), and employment (E11).
- <sup>18</sup> Patients who at entry to treatment had no alcohol or drug problems were not included in calculating the percent of improved patients on the alcohol and drug composites, respectively.
- <sup>19</sup> The percentage of patients who had substance use disorders is based on primary or secondary diagnoses associated with inpatient or outpatient care in the index episode. Specific drug dependence diagnoses also are based on the index episode of care. The ICD-9-CM categories are as follows: (1) alcohol diagnoses (291, 303), and (2) drug diagnoses (292, 304, 305). Patients whose only diagnosable substance use disorder involved caffeine or nicotine were excluded from the required ASI assessment.
- <sup>20</sup> The percentage of patients who had psychiatric disorders is based on primary or secondary diagnoses associated with the index episode of care. The ICD-9-CM categories are as follows: (1) schizophrenic or paranoid disorders (295, 297, 298); (2) manic or bipolar affective psychoses (296.0, 296.1, 296.4-296.7, 296.80, 296.81, 296.89); (3) posttraumatic stress disorder (309.81); (4) depressive disorders, including atypical depressive disorder, other and unspecified affective psychoses, neurotic depression, and depressive disorders not elsewhere classified (296.2, 296.3, 296.82, 296.9, 298.0, 300.4, 301.12, 309.0, 309.1, 311); (5) personality disorders, including borderline personality (301.83) and antisocial personality disorders (301.7); and (6) other psychiatric disorders (all other 290-319 codes).
- <sup>21</sup> According to the Patient Treatment and Outpatient Clinic Files, some patients' index episodes of care began before the beginning of FY99 (October 1, 1998). We therefore set the beginning of these patients' index episodes as October 1, 1998. In addition, some of these patients' index episodes had not been completed by the end of FY00 (September 30, 2000).
- <sup>22</sup> Each record in the Outpatient Clinic File can have 1 or 2 clinic stops. We used a hierarchical system to classify records with two stops into one category. We gave specialized substance abuse care priority over psychiatric care, which had priority over medical care. In addition, when patients had more than one record per day, we counted all unique clinic stops separately.

- <sup>23</sup> The baseline value also was the best predictor of the ASI medical and legal composite score outcomes. Patients with psychiatric disorders had poorer medical problem outcomes (Beta = .09;  $p < .01$ ), but patients who had more outpatient mental health care had better medical outcomes. Older patients and patients with longer service episodes had lower-than-expected legal problem scores at follow-up (Betas = -.09 and -.05, respectively; both  $ps < .01$ ).
- <sup>24</sup> When we controlled for the method of follow-up (interview or self-report) and the time between the end of the index episode and follow-up (whether or not the patient was still in the index episode and, if not, the length of time to follow-up in three-month intervals), the general pattern of findings shown in Table 10 was replicated.
- <sup>25</sup> The correlations between patients' baseline and follow-up ASI composite scores were as follows: alcohol (.39), drug (.25), psychological (.56), medical (.40), family (.23), legal (.26), and employment (.56).
- <sup>26</sup> Patients who at baseline had no alcohol ( $N = 2,050$ ) or drug ( $N = 2,832$ ) problems were not included in calculating the percent of improved patients on the alcohol and drug composite, respectively.
- <sup>27</sup> According to the Patient Treatment and Outpatient Clinic Files, some patients' index episodes of care began before the beginning of FY99 (October 1, 1998). We arbitrarily set the beginning of these patients' index episodes as October 1, 1998. In addition, some of these patients' index episodes had not been completed by the end of FY00 (September 30, 2000).
- <sup>28</sup> The baseline value also was the best predictor of the ASI medical and legal composite score outcomes. Patients with psychiatric diagnoses had more medical problems (Betas = .11,  $p < .01$ ), whereas patients who had more outpatient mental health visits had fewer medical problems (Beta = -.05,  $p < .01$ ). Older patients and patients who had longer episodes of care had better legal outcomes (Betas = -.06 and -.04, respectively; both  $ps < .05$ ).
- <sup>29</sup> When we controlled for the method of follow-up (interview or self-report) and the time between the end of the index episode and follow-up (whether or not the patient was still in the index episode and, if not, the length of time to follow-up in three-month intervals), the general pattern of findings shown in Table 20 was replicated.

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## **Appendix A. Scoring of the ASI Composite Indices**





## **Appendix A. Scoring of the ASI Composite Indices**

The items included in the ASI composites are listed below. The item numbers are those in the Fifth Edition of the ASI. Complete scoring directions are provided elsewhere (McGahan, Griffith, Parente, & McLellan, 1986). In each section, the items that tap patients' ratings of how troubled or bothered they are and their need for treatment are rated on 5-point scales varying from "not at all" to "extremely".

### **1. Alcohol Use**

Six questions are used to determine this composite score.

- D1. The number of days of any alcohol use at all in the past 30 days
- D2. The number of days of alcohol use to intoxication in the past 30 days
- D23. How much money would you say you spent during the past 30 days on alcohol?
- D26. How many days in the past 30 have you experienced alcohol problems?
- D28. How troubled or bothered have you been in the past 30 days by these alcohol problems?
- D30. How important to you now is treatment for these alcohol problems?

### **2. Drug Use**

Thirteen questions are used to determine this composite score. The first 10 questions are answered in terms of the number of days of use in the past 30 days: heroin (D3), methadone (D4), other opiates or analgesics (D5), barbiturates (D6), other sedatives, hypnotics, or tranquilizers (D7), cocaine (D8), amphetamines (D9), cannabis (D10), hallucinogens (D11), and more than one substance (D13).

- D27. How many days in the past 30 have you experienced drug problems?
- D29. How troubled or bothered have you been in the past 30 days by these drug problems?
- D31. How important to you now is treatment for these drug problems?

### **3. Psychiatric Problems**

Eleven questions are used to determine this composite score. The first eight questions tap a significant period (not the direct result of drug or alcohol use) in the past 30 days in which the patient:

- P3. Experienced serious depression
- P4. Experienced serious anxiety or tension
- P5. Experienced hallucinations

- P6. Experienced trouble understanding, concentrating, or remembering
- P7. Experienced trouble controlling violent behavior
- P8. Experienced serious thoughts of suicide
- P9. Attempted suicide
- P10. Was medication prescribed for any psychological or emotional problems?
- P11. How many days in the past 30 have you experienced these psychological or emotional problems?
- P12. How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days?
- P13. How important to you now is treatment for these psychological problems?

#### **4. Medical Problems**

This score is determined by the answers to three questions.

- M6. How many days have you experienced medical problems in the last 30 days?
- M7. How troubled or bothered have you been by these medical problems in the past 30 days?
- M8. How important to you now is treatment for these medical problems?

#### **5. Family/Social Problems**

Five questions are used to determine this composite score:

- F3. Are you satisfied with this situation (your current marital situation)?
- F5. Have you had significant periods in the past 30 days in which you have experienced serious problems getting along with your mother (F18), father (F19), brothers and sisters (F20), sexual partner or spouse (F21), children (F22), other significant family (F23), close friends (F24), neighbors (F25), and coworkers (F26)?
- F30. How many days in the past 30 have you had serious conflicts with your family?
- F32. How troubled or bothered have you been in the past 30 days by these family problems?
- F34. How important to you now is treatment or counseling for these family problems?

#### **6. Legal Problems**

Five questions are used to determine this composite score.

- L24. Are you presently awaiting charges, trial, or sentence?
- L27. How many days in the past 30 have you engaged in illegal activities for profit?
- L28. How serious do you feel your present legal problems are?
- L29. How important to you now is counseling or referral for these legal problems?
- E17. How much money did you receive from illegal sources in the past 30 days?

## **7. Employment Problems**

Four questions are used to determine this composite score.

- E4. Do you have a valid driver's license?
- E5. Do you have an automobile available for your use?
- E11. How many days were you paid for working in the past 30?
- E12. How much money did you receive from employment (net income) in the past 30 days?



**Appendix B. Mean Baseline and Follow-up ASI Scores of Patients Initially  
Assessed at Treatment Entry (by Facility and Network)**



**Appendix C. Mean Baseline and Follow-up ASI Scores of Patients Initially  
Assessed During Treatment (by Facility and Network)**