

CHAPTER 3: Patient Admissions to Treatment for Abuse of Alcohol and Drugs in Appalachia, 2000 – 2004

3.1 Introduction

Thousands of public and private treatment facilities are available across the United States to treat people with substance abuse and mental health disorders. Exploring data at the treatment facility level provides a unique opportunity to better understand populations with substance abuse and mental health disorders and to explore trends across geographic areas.

One of the data sets used to explore admissions to and discharges from substance abuse treatment is the Treatment Episode Data Set (TEDS), an annual national flow of information on the demographic and characteristics of admissions to (and more recently discharges from) treatment. TEDS provides highly specific data on treatment type and demographic data for patients, making this dataset particularly important to understanding the trends of patient admissions for substance abuse treatment. TEDS captures data on admissions that report use of the following substances: marijuana; cocaine; other opiates or synthetics which includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects; heroin; methamphetamine or other stimulants which includes non-amphetamine stimulants; tranquilizers; other substances; sedatives; and inhalants. TEDS also includes data on admissions with psychological problems or mood disorders, and captures whether admissions have a psychiatric problem in addition to an alcohol or drug problem.

Chapter 3 provides an overview of the pooled annual admissions to treatment facilities in the Appalachian region, and in other regions nationally, during the 2000 – 2004 period. All analyses in this chapter are based on the TEDS series. Key research questions explored include:

Are there sub-regional differences of admissions to substance abuse treatment in Appalachia as compared to admissions to treatment outside of Appalachia?

What do the sub-regional differences of admissions to treatment look like across different socio-economic and demographic variables such as age, education, type of health insurance, etc?

What do the sub-regional differences of admissions to treatment look like with respect to other variables, such as source of referral, number of prior treatment episodes, and primary reason for admission?

In Section 3.2, we provide an overview of the TEDS series, its uses, the measures relevant to this study, and any limitations specifically related to exploring admissions to treatment of substance abuse in the Appalachian region. In Section 3.3, we discuss our methods. Section 3.4 contains the results of the analysis. Finally, Section 3.5 provides a discussion of key findings.

3.2 Data

3.2.1 Overview

The Treatment Episode Data Set (TEDS) is an administrative data system providing information on the demographic and substance abuse characteristics of admissions to and discharges from substance abuse treatment. The primary goal of this data set is to monitor and report treatment episodes for substance abusers.²⁵ While the TEDS Admissions Data Set has been operational for 15 years, the TEDS Discharge Data Set is new, reporting data for the first time in 2000. TEDS is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA)'s Office of Applied Studies (OAS) at the U.S. Department of Health and Human Services. Collected since 1992, the TEDS series was designed to provide annual data on persons admitted to public and private substance abuse treatment facilities that are licensed or certified by state substance abuse agencies to provide treatment. Generally, the facilities reporting to state substance abuse agencies are those that receive public funds.

TEDS is one component of the Drug and Alcohol Services Information System (DASIS).²⁶ The DASIS is the primary source of national data on substance abuse treatment and includes TEDS as well as two other components, the National Survey of Substance Abuse Treatment Services (N-SSATS) and the Inventory of Substance Abuse Treatment Services (I-SATS).²⁷

TEDS data are collected by publicly financed substance abuse treatment programs from the 50 states, the District of Columbia, and Puerto Rico. State substance abuse agencies collect the administrative records from substance abuse treatment programs from states and jurisdictions and prepare the data in a standardized format. Data are then submitted to SAMHSA, which uses the data to report aggregated information on substance abuse treatment. The unit of analysis for the TEDS series is treatment admissions.²⁸

States vary in terms of the latest year for which they have complete data and the type of data they have submitted. Substance abuse treatment programs are required to report the Minimum Data Set (MDS) to their respective state substance abuse agency, but are not required to report data for the Supplemental Data Set (SuDS).

The MDS contains data on 19 items that include characteristics of clients admitted for substance abuse treatment, as well as the characteristics of the treatment episodes. Specifically, the data elements from the MDS include: transaction type; admission date; type of service at admission; number of (previous) treatment episodes; client age; sex; race; ethnicity; education; employment status; principal source of referral; substance problem; usual route of administration; frequency of use; age of first use; and whether medication-assisted opioid therapy is part of the client's treatment plan. Additional variables, such as calculated age and census region, are added to the state data. Substances abused include alcohol, marijuana and hashish, cocaine and crack, heroin, hallucinogens, nonprescription methadone, other opiates and synthetics, phencyclidine (PCP), methamphetamine, other amphetamines, other stimulants, benzodiazepines, other tranquilizers, barbiturates, other sedatives or hypnotics, inhalants, over-the-counter medications, and other substances.

SuDS data is optional for treatment programs to report. SuDS data include: whether the client is pregnant at time of admission; veteran status; whether the patient has a psychiatric problem in addition to alcohol or drug problem; the diagnosis of the substance abuse problem from the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*; marital status; living arrangement; source of income support; health insurance; expected/ actual

primary source of payment; detailed information about those clients who are coded as "Not in labor force" in the MDS; detailed information related to criminal justice referrals; number of days waiting to enter treatment; and detailed drug code.

TEDS is based on over 2 million admissions reported by over 10,000 facilities to the 50 States, District of Columbia, and Puerto Rico, over a calendar year.

3.2.2 Uses of TEDS

TEDS enables researchers to explore the demographic and substance abuse characteristics of admissions to and discharges from substance abuse treatment. TEDS data has been used to explore a number of research questions related to substance abuse issues. Recent studies have focused on abuse of opioid analgesics and methamphetamine,^{29,30} heroin use, changes in use over time, and the economic costs of heroin addiction,^{31,32,33} misuse of prescription drugs,³⁴ substance abuse during pregnancy,³⁵ and trends in methamphetamine and amphetamine use.³⁶ Researchers have also used TEDS data to explore characteristics of primary heroin injection and inhalation admissions and primary phencyclidine admissions.^{37,38}

A large body of research has applied TEDS data to study treatment for marijuana use disorders and methadone,³⁹ substance abuse prevention and treatment activities at the state level,⁴⁰ treatment trends,⁴¹ and treatment policy, more generally.⁴²

Given that TEDS data can be analyzed using geographic identifiers (e.g., metropolitan area, State, Census Region, Census Division, one State to all others), researchers have analyzed trends in treatment admissions in specific geographic areas.^{43,44} For example, recent studies have explored treatment admissions in urban and rural areas involving the abuse of narcotic painkillers⁴⁵ and substance abuse in mid-size cities and rural areas.⁴⁶

3.2.3 TEDS Measures Used in this Study

Next, we define the measures used from the TEDS dataset of pooled admissions from 2000 – 2004 period. We explore the following sets of variables: gender, race, education, and age; employment status, marital status, and pregnancy status upon admission; health insurance and primary source of referral; service setting; types of services and whether methadone was prescribed during treatment; number of prior treatment episodes and expected source of payment; substances abused as primary reason for admission; substances abused as one major reason for admission; and presence of psychological problems and mood disorders. We briefly describe each variable below.

The **gender** of the client admitted for treatment in a drug or alcohol program is described as male or female.

The **race** of the client is described as one of the following: Alaska Native (Aleut, Eskimo, Indian); American Indian (people of North, Central and South America who maintain cultural identification through tribal affiliation or community attachment); Asian or Pacific Islander (people of the Far East, the Indian subcontinent, Southeast Asia, or the Pacific Islands); Black or African American (any of the black racial groups of Africa); White (people of Europe, North Africa, or the Middle East); and Other (a default category for use in instances in which the client is not classified above).

The **education** of the client specifies the highest grade of school completed by the client admitted for treatment: less than high school; high school; and more than high school.

The **age** of the admission is specified as one of the following categories: 17 years old or younger; 18 to 24 years old; 25 to 34 years old; 35 to 44 years old; and 45 or older.

The **employment status** of the admission is specified as: full time (working 35 hours or more each week - includes members of the uniformed services); part time (working fewer than 35 hours each week); unemployed (looking for work during the past 30 days or a homemaker, student, disabled, retired, or an inmate of an institution); not in the labor force; or unknown.

The **marital status** of the admission is recorded as one of the following: never married; now married; separated; divorced/ widowed; and unknown.

The **pregnancy status** of the admission is recorded as yes or no at the time of admission.

The **health insurance** status of the admission is specified as one of the following: private health insurance; Blue Cross Blue Shield; Medicare; Medicaid; coverage by a health maintenance organization; other insurance; no insurance; or unknown.

The **primary source of referral** for the admission is recorded as: “individual,” which includes the client, a family member, friend, self-referral due to DWI/DUI, or another individual not included in other categories; “Alcohol or Drug Abuse (ADA) care provider,” which includes any program, clinic, or other health care provider whose activities are related to alcohol or other drug abuse prevention or treatment; “other health care provider,” which includes a physician, psychiatrist, licensed health care professional, general hospital, psychiatric hospital, mental health program, or nursing home; “school,” which includes a school principal, counselor, teacher, a student assistance program, the school system, or educational agency; “employer/ employee assistance program (EAP),” which includes a supervisor or employee counselor; “other community referral,” which includes community and religious organizations, Federal, State, or local agencies that provides aid in the areas of poverty relief, unemployment, shelter, or social welfare, self-help groups and defense attorneys; and “court/ criminal justice,” which includes any police official, judge, prosecutor, probation officer, or other person affiliated with a Federal, State, or county judicial system.

The **service setting** is specified as the type of treatment to which the client was admitted. “Hospital inpatient detoxification” is a 24 hour per day acute care service in a hospital setting for detoxification of persons with severe medical complications associated with withdrawal.

“Detoxification at a free-standing residential facility” is defined as a 24 hour per day service in non-hospital setting providing for safe withdrawal and transition to ongoing treatment. “Rehabilitation/ Residential at a hospital” is defined as 24 hour per day medical care in a hospital facility in conjunction with treatment services for alcohol and other drug abuse and dependency. A “short-term rehabilitation/ residential setting” is defined as typically 30 days or less of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency. A “long-term rehabilitation/ residential setting” is defined as typically more than 30 days of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency (this may include transitional living situations such as halfway houses). “Intensive outpatient ambulatory care” is defined as, at minimum, the client must receive treatment lasting two or more hours per day for three or more days per week. The “non-intensive outpatient ambulatory care setting” is defined as a

setting where ambulatory treatment services include individual, family, and/or group services (these may include pharmacological therapies). Finally, the “ambulatory detoxification setting” is defined as a setting where outpatient treatment services (pharmacological or non-pharmacological) are delivered.

The **types of services** variable specifies the services that the admission will receive during treatment including: ambulatory health care services; detoxification services; and rehabilitation/residential services.

Methadone use (planned as part of treatment) is a variable that specifies whether methadone is planned as part of the client’s treatment.

The **number of prior treatment episodes** indicates the number of previous treatment episodes the client has received in any drug or alcohol program. Categories include: no prior treatment episodes; 1 – 2 treatment episodes; 3 or more treatment episodes; or unknown.

The **expected source of payment** for the treatment episode is specified as one of the following (whether it is the expected or actual source of payment): other government payments; self-pay; Medicaid; Blue Cross Blue Shield and other health insurance; no charge; Medicare/ Workman’s Compensation; other; and unknown. For this variable, states operating under a split payment fee arrangement between multiple payment sources must default to the payment source with the largest percentage; if the payment percentages are equal, the state can choose either source.⁴⁷

The **primary substance of abuse** at the time of admission is defined as one of the following: alcohol; marijuana; cocaine; heroin; other opiates or synthetics (which includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects); methamphetamine or other stimulants (which includes non-amphetamine stimulants); other substances; tranquilizers; sedatives; and inhalants.

The **substance of abuse as one major reason for admission** can be the following: alcohol; marijuana; cocaine; heroin; other opiates or synthetics (which includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects); methamphetamine or other stimulants (which includes non-amphetamine stimulants); other substances; tranquilizers; sedatives; and inhalants. TEDS reports different types of substances as the primary, secondary, or tertiary substance of abuse at the time of admission. If the substance was mentioned as either the primary, secondary, or tertiary substance of abuse at the time of admission, this substance was then regarded as one major reason for admission into substance abuse treatment.

The **presence of psychological problems indicates** whether there is a psychological problem present in addition to an alcohol or drug problem upon admission.

The **presence of mood disorders** was derived from either the third edition revised or the fourth edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders. This variable tells whether a mood disorder was present upon admission in addition to an alcohol or drug problem. However, due to reporting issues related to different types of drug abuse and dependence, the absence of a mood disorder in the data record upon admission may not necessarily mean the actual absence of mood disorder.

3.2.4 Limitations of the TEDS Series

There are several limitations with respect to using TEDS to explore substance abuse treatment issues in Appalachian counties as compared to other counties nationally. One critical limitation is that TEDS does not capture all of the substance abuse treatment facilities in the U.S., and the scope of facilities included differs from state to state. Facilities reporting into TEDS are generally those that receive State substance abuse treatment funds, including Federal Block Grant funds. To be included in TEDS, facilities must be licensed through the state substance abuse treatment agency. As a result, private-for-profit facilities, hospitals, and state correctional facilities may be excluded from TEDS. In addition, TEDS does not include data from facilities operated by Federal agencies. Finally, states have different certification and accreditation requirements and different state systems of licensure which may contribute to the exclusion of certain facilities.

The unit of measure in TEDS is the initial admission to treatment. Therefore, TEDS data may reflect multiple admissions for the same client in the same state or treatment site. In addition, one client could account for multiple admissions at multiple treatment sites in one state.⁴⁸ Another limitation is that states may vary in how they define an admission; thus, the absolute number of admissions may not be a valid measure for comparing states.

Next, public funding is a key external factor that affects the client mix at substance abuse programs. States that have more public funding may be able to accept more economically disadvantaged populations than states with limited public funding. In addition, public funding may also cause states to focus on a particular subset of the population, like pregnant women, for example.

Different criminal justice practices at the state level may affect the manner in which clients are referred to admission.

Another limitation to note is that there is a delay in the availability of the entire national TEDS data set for publication.⁴⁹ Results for each calendar year may be incomplete, and states can revise or replace historical data files. In addition, since states rely on substance abuse facilities to report the data, completeness may vary on a state by state basis.⁵⁰ Finally, direct identifiers have been removed in the TEDS public use file and disclosure analysis has been applied to remove the uniqueness of individual records within a file to prevent the identification of any individual.⁵¹ It is not possible to link variables between the TEDS and National Survey of Substance Abuse Treatment Services (N-SSATS) public-use files.

3.3 Methods

3.3.1 Study Sample

The data used for this study were pooled data for 2000-2004 provided under a data use agreement with the Office of Applied Study (OAS) of the Substance Abuse and Mental Health Services Administration (SAMHSA). The data were provided by SAMHSA contractor, Synectics for Management Decisions, Inc. Only admissions in the 410 Appalachian counties were included in the data. Data are entered based on county of admission rather than county of residence. Overall, 12 of the 13 Appalachian states were included in the data. The only state which was missing was West Virginia. Among the 410 Appalachian counties, 195 counties were in the pooled 2000-2004 TEDS

data set, comprising 511,217 total admissions to treatment for abuse of alcohol and drugs in facilities that report to individual State administrative data systems.

3.3.2 Statistical Methods

We use cross-tabulations to examine differences of admissions to substance abuse treatment within the Appalachian region. Various aspects of the admissions are analyzed including:

- Demographic information;
- Primary, secondary, and tertiary substances;
- Source of referral to treatment;
- Number of prior treatment episodes; and
- Service type, including planned use of methadone.

These are examined across admission subgroups based on Appalachian geographic sub-regions (Northern, Central, and Southern) and the economic development level of the counties where the admissions took place, as defined by the Appalachian Regional Commission (ARC).

ARC uses a county economic classification system to target counties in need of special economic assistance. The system classifies counties into five economic status designations—distressed, at-risk, transitional, competitive, and attainment—based on a comparison of county and national averages for three economic indicators: three-year average unemployment rate; per capita market income; and poverty rate. The economic status designations change from year to year. Among the 511,217 admissions analyzed, 48,684 (9.5%) were from the “Distressed” counties; 30,356 (5.9%) were from the “At-risk” counties; 6311,644 (61%) were from the “Transitional” counties; 67,383 (13.2%) were from the “Competitive” counties; and 53,150 (10.4%) were from the “Attainment” counties. In terms of geographic locations, about half (N=254,675, 49.8%) were in the Northern Appalachia, about two-fifths (N=195,289, 38.2%) were from the Southern Appalachia, and slightly more than one-tenth (N=61,253, 12.0%) were from the Central Appalachia.

3.4 Results

In Section 3.4, we present comparisons in admissions to substance abuse treatment within subsets of Appalachian counties defined by geographic sub-region (northern, central and southern) and economic status (distressed, at-risk, transitional, competitive, and attainment).

Data are presented in a series of tables that show differences in admissions by demographic factors such as gender, race, education, and age; employment status, marital status, and pregnancy status upon admission; health insurance and primary source of referral; service setting; types of services and whether methadone was prescribed during treatment; number of prior treatment episodes and expected source of payment; substances abused as primary reason for admission; substances abused as one major reason for admission; and presence of psychological problems and mood disorders.

After presenting the tables, we provide a series of figures that discuss trends in primary substance of abuse at admission. Finally, we provide a number of maps which offer a visual representation of our findings across sub-regions in Appalachia.

3.4.1 Tables

Table 3.1 below demonstrates differences in admissions by economic status and sub-region across demographic variables. Approximately 69% of admissions in Appalachia are male, while only about 31% are female. This finding is consistent across economic status levels and sub-regions. Overall, about 83% of admissions were white, 15% were black, and 1.8% were defined as being of a race other than white or black. The “other” category includes the following races: Alaskan Native; American Indian; and Asian or Pacific Islander. The percentage of admissions that are white is the highest in distressed counties and in the central sub-region of Appalachia, while it is the lowest in attainment counties and the southern sub-region. In contrast, the percentage of admissions that are black or of another race is the lowest in distressed counties and the highest in attainment counties. Approximately 23% of admissions in the southern sub-region of Appalachia are black, a stark contrast to the 3% of admissions that are black in the central sub-region.

In terms of educational attainment, overall, approximately 45% of clients admitted to treatment in Appalachia have a high school education, 36% have less than a high school education, and 19% have more than a high school education. Educational status tends to correspond with county economic status. Admissions with more than a high school education are higher in attainment counties versus distressed counties (22% versus 14%), while admissions with less than a high school education are higher in distressed counties versus attainment counties (48% versus 35%). Overall, 49% of admissions in the northern region have a high school education, followed by 41% of admissions in the southern region, and 38% in the central region. Admissions with a high school education comprise the greatest proportion of those receiving treatment in the northern and southern regions (49% and 41%), while admissions with less than a high school education comprise the greatest proportion of those receiving treatment in the central region (47%).

In terms of age, overall, about 29% of admitted clients are between 35 and 44 years of age, followed by 28% in the 25 to 34 age bracket, 22% in the 18 to 24 age bracket, 16% age 45 and older, and 4% age 17 and younger. By economic status, the majority of those admitted to treatment from distressed and at-risk counties are between the ages of 25 to 34, whereas the majority of those admitted in transitional, competitive, or attainment counties are between the ages of 35 to 44. Approximately 29% of admissions in the northern sub-region and 31% of admissions in the southern sub-region are between 35 and 44 years of age; the majority of admissions in the central region are between the ages of 25 and 34.

Table 3.1: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Demographics

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Gender																		
Male	300,926	69.26	20,916	68.33	17,327	70.90	190,213	69.43	41,974	69.23	30,496	68.01	163,159	70.18	27,141	69.60	110,626	67.88
Female	133,555	30.74	9,693	31.67	7,113	29.10	83,742	30.57	18,660	30.77	14,347	31.99	69,342	29.82	11,856	30.40	52,357	32.12
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Race																		
White	360,881	83.06	29,533	96.48	22,126	90.53	230,175	84.02	49,454	81.56	29,593	65.99	199,792	85.93	37,669	96.59	123,420	75.73
Black	65,794	15.14	877	2.87	2,171	8.88	38,792	14.16	10,033	16.55	13,921	31.04	27,823	11.97	1,041	2.67	36,930	22.66
Other	7,806	1.80	199	0.65	143	0.59	4,988	1.82	1,147	1.89	1,329	2.96	4,886	2.10	287	0.74	2,633	1.62
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Education																		
Less than High School	156,520	36.02	14,578	47.63	10,233	41.87	93,403	34.09	22,777	37.56	15,529	34.63	72,349	31.12	18,461	47.34	65,710	40.32
High School	197,059	45.36	11,606	37.92	10,009	40.95	129,374	47.22	26,624	43.91	19,446	43.36	114,968	49.45	14,839	38.05	67,252	41.26
More than High School	80,902	18.62	4,425	14.46	4,198	17.18	51,178	18.68	11,233	18.53	9,868	22.01	45,184	19.43	5,697	14.61	30,021	18.42
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Age																		
17 or younger	18,641	4.29	1,328	4.34	1,922	7.86	12,387	4.52	1,394	2.30	1,610	3.59	11,093	4.77	1,407	3.61	6,141	3.77
18-24	95,942	22.08	6,690	21.86	5,771	23.61	64,437	23.52	11,430	18.85	7,614	16.98	56,450	24.28	8,455	21.68	31,037	19.04
25-34	121,637	28.00	9,088	29.69	6,790	27.78	76,637	27.97	16,495	27.20	12,627	28.16	61,951	26.65	11,963	30.68	47,723	29.28
35-44	127,511	29.35	8,521	27.84	6,375	26.08	78,200	28.54	19,756	32.58	14,659	32.69	67,043	28.84	10,731	27.52	49,737	30.52
45 or older	70,750	16.28	4,982	16.28	3,582	14.66	42,294	15.44	11,559	19.06	8,333	18.58	35,964	15.47	6,441	16.52	28,345	17.39
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.2 below demonstrates differences in admissions by economic status and sub-region for employment status, marital status, and pregnancy status upon admission. Overall, approximately 33% of admissions are unemployed, meaning that they have been looking for work during the past 30 days or a homemaker, student, disabled, retired, or an inmate of an institution. About 28% are not in the labor force, 24% work full time (35 hours or more each week), and 6% work part time (fewer than 35 hours each week).

Approximately 19% of admissions in distressed counties work full time as compared to more than 25% of admissions in attainment counties. In the northern and southern sub-regions, about 25% of admissions are full time workers, as compared to slightly less than 20% in the central sub-region. About 36% of admissions in at-risk counties and 35% in transitional counties are unemployed. Surprisingly, approximately 36% of admissions in attainment counties are unemployed. In the northern sub-region, about 40% of admissions are unemployed, while only about 25% of admissions are unemployed in the central and southern sub-regions. About 40% of admissions in distressed counties are not in the labor force while only 16% of admissions in attainment counties are not in the labor force.

In terms of marital status, overall, 49% of admissions have never been married, 20% are divorced or widowed, 18% are now married, 8% are separated, and 5% are unknown. The majority of admissions in transitional (51%) and attainment counties (54%) have never been married. Across the sub-regions, 56% of admissions in the northern region have never been married, followed by 43% of admissions in the southern region, and 29% of admissions in the central region. In distressed counties, 22% of admissions are divorced/widowed, slightly more than the 21% in competitive counties and 20% in attainment counties.

Overall, less than 1% of clients were pregnant at the time of admission. Slightly more than 1% of admissions were pregnant in distressed, competitive, and attainment counties. Only 0.66% of admissions were pregnant in at-risk counties. Across the Appalachian region, 1.25% of admissions were pregnant in the southern sub-region, followed by 0.79% in the central sub-region and 0.74% in the northern sub-region.

Table 3.2: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Employment Status, Marital Status, and Pregnancy Status

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Employment Status																		
Full-time ^a	106,250	24.45	5,884	19.22	5,689	23.28	68,213	24.90	14,761	24.34	11,703	26.10	58,529	25.17	7,710	19.77	40,011	24.55
Part-time ^b	25,303	5.82	1,936	6.32	1,600	6.55	16,143	5.89	3,061	5.05	2,563	5.72	14,777	6.36	2,315	5.94	8,211	5.04
Unemployed ^c	141,577	32.59	8,282	27.06	8,695	35.58	94,701	34.57	13,704	22.60	16,195	36.11	90,502	38.93	9,855	25.27	41,220	25.29
Not in labor force	122,112	28.11	12,407	40.53	7,963	32.58	77,203	28.18	17,532	28.91	7,007	15.63	66,231	28.49	16,437	42.15	39,444	24.20
Unknown	39,239	9.03	2,100	6.86	493	2.02	17,695	6.46	11,576	19.09	7,375	16.45	2,462	1.06	2,680	6.87	34,097	20.92
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Marital Status																		
Never married	211,320	48.64	11,208	36.62	9,426	38.57	140,348	51.23	26,296	43.37	24,042	53.61	130,304	56.04	11,318	29.02	69,698	42.76
Now married	78,710	18.12	7,538	24.63	3,993	16.34	48,734	17.79	10,853	17.90	7,592	16.93	37,467	16.11	8,023	20.57	33,220	20.38
Separated	35,042	8.07	2,494	8.15	1,193	4.88	22,966	8.38	4,398	7.25	3,991	8.90	15,880	6.83	2,535	6.50	16,627	10.20
Divorced/widowed	85,752	19.74	6,778	22.14	4,005	16.39	53,021	19.35	12,804	21.12	9,144	20.39	39,755	17.10	7,926	20.32	38,071	23.36
Unknown	23,657	5.44	2,591	8.46	5,823	23.83	8,886	3.24	6,283	10.36	74	0.17	9,095	3.91	9,195	23.58	5,367	3.29
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Pregnant At Admission																		
Yes	4,054	0.93	336	1.10	162	0.66	2,390	0.87	704	1.16	462	1.03	1,709	0.74	310	0.79	2,035	1.25
No	125,745	28.94	8,993	29.38	5,665	23.18	80,486	29.38	16,719	27.57	13,882	30.96	66,074	28.42	9,812	25.16	49,859	30.59
Not applicable	300,929	69.26	20,916	68.33	17,327	70.90	190,214	69.43	41,975	69.23	30,497	68.01	163,159	70.18	27,141	69.60	110,629	67.88
Unknown	3,753	0.86	364	1.19	1,286	5.26	865	0.32	1,236	2.04	2	0.00	1,559	0.67	1,734	4.45	460	0.28
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

a Working 35 hours or more each week; includes members of the uniformed services.

b Working fewer than 35 hours each week.

c Looking for work during the past 30 days or a homemaker, student, disabled, retired, or an inmate of an institution.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

In **Table 3.3**, we provide differences in health insurance for admissions across economic status levels and sub-regions in Appalachia. The variable, health insurance, specifies the type of insurance a client possesses, if any. However, the insurance may or may not cover the alcohol or drug treatment. Overall, approximately 8% of admissions have Medicaid, 5% have private insurance (other than Blue Cross/ Blue Shield insurance or a health maintenance organization (HMO)), 3% have Blue Cross/ Blue Shield insurance, 2% are covered by an HMO, and less than 1% have Medicare. About 10.75% of admissions have some other type of insurance. Almost a quarter of admissions were uninsured and insurance status was unknown for 47% of admissions.

While only 3% of admissions in distressed counties were uninsured, 39% of admissions were uninsured in attainment counties. Private insurance was most common for admissions in distressed counties (13%) and least common in attainment counties (3%). Medicaid was most common for admissions in transitional counties (8%). Medicare was most common among admissions in competitive (0.92%) and attainment counties (0.96%), as compared to distressed, at-risk, and transitional counties.

Looking across the Appalachian region, more than a quarter of admissions in the northern and southern sub-regions had no insurance. In the central sub-region, 45% admissions had some other type of health insurance, followed by 15% of admissions with private insurance. About 2% of admissions in the central sub-region reported Medicare as their insurer, as compared to less than 1% of admissions in the northern and southern sub-regions. About 10% of admissions in the northern sub-region were on Medicaid, followed by 7% of admissions in the central sub-region and 5% in the southern sub-region.

Next, we explore the primary source of referral – the person or agency referring the client to the alcohol or drug abuse treatment program. Overall, 37% of admissions were referred by the court or criminal justice system. This includes referrals from those affiliated with a Federal, State, or county judicial system, and referrals from DWI/DUI court. Clients referred in lieu of or for deferred prosecution, during pretrial release, or prior to or following official adjudication are also included. Finally, this figure also includes admissions on pre-parole, pre-release, work or home furlough, or in Treatment Alternatives for Safe Communities (TASC) programs. Next, about 23% of admissions were referred from an individual, which includes the client, a family member, friend, self-referral due to DWI/DUI, or other.

About 16% of admissions were from an alcohol/drug abuse (ADA) care provider, which includes any program, clinic, or other health care provider whose activities are related to alcohol or other drug abuse prevention, or treatment. About 10% of admissions were described as being referred by “other community referral,” which includes community and religious organizations or any Federal, State, or local agency that provides assistance in the areas of poverty relief, unemployment, shelter, or social welfare. This 10% also includes self-help groups such as Alcoholics Anonymous (AA), Al-Anon, and Narcotics Anonymous (NA), and defense attorneys. Another 10% of admissions were described as being referred by “other health care provider,” including a physician, psychiatrist, other licensed health care professional, general hospital, psychiatric hospital, mental health program, or nursing home. Slightly more than 1% were referred by someone at school, such as a school principal, counselor, teacher or from a student assistance program (SAP), the school system, or educational agency. Finally, slightly less than 1% of people were referred by an employer or employee counselor.

The court/criminal justice system was the common primary source of referral across all counties, regardless of economic status. Slightly less than 50% of admissions in distressed counties and slightly more than 50% of admissions in at-risk counties were referred by court/criminal justice systems. Referrals by court/criminal justice systems were lower in transitional (36%), competitive (32%), and attainment counties (27%).

Across sub-regions, the court/criminal justice system is the most common primary source of referral with the employer/ employee assistance program (EAP) being the least common. Around 31% of admissions in both the central and sub-regions were referred by an individual.

Table 3.3: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Health Insurance and Source of Referral

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Health Insurance																		
Private	20,987	4.83	3,901	12.74	1,152	4.71	12,131	4.43	2,438	4.02	1,365	3.04	10,223	4.40	5,982	15.34	4,782	2.93
BC/BS	13,059	3.01	238	0.78	75	0.31	10,483	3.83	904	1.49	1,359	3.03	10,363	4.46	9	0.02	2,687	1.65
Medicare/ Other	3,314	0.76	773	2.53	80	0.33	1,474	0.54	557	0.92	430	0.96	1,228	0.53	918	2.35	1,168	0.72
Medicaid	33,551	7.72	2,152	7.03	755	3.09	24,108	8.80	3,313	5.46	3,223	7.19	22,979	9.88	2,659	6.82	7,913	4.86
HMO	6,896	1.59	.	.	951	3.89	3,314	1.21	1,297	2.14	1,334	2.97	5,970	2.57	.	.	926	0.57
Other	46,758	10.76	13,322	43.52	832	3.40	26,717	9.75	1,699	2.80	4,188	9.34	25,662	11.04	17,699	45.39	3,397	2.08
None	104,132	23.97	1,000	3.27	2,566	10.50	63,920	23.33	19,179	31.63	17,467	38.95	61,124	26.29	.	.	43,008	26.39
Unknown	205,784	47.36	9,223	30.13	18,029	73.77	131,808	48.11	31,247	51.53	15,477	34.51	94,952	40.84	11,730	30.08	99,102	60.81
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Primary Source of Referral																		
Individual ^a	103,634	23.85	8,471	27.67	4,733	19.37	56,684	20.69	16,957	27.97	16,789	37.44	40,646	17.48	12,332	31.62	50,656	31.08
ADA care provider ^b	70,727	16.28	512	1.67	2,772	11.34	57,141	20.86	7,084	11.68	3,218	7.18	62,904	27.06	1,070	2.74	6,753	4.14
Other health care provider ^c	42,165	9.70	3,042	9.94	2,176	8.90	21,741	7.94	8,503	14.02	6,703	14.95	12,560	5.40	4,075	10.45	25,530	15.66
School ^d	4,585	1.06	479	1.56	468	1.91	3,017	1.10	322	0.53	299	0.67	2,434	1.05	525	1.35	1,626	1.00
Employer/EAP ^e	3,650	0.84	186	0.61	145	0.59	2,663	0.97	451	0.74	205	0.46	2,277	0.98	185	0.47	1,188	0.73
Other community referral ^f	43,194	9.94	2,786	9.10	1,473	6.03	28,721	10.48	6,223	10.26	3,991	8.90	26,689	11.48	3,430	8.80	13,075	8.02
Court/criminal justice ^g	158,826	36.56	14,710	48.06	12,533	51.28	99,410	36.29	19,646	32.40	12,527	27.94	83,859	36.07	16,351	41.93	58,616	35.96
Unknown	7,700	1.77	423	1.38	140	0.57	4,578	1.67	1,448	2.39	1,111	2.48	1,132	0.49	1,029	2.64	5,539	3.40
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

^a Includes the client, a family member, friend, self-referral due to DWU/DUI, or another individual not included in other categories; ^b Any program, clinic, or other health care provider whose activities are related to alcohol or other drug abuse prevention, or treatment; ^c A physician, psychiatrist, licensed health care professional, general hospital, psychiatric hospital, mental health program, or nursing home; ^d A school principal, counselor, or teacher; or a student assistance program, the school system, or educational agency; ^e A supervisor or employee counselor; ^f Community and religious organizations or any Federal, State, or local agency that provides aid in the areas of poverty relief, unemployment, shelter, or social welfare. Self-help groups and defense attorneys are included; ^g Any police official, judge, prosecutor, probation officer, or other person affiliated with a Federal, State, or county judicial system.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

In **Table 3.4**, we provide sub-regional differences to substance abuse treatment in the Appalachian region by service setting. First, we explore the type of treatment into which the client was admitted. Overall, approximately 13% of admissions were for detoxification services in a 24-hour per day, non-hospital setting that provides safe withdrawal and transition to ongoing treatment. Only about 2% of admissions were into 24-hour per day acute care services in a hospital setting for detoxification of persons with severe medical complications associated with withdrawal.

About 0.2% of admissions were for 24-hour per day medical care (but not detoxification services) in a hospital facility in conjunction with treatment services for alcohol and other drug abuse and dependency. About 10% of admissions were into a short-term (typically for 30 days or less) non-acute care setting with treatment services for alcohol and other drug abuse and dependency. Slightly less than 5% of admissions were for long-term non-acute care (more than 30 days) in a setting with treatment services for alcohol, drug abuse and dependency (this figure may also include transitional living situations such as halfway houses, etc.).

In the ambulatory care setting, about 15% of admissions were into an intensive outpatient setting where at a minimum the client must receive treatment for two or more hours per day for three or more days per week. About 57% of admissions were into the non-intensive outpatient ambulatory care setting; such admissions were for services including individual, family and/or group services and pharmacological therapies. Only about 0.10% of admissions were for outpatient treatment services providing detoxification in the ambulatory care setting (both pharmacological and non-pharmacological).

Admissions for inpatient detoxification tend to be in the competitive (2.92%) and attainment counties (2.15%) rather than the at-risk (0.01%) and transitional counties (0.71%). About 24% of admissions to free-standing residential facilities were in competitive counties and 16% in attainment counties. Admissions for short-term detoxification in a rehabilitation/residential setting were highest in at-risk (11%) and transitional counties (13%). Admissions to a long-term non-acute care setting were highest in competitive and attainment counties (approximately 5% for both). 91% of admissions to non-intensive outpatient ambulatory care were in distressed counties.

Across the sub-regions, the majority of admissions in the northern (61%) and central sub-regions (80%) were to non-intensive outpatient care settings. Admissions to a short-term or long-term rehabilitation/ residential care setting were much higher in the northern region (15%) than in the central and southern sub-regions (3% for both). Admissions to a free-standing residential setting were highest in the southern sub-region (16%), followed by the central (15%) and northern sub-regions (10%), respectively.

Table 3.4: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Service Setting

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Service Setting																		
Detoxification																		
Hospital Inpatient ^a	4,672	1.08	.	.	3	0.01	1,932	0.71	1,771	2.92	966	2.15	3,916	1.68	.	.	756	0.46
Free-standing Residential ^b	55,267	12.72	616	2.01	3,210	13.13	29,533	10.78	14,712	24.26	7,196	16.05	23,830	10.25	5,687	14.58	25,750	15.80
Rehabilitation/ Residential																		
Hospital ^c	663	0.15	.	.	.	.	651	0.24	3	0.00	9	0.02	252	0.11	.	.	411	0.25
Short ^d	42,296	9.73	401	1.31	2,621	10.72	34,564	12.62	2,693	4.44	2,017	4.50	35,783	15.39	1,246	3.20	5,267	3.23
Long ^e	19,059	4.39	754	2.46	441	1.80	12,694	4.63	2,849	4.70	2,321	5.18	15,455	6.65	231	0.59	3,373	2.07
Ambulatory																		
Intensive outpatient ^f	65,593	15.10	756	2.47	7,129	29.17	46,820	17.09	5,897	9.73	4,991	11.13	11,102	4.78	731	1.87	53,760	32.99
Non-intensive Outpatient ^g	246,517	56.74	28,082	91.74	11,028	45.12	147,492	53.84	32,679	53.90	27,236	60.74	142,019	61.08	31,102	79.75	73,396	45.03
Detoxification ^h	414	0.10	.	.	8	0.03	269	0.10	30	0.05	107	0.24	144	0.06	.	.	270	0.17
All	434,481	100.00	30,609	100.0	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

NOTES

- ^a 24 hour per day acute care services in a hospital setting for detoxification of persons with severe medical complications associated with withdrawal.
- ^b 24 hour per day services in non-hospital setting providing for safe withdrawal and transition to ongoing treatment.
- ^c 24 hour per day medical care in a hospital facility in conjunction with treatment services for alcohol and other drug abuse and dependency.
- ^d Typically 30 days or less of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency.
- ^e Typically more than 30 days of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency; this may include transitional living such as halfway houses.
- ^f At minimum, the client must receive treatment lasting two or more hours per day for three or more days per week.
- ^g Ambulatory treatment services including individual, family, and/or group services; these may include pharmacological therapies.
- ^h Outpatient treatment services providing for safe withdrawal in an ambulatory setting (pharmacological or non-pharmacological).

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

In **Table 3.5**, we provide sub-regional differences to substance abuse treatment in the Appalachian region by types of service and methadone use. Overall, approximately 72% of admissions received ambulatory care services, 14% received rehabilitational services, and 14% received detoxification services. 94% of admissions in distressed counties received ambulatory care services. The majority of at-risk, transitional, competitive, and attainment counties also received ambulatory care services. This finding was consistent across sub-regions as well. Admissions for detoxification services were most common in competitive counties (27%) and least common in distressed counties (2%). Rehabilitation and residential services were most common for admissions in at-risk (13%) and transitional counties (17%); these services were also five times more common in the northern region than in the central region, and four times more common in the northern region than in the southern region.

Next, we look at methadone use. Overall, methadone was specified as part of treatment for approximately 1.2% of admissions. For competitive and attainment counties, the percentages are larger, at 3% and 5% of admissions, respectively. Distressed counties are fairly consistent with the average across all Appalachian counties, at 1.44% of admissions. Methadone was specified as part of the treatment plan for less than 1% of admissions in at-risk counties and less than half a percent of admissions in transitional counties. Across Appalachia, methadone use was specified as part of the treatment plan for between 1 and 1.5% of admissions, with the smallest percentage of admissions in the northern sub-region and the greatest percentage of admissions in the southern sub-region.

Table 3.5: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Types of Services and Methadone Use As Part of Treatment

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Types of Services																		
Ambulatory	312,524	71.93	28,838	94.21	18,165	74.32	194,581	71.03	38,606	63.67	32,334	72.10	153,265	65.92	31,833	81.63	127,426	78.18
Detoxification	59,939	13.80	616	2.01	3,213	13.15	31,465	11.49	16,483	27.18	8,162	18.20	27,746	11.93	5,687	14.58	26,506	16.26
Rehabilitation/ Residential	62,018	14.27	1,155	3.77	3,062	12.53	47,909	17.49	5,545	9.15	4,347	9.69	51,490	22.15	1,477	3.79	9,051	5.55
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Methadone Use																		
Yes	5,308	1.22	444	1.45	176	0.72	619	0.23	1,845	3.04	2,224	4.96	2,413	1.04	430	1.10	2,465	1.51
No	400,729	92.23	26,889	87.85	18,386	75.23	257,678	94.06	57,690	95.14	40,086	89.39	230,063	98.95	31,984	82.02	138,682	85.09
Unknown	28,444	6.55	3,276	10.70	5,878	24.05	15,658	5.72	1,099	1.81	2,533	5.65	25	0.01	6,583	16.88	21,836	13.40
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.																		

Table 3.6 focuses on sub-regional differences in the number of previous treatment episodes that admissions received in any drug or alcohol program as well as the primary source of expected/ actual payment for this treatment episode. Overall, in Appalachia, approximately 37% of admissions had no prior treatment episodes in a drug or alcohol program, 30% had 1 or 2 prior treatments, and 18% had 3 or more prior treatments. The previous treatment for about 15% of admissions was unknown. This distribution is consistent across Appalachia regardless of county economic status with the exception of distressed counties. In distressed counties, we see that the majority of admissions had no prior treatment episodes and only 8% of admissions had three or more treatment episodes.

Looking across geographic sub-regions, we see that 67% of admissions in the central sub-region had no prior treatment episodes, followed by the northern (37%) and southern sub-regions (30%), respectively. About 26% of admissions with three or more treatment episodes are into programs in the northern sub-region, as opposed to the southern (9%) and central (7%) sub-regions.

Next, we review our findings for the primary source of payment (expected/actual) for the treatment episode. Note that for this variable, states operating under a split payment fee arrangement between multiple payment sources must default to the payment source with the largest percentage; if the payment percentages are equal, the state can choose either source.⁵² In Table 3.6, we see that overall, the primary source of payment is unknown for almost 30% of admissions. Other government payments are the primary source of payment for about 22% of admissions, followed by self-pay (20%), Medicaid (10%), other (8%), Blue Cross Blue Shield and other health insurance (7%), no charge (3%), and Medicare/ Workman's Compensation (1%).

The primary payer in distressed counties is other government payments for about 35% of admissions, while in attainment counties approximately 40% of admissions are self-pay. No charge admissions are more common in distressed (5%) and at-risk counties (6%) than in competitive (0.19%) and attainment counties (0.36%). Across the sub-regions, we see that 40% of admissions are self-pay in the southern sub-region as opposed to 16% of admissions in the northern and 6% in the central sub-regions. The primary source of payment for about 11% of admissions in the northern sub-region is Blue Cross Blue Shield and other types of health insurance, compared to slightly more than 2% of admissions in the southern sub-region and 0.17% of admissions in the central sub-region.

Table 3.6: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Prior Treatment Episodes and Expected Source of Payment

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Number of Prior Treatment Episodes																		
No prior treatment	161,910	37.27	19,139	62.53	8,473	34.67	99,789	36.43	18,550	30.59	15,959	35.59	86,631	37.26	25,934	66.50	49,345	30.28
1-2 prior treatments	129,057	29.70	7,781	25.42	7,856	32.14	86,226	31.47	15,803	26.06	11,391	25.40	78,866	33.92	8,871	22.75	41,320	25.35
3 or more treatments	77,473	17.83	2,446	7.99	3,860	15.79	56,369	20.58	8,989	14.83	5,809	12.95	59,647	25.65	2,659	6.82	15,167	9.31
Unknown	66,041	15.20	1,243	4.06	4,251	17.39	31,571	11.52	17,292	28.52	11,684	26.06	7,357	3.16	1,533	3.93	57,151	35.07
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Expected Source of Payment																		
Self pay	84,876	19.54	3,463	11.31	6,222	25.46	40,154	14.66	17,003	28.04	18,034	40.22	14,266	6.14	6,105	15.66	64,505	39.58
BC/BS/ Other health insurance	30,423	7.00	720	2.35	519	2.12	25,374	9.26	1,882	3.10	1,928	4.30	26,618	11.45	67	0.17	3,738	2.29
Medicare/ Workman's Comp	3,280	0.75	929	3.04	109	0.45	1,593	0.58	409	0.67	240	0.54	1,250	0.54	968	2.48	1,062	0.65
Medicaid	43,738	10.07	4,854	15.86	1,753	7.17	29,734	10.85	2,895	4.77	4,502	10.04	31,215	13.43	2,946	7.55	9,577	5.88
Other government payments ¹	92,343	21.25	10,795	35.27	2,474	10.12	68,489	25.00	6,737	11.11	3,848	8.58	53,040	22.81	12,261	31.44	27,042	16.59
No charge	12,992	2.99	1,556	5.08	1,558	6.37	9,604	3.51	114	0.19	160	0.36	12,255	5.27	6	0.02	731	0.45
Other	32,814	7.55	5,601	18.30	927	3.79	20,920	7.64	1,641	2.71	3,725	8.31	21,949	9.44	5,857	15.02	5,008	3.07
Unknown	134,015	30.84	2,691	8.79	10,878	44.51	78,087	28.50	29,953	49.40	12,406	27.67	71,908	30.93	10,787	27.66	51,320	31.49
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

¹ Programs other than Medicare and Medicaid.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.7 shows the primary substance of abuse at the time of admission across sub-regions. We see that alcohol was the primary substance of abuse at the time of admission for 52% of admissions, followed by: marijuana (14%); cocaine (13%); heroin (7%); other opiates or synthetics (6%) which includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects; methamphetamine or other stimulants (3%) which includes non-amphetamine stimulants; other substances (1.50%); tranquilizers (1%); sedatives (0.35%); and inhalants (0.12%).

For 50% or more of admissions, the primary substance of abuse at the time of admission was alcohol for all Appalachian counties, across all economic status levels.

The second most common primary substance of abuse was marijuana for distressed (14%), at-risk (16%), and transitional counties (14%), and cocaine for competitive (15%) and attainment counties (18%). Across the Appalachian sub-regions, alcohol is the most common primary substance of abuse at the time of admission, followed by cocaine in the southern sub-region (16%), other opiates and synthetics in the central sub-region (14%), and marijuana in the northern sub-region (13%).

Table 3.7: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Use as a Primary Reason for Admission

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Use as Primary Reason for Admission																		
Alcohol	225,032	51.79	15,221	49.73	12,160	49.75	141,656	51.71	32,864	54.20	23,131	51.58	126,994	54.62	17,931	45.98	80,107	49.15
Cocaine/ Crack	56,447	12.99	1,481	4.84	1,826	7.47	36,083	13.17	9,200	15.17	7,857	17.52	27,903	12.00	1,702	4.36	26,842	16.47
Marijuana/ Hashish	62,649	14.42	4,785	15.63	4,081	16.70	39,593	14.45	7,913	13.05	6,277	14.00	31,372	13.49	5,525	14.17	25,752	15.80
Heroin	31,770	7.31	597	1.95	522	2.14	23,723	8.66	3,197	5.27	3,731	8.32	29,439	12.66	477	1.22	1,854	1.14
Other Opiates or Synthetics ¹	25,211	5.80	3,068	10.02	2,903	11.88	15,329	5.60	2,319	3.82	1,592	3.55	9,680	4.16	5,652	14.49	9,879	6.06
Methamphetamine/ Other stimulants ²	11,496	2.65	352	1.15	1,128	4.62	6,452	2.36	2,839	4.68	725	1.62	1,384	0.60	671	1.72	9,441	5.79
Tranquilizers ³	4,139	0.95	984	3.21	400	1.64	2,037	0.74	485	0.80	233	0.52	892	0.38	1,373	3.52	1,874	1.15
Sedatives ⁴	1,505	0.35	194	0.63	82	0.34	979	0.36	134	0.22	116	0.26	576	0.25	302	0.77	627	0.38
Inhalants ⁵	509	0.12	45	0.15	36	0.15	322	0.12	79	0.13	27	0.06	280	0.12	62	0.16	167	0.1
Other ⁶	6,519	1.50	464	1.52	82	0.34	3,435	1.25	1,451	2.39	1,087	2.42	879	0.38	538	1.38	5,102	3.13

¹ Includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects.

² Includes amphetamines, MDMA, phenmetrazine, and other unspecified amines and related drugs.

³ Includes meprobamate and other non-benzodiazepine tranquilizers.

⁴ Includes chloral hydrate, ethchlorvynol, glutethimide, methaqualone, and other non-barbiturate sedative or hypnotics.

⁵ Includes chloroform, ether, gasoline, glue, nitrous oxide, paint thinner, etc.

⁶ Includes diphenylhydantoin/phenytoin, GHB/GBL, ketamine, etc.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.8 presents data on “one major reason for admission to substance abuse programs” for Appalachia by economic level and sub-region. TEDS reports different types of substances as the primary, secondary, or tertiary substance of abuse at the time of admission. If the substance was mentioned as either the primary, secondary, or tertiary substance of abuse at the time of admission, this substance was then regarded as one major reason for admission into substance abuse treatment. We see that, overall, the substances included as one major reason for admission are alcohol (68%), followed by: marijuana (36%); cocaine (26%); other opiates or synthetics (10%) which includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects; heroin (9%); methamphetamine or other stimulants (5%) which includes non-amphetamine stimulants; tranquilizers (4%); other substances (3%); sedatives (1%); and inhalants (1%).

Alcohol was most commonly one major reason for admission to substance abuse programs in Appalachia, regardless of county economic status. The second substance most commonly cited as one major reason for admission was marijuana for all counties, with the exception of attainment counties where cocaine was second to alcohol as one major reason for admission. Similarly, looking across sub-regions, alcohol was one major reason for admission for almost three-quarters of admissions in the northern sub-region, followed by 64% of admissions in the southern sub-region, and 59% of admissions in the central sub-region.

Table 3.8: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By One Major Reason for Admission

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Use as One Major Reason for Admission																		
Alcohol	296,266	68.19	19,298	63.05	16,192	66.25	188,032	68.64	42,734	70.48	30,010	66.92	168,726	72.57	23,186	59.46	104,354	64.03
Cocaine/ Crack	112,250	25.84	3,501	11.44	3,947	16.15	72,474	26.45	17,668	29.14	14,660	32.69	63,504	27.31	4,354	11.16	44,392	27.24
Marijuana/ Hashish	155,934	35.89	10,516	34.36	9,316	38.12	102,069	37.26	20,492	33.80	13,541	30.20	88,790	38.19	12,776	32.76	54,368	33.36
Heroin	39,309	9.05	862	2.82	729	2.98	28,921	10.56	4,144	6.83	4,653	10.38	35,740	15.37	760	1.95	2,809	1.72
Other Opiates or Synthetics ¹	43,412	9.99	4,923	16.08	4,478	18.32	27,359	9.99	3,994	6.59	2,658	5.93	19,192	8.25	8,853	22.70	15,367	9.43
Methamphetamine/ Other stimulants ²	20,631	4.75	791	2.58	1,830	7.49	12,426	4.54	4,131	6.81	1,453	3.24	4,335	1.86	1,458	3.74	14,838	9.10
Tranquilizers ³	18,186	4.19	3,327	10.87	2,366	9.68	9,445	3.45	1,975	3.26	1,073	2.39	5,032	2.16	5,694	14.60	7,460	4.58
Sedatives ⁴	4,801	1.1	448	1.46	293	1.2	3263	1.19	535	0.88	262	0.58	2,879	1.24	603	1.55	1,319	0.81
Inhalants ⁵	3,833	0.88	316	1.03	247	1.01	2617	0.96	481	0.79	172	0.38	2,584	1.11	389	1	860	0.53
Other ⁶	11,250	2.59	848	2.77	201	0.82	6,500	2.37	2,421	3.99	1,280	2.85	2,976	1.28	881	2.26	7,393	4.54

¹ Includes codeine, Dilaudid, morphine, Demerol, opium, oxycodone, and any other drug with morphine-like effects.

² Includes amphetamines, MDMA, phenmetrazine, and other unspecified amines and related drugs.

³ Includes meprobamate and other non-benzodiazepine tranquilizers.

⁴ Includes chloral hydrate, ethchlorvynol, glutethimide, methaqualone, and other non-barbiturate sedative or hypnotics.

⁵ Includes chloroform, ether, gasoline, glue, nitrous oxide, paint thinner, etc.

⁶ Includes diphenylhydantoin/phenytoin, GHB/GBL, ketamine, etc.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.9 shows sub-regional differences for psychological problems or mood disorder upon admission. First, we explore whether there is a psychological problem present in addition to an alcohol or drug problem upon admission. Approximately 15% of admissions had a psychological problem present upon admission. In distressed counties, we see that 36% of admissions had a psychological problem, followed by 17% of admissions in attainment counties, 16% in at-risk counties, 13% in competitive counties, and 12% in transitional counties. In the central sub-region of Appalachia, more than 34% of admissions had a psychological problem, followed by northern and southern sub-regions with approximately 13% of admissions.

The mood disorder variable was derived from either the third edition revised or the fourth edition of the *American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders*. Our findings show whether a mood disorder was present upon admission in addition to an alcohol or drug problem. However, due to mutually-exclusive reporting of different types of drug abuse and dependence, the absence of mood disorder upon admission in the data record may not necessarily mean the actual absence of mood disorder. Therefore, these should be seen as conservative estimates. Overall, approximately 62% of admissions had a mood disorder (substance-related or non-substance-related) present upon admission. More than 70% of admissions had a mood disorder in transition counties, followed by 59% in competitive counties, 47% in attainment counties, 53% in at-risk counties, and 35% in distressed counties. In the central sub-region of Appalachia, almost 90% of admissions had a mood disorder.

Table 3.9: Sub-regional Differences of Admissions to Substance Abuse Treatment in the Appalachian Region, By Psychological Problem and Mood Disorder Upon Admission

	All		Economic Level										Sub-Region					
			Distressed		At-Risk		Transitional		Competitive		Attainment		Northern		Central		Southern	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Psychological Problem																		
Yes	64,018	14.73	11,072	36.17	3,913	16.01	33,573	12.25	7,651	12.62	7,809	17.41	29,503	12.69	13,309	34.13	21,206	13.01
No	190,377	43.82	14,637	47.82	9,980	40.83	101,682	37.12	42,585	70.23	21,493	47.93	54,986	23.65	16,687	42.79	118,704	72.83
Unknown	180,086	41.45	4,900	16.01	10,547	43.15	138,700	50.63	10,398	17.15	15,541	34.66	148,012	63.66	9,001	23.08	23,073	14.16
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00
Mood Disorder																		
Yes	273,061	62.85	10,998	35.93	13,046	53.38	192,236	70.17	35,715	58.90	21,066	46.98	208,662	89.75	14,517	37.23	49,882	30.61
No	161,420	37.15	19,611	64.07	11,394	46.62	81,719	29.83	24,919	41.10	23,777	53.02	23,839	10.25	24,480	62.77	113,101	69.39
All	434,481	100.00	30,609	100.00	24,440	100.00	273,955	100.00	60,634	100.00	44,843	100.00	232,501	100.00	38,997	100.00	162,983	100.00

Note: Mood disorders represented here are substance-related and non-substance-related.

Source: Treatment Episode Data Set (TEDS) 2000-2004. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

3.4.2. Figures

Trends in Primary Substance of Abuse in Appalachia and the United States

This section provides TEDS data on the primary substance of abuse at the time of admission to treatment between 2000 and 2004, both in Appalachia and nationally. We provide results for all TEDS treatment admissions aged 12 and older for 11 substances: alcohol; marijuana/hashish; cocaine; heroin; other opiates/synthetics; phencyclidine (PCP); hallucinogens; amphetamines; tranquilizers; sedatives; and inhalants. In **Figure 3.1** and **Figure 3.2** we illustrate the trends of primary substance of abuse at the time of admission for the years 2000 through 2004 in the U.S. and the Appalachian region, respectively. **Figures 3.3 through 3.8** illustrate trends for the primary abuse of alcohol, marijuana/hashish, cocaine, heroin, other opiates/synthetics, and methamphetamine.¹¹ Key findings include the following:.

Alcohol as a primary substance accounted for 45% of all TEDS admissions in the Appalachian region in 2004, down from more than 56% in 2000. Between 2000 and 2004, the percentage of total admissions with alcohol as the primary substance of abuse also declined in United States as a whole, accounting for almost 26% of all TEDS admissions in 2000, declining to 22% of admissions in 2004. **Figure 3.3** illustrates this trend.

The proportion of admissions for primary *marijuana/hashish* abuse as the primary substance increased steadily from 14.2% of all TEDS admissions in the U.S. in 2000 to 15.5% of admissions in 2004. In Appalachia, admissions increased from 15.1% of all TEDS admissions in 2000 to 16.28% of admissions in 2002, and then declined to 14.24% of admissions in 2004. **Figure 3.4** illustrates this trend.

Admissions for primary abuse of *cocaine* in the U.S. declined from 13.5% of all admissions in 2000 to 12.9% in 2001 and 2002, and then increased to 13.8% by 2004. In Appalachia, admissions for primary cocaine abuse followed a similar trend, declining from 12.95% in 2000 to 11.78% in 2001, and then increasing to 12.45% in 2002. Admissions for primary cocaine abuse sharply increased between 2002 and 2004 to 13.66%. **Figure 3.5** illustrates this trend.

TEDS admissions for primary *heroin* abuse in the U.S. hovered around 15% of all admissions between 2000 and 2002, with a slight decrease to 14.1% in 2004. In Appalachia, admissions have increased steadily from 4.39% in 2000 to 10.19% in 2004. **Figure 3.6** illustrates this trend.

Admissions for primary abuse of *other opiates and synthetics*¹² more than doubled between 2000 and 2004 from 1.5% to 3.2% of all admissions in the U.S. In Appalachia, the proportion of admissions for primary abuse of other opiates and synthetics is considerably higher than in the U.S. between 2000 and 2004, and also more than doubled from 3.49% in 2000 to 7.54% in 2004. **Figure 3.7** illustrates this trend.

¹¹ Charts depicting the trends over the 2000 – 2004 period are not included below because admissions for primary abuse of PCP, hallucinogens, tranquilizers, sedatives, and inhalants were relatively stable.

¹² These drugs include codeine, hydrocodone, hydromorphone, meperidine, morphine, opium, oxycodone, pentazocine, propoxyphene, tramadol, and any other drug with morphine-like effects. These drugs exclude methadone.

The proportion of admissions for primary abuse of *methamphetamine* increased in both the U.S. and Appalachia between 2000 and 2004. In the U.S., primary methamphetamine abuse accounted for 3.8% of all admissions in 2000, and then rose steadily to almost 7% of admissions in 2004. In Appalachia, the proportion of admissions rose from 1.3% in 2000 to 4.25% in 2004. **Figure 3.8** illustrates this trend.

Phencyclidine (PCP) as a primary substance of abuse accounted for 0.2% of all admissions in the U.S. between 2000 and 2004. The proportion of admissions for PCP abuse in Appalachia has also remained fairly stable over the 2000 to 2004 time period at 0.02 to 0.03%.

Admissions for primary abuse of *hallucinogens* remained fairly stable in the U.S. over this time period, accounting for less than 0.2% of all TEDS admissions between 2000 and 2002, and 0.1% in 2003 and 2004. In Appalachia, admissions were approximately 0.2% in 2000 and 2001, declined to 0.15% in 2002, and then rose slightly to 0.18% in 2004.

Admissions for primary abuse of *tranquilizers* remained fairly consistent over the time period, accounting for 0.4% to 0.5% of all US admissions between 2000 and 2004. In Appalachia, primary abuse of tranquilizers accounted for 0.95% of all admissions in 2004, up from 0.88% of admissions in 2000.

TEDS admissions for primary abuse of *sedatives* remained at 0.2% between 2000 and 2004 in the U.S. In Appalachia, the proportion of admissions hovered around 0.39% in 2004, up from 0.33% in 2000.

The proportion of TEDS admissions for primary abuse of *inhalants* was approximately 0.1% between 2000 and 2004 in the U.S., and the Appalachian region.

Figure 3.1 Primary Substance of Abuse at Admission, Aged 12 and Older, in the U.S., TEDS 2000-2004

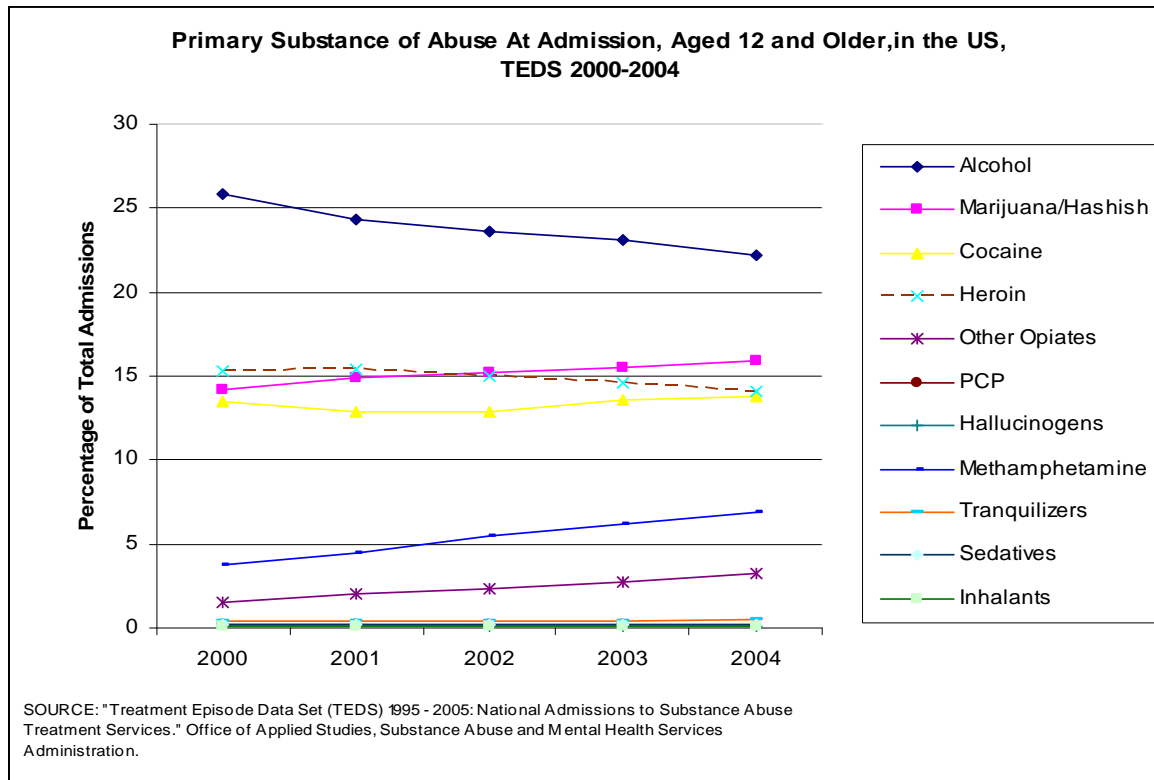


Figure 3.2 Primary Substance of Abuse at Admission, Aged 12 and Older, in the Appalachian Region, TEDS 2000-2004

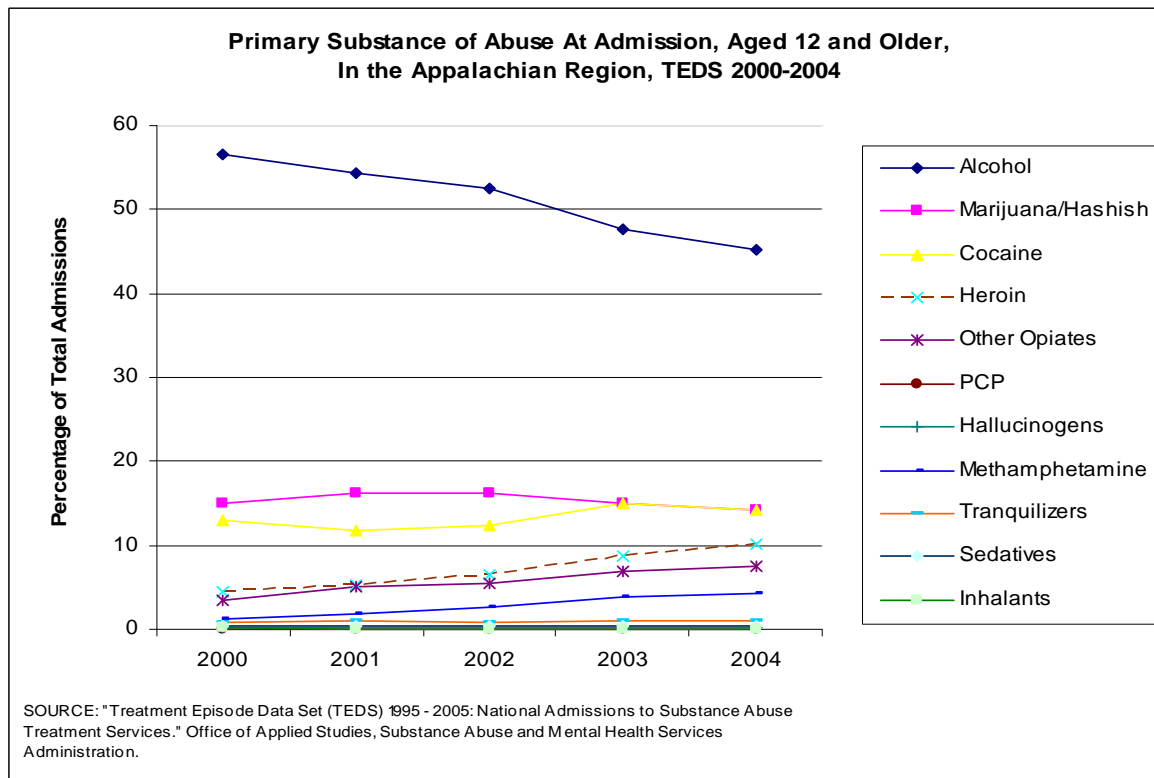


Figure 3.3 Admissions Aged 12 and Over for Primary Alcohol Abuse, in the U.S. and Appalachia, TEDS 2000 – 2004

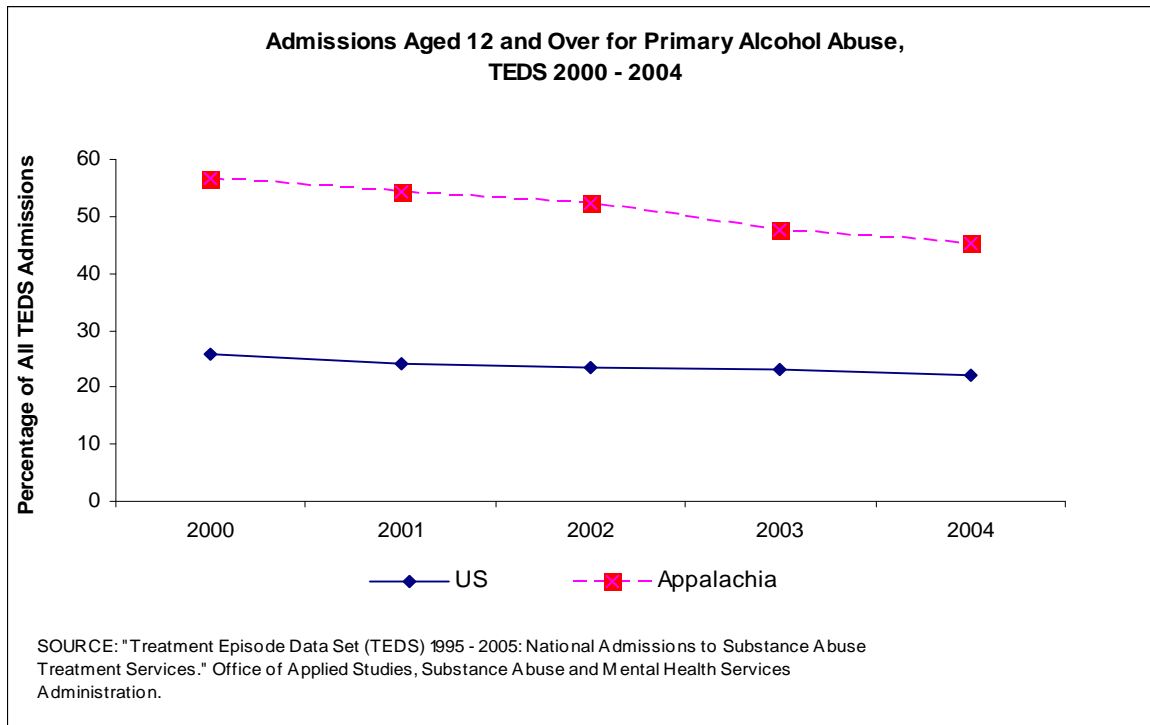


Figure 3.4 Admissions Aged 12 and Over for Primary Marijuana/Hashish Abuse, in the U.S. and Appalachia, TEDS 2000 – 2004

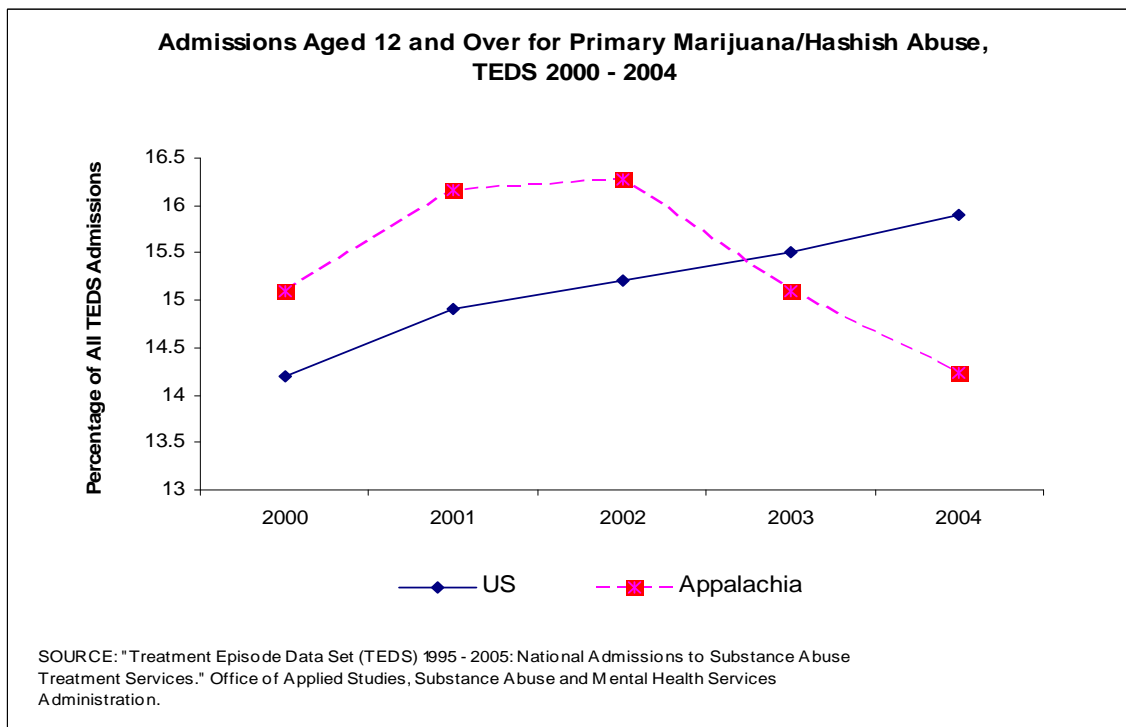


Figure 3.5 Admissions Aged 12 and Over for Primary Cocaine Abuse, in the U.S. and Appalachia, TEDS 2000 – 2004

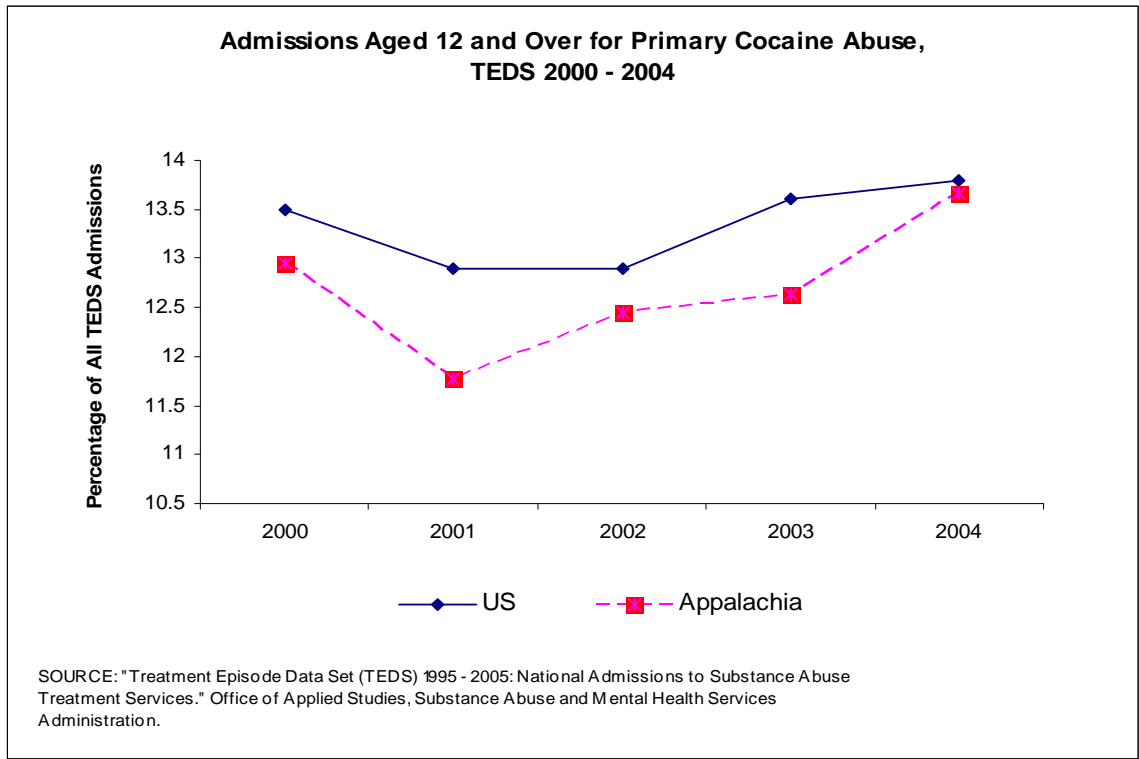


Figure 3.6 Admissions Aged 12 and Over for Primary Heroin Abuse, in the U.S. and Appalachia, TEDS 2000 – 2004

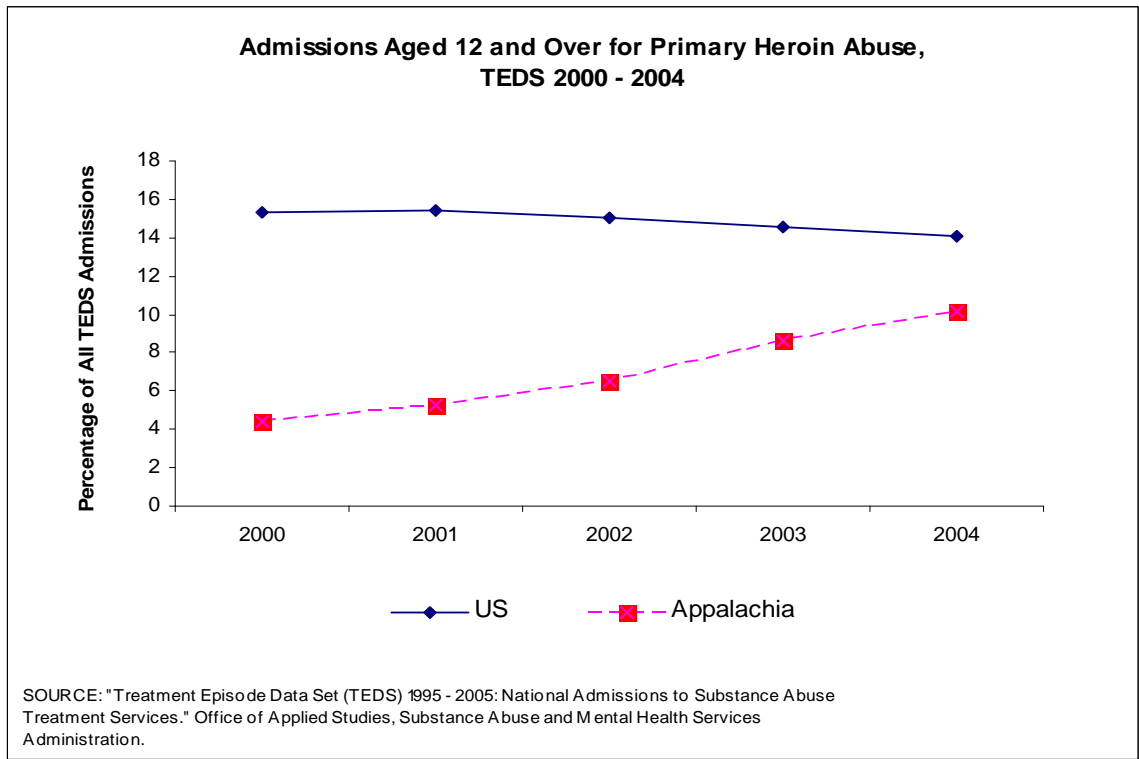


Figure 3.7 Admissions Aged 12 and Over for Primary Abuse of Other Opiates/Synthetics, in the U.S. and Appalachia, TEDS 2000 – 2004

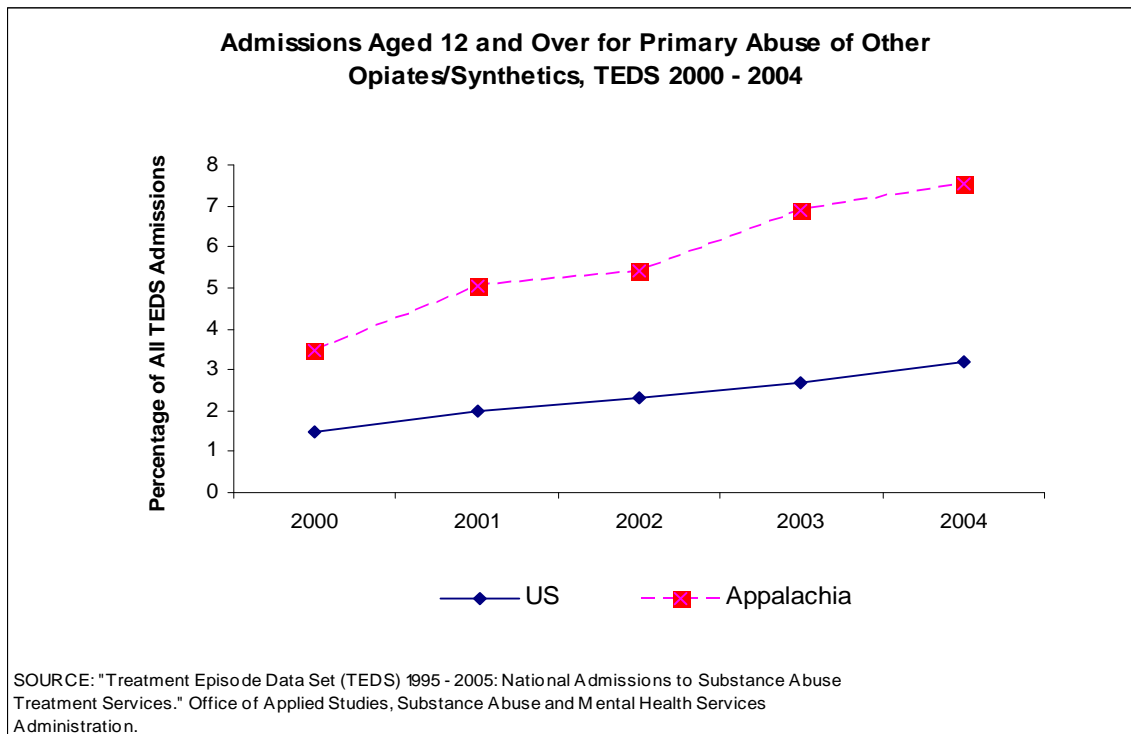
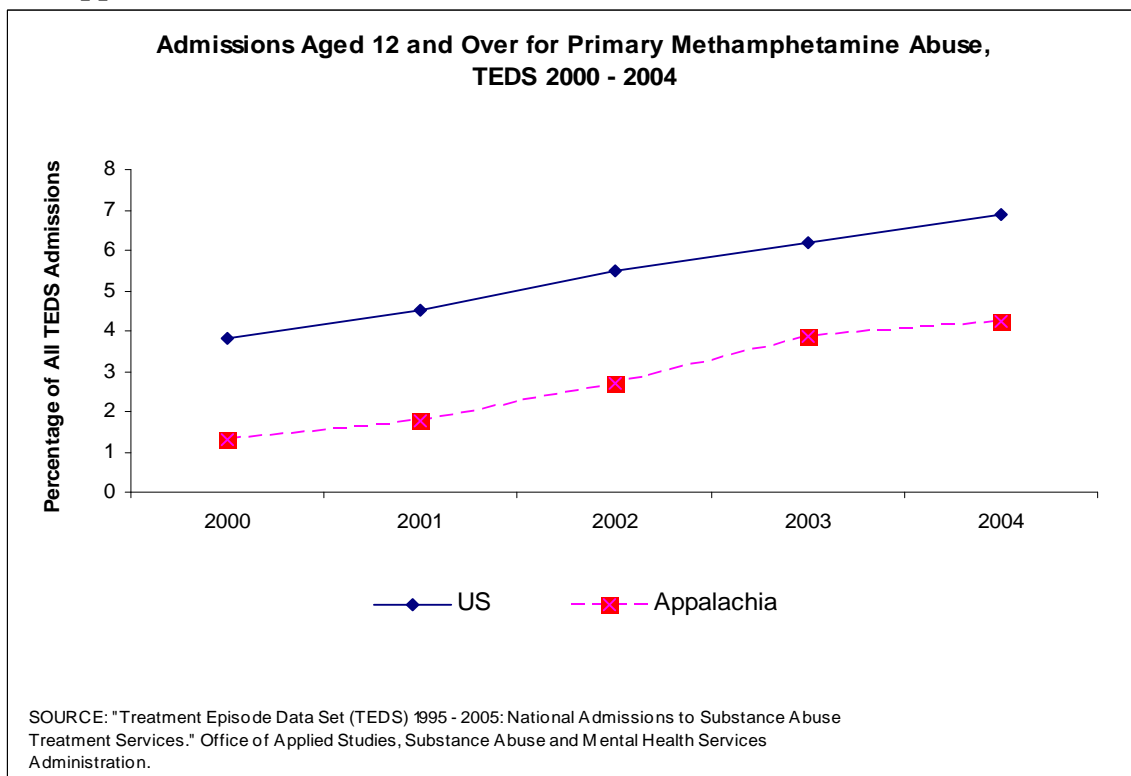


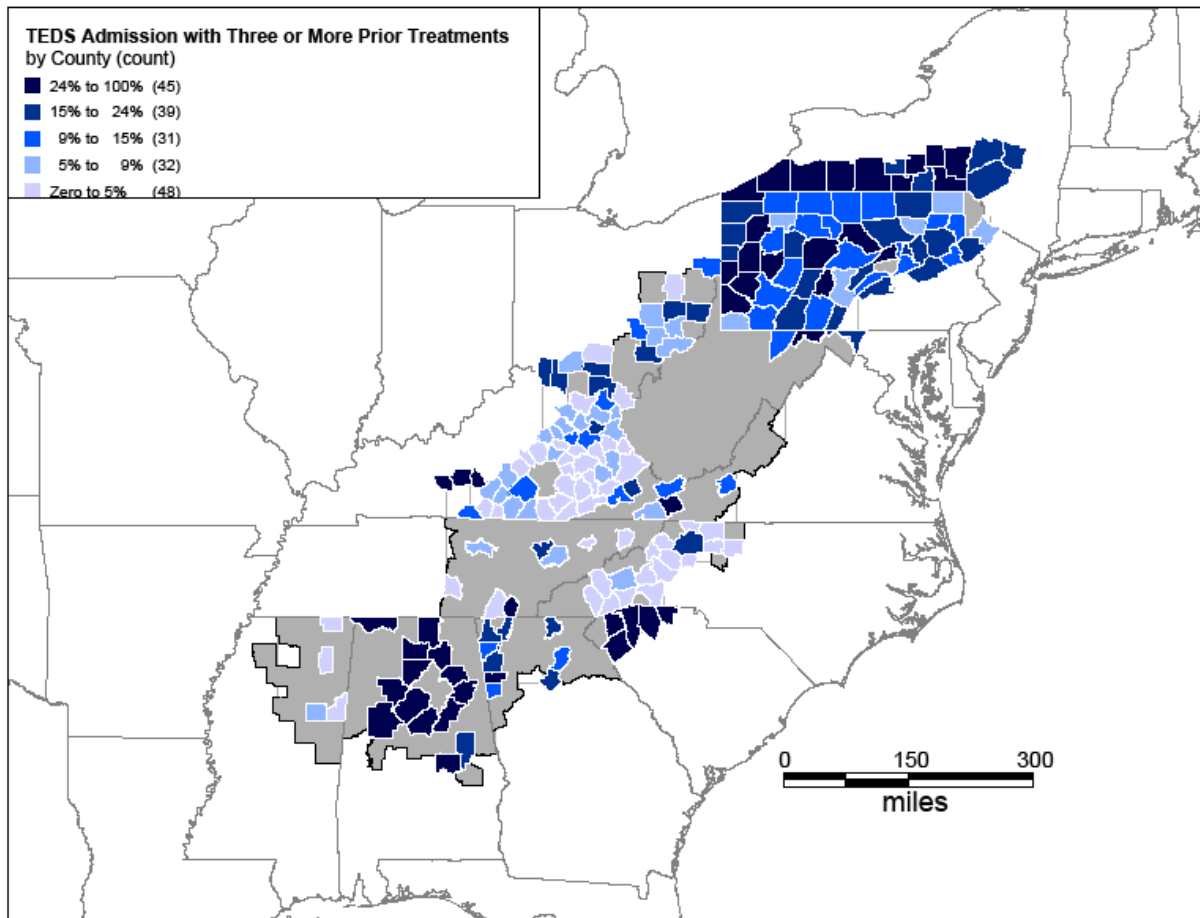
Figure 3.8 Admissions Aged 12 and Over for Primary Methamphetamine Abuse, in the U.S. and Appalachia, TEDS 2000 – 2004



3.4.3. Maps

Map 3.1, below, shows the geographical distribution of TEDS admissions with three or more prior treatment episodes for substance abuse. Counties with higher proportions of admissions with three or more treatments are concentrated in northern Appalachia, from the southern border of New York to Maryland. High levels of three or more admissions are also seen in southern Appalachia, particularly in South Carolina and Alabama. There are relatively few admissions with three or more prior treatments in central Appalachia.

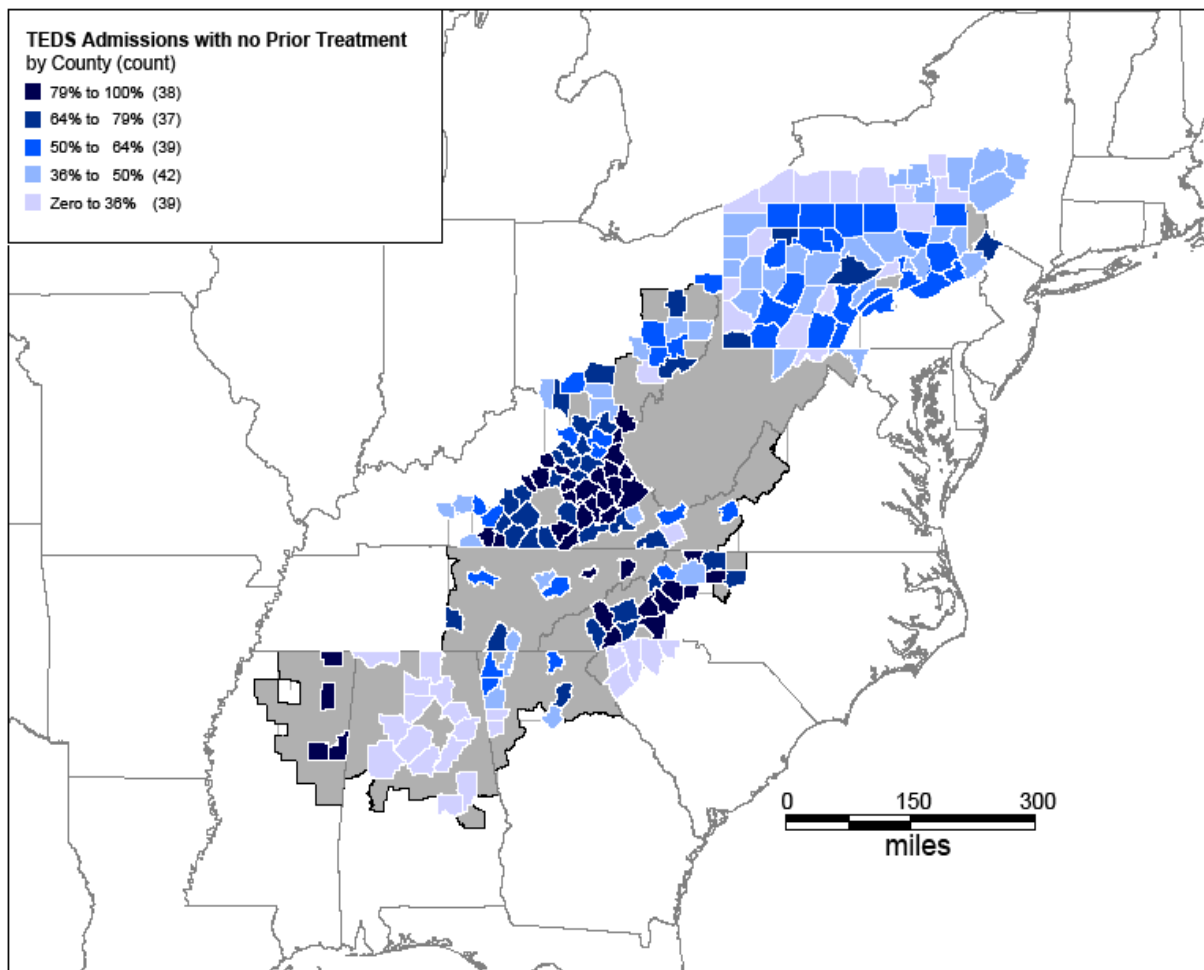
Map 3.1. Percentage of Persons with Three or More Prior Treatment Episodes



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.2, below, presents the distribution of admissions to substance abuse treatment in the Appalachian region with no prior treatment episodes. In contrast to Map 3.1, the highest distribution of new admissions is in central Appalachia, with the greatest concentration of admissions with no prior treatment in eastern Kentucky. Counties reporting TEDS data in western North Carolina and in Mississippi also show high levels of admissions with no prior treatment, while counties in Alabama and South Carolina show relatively lower levels of admissions with no prior treatment.

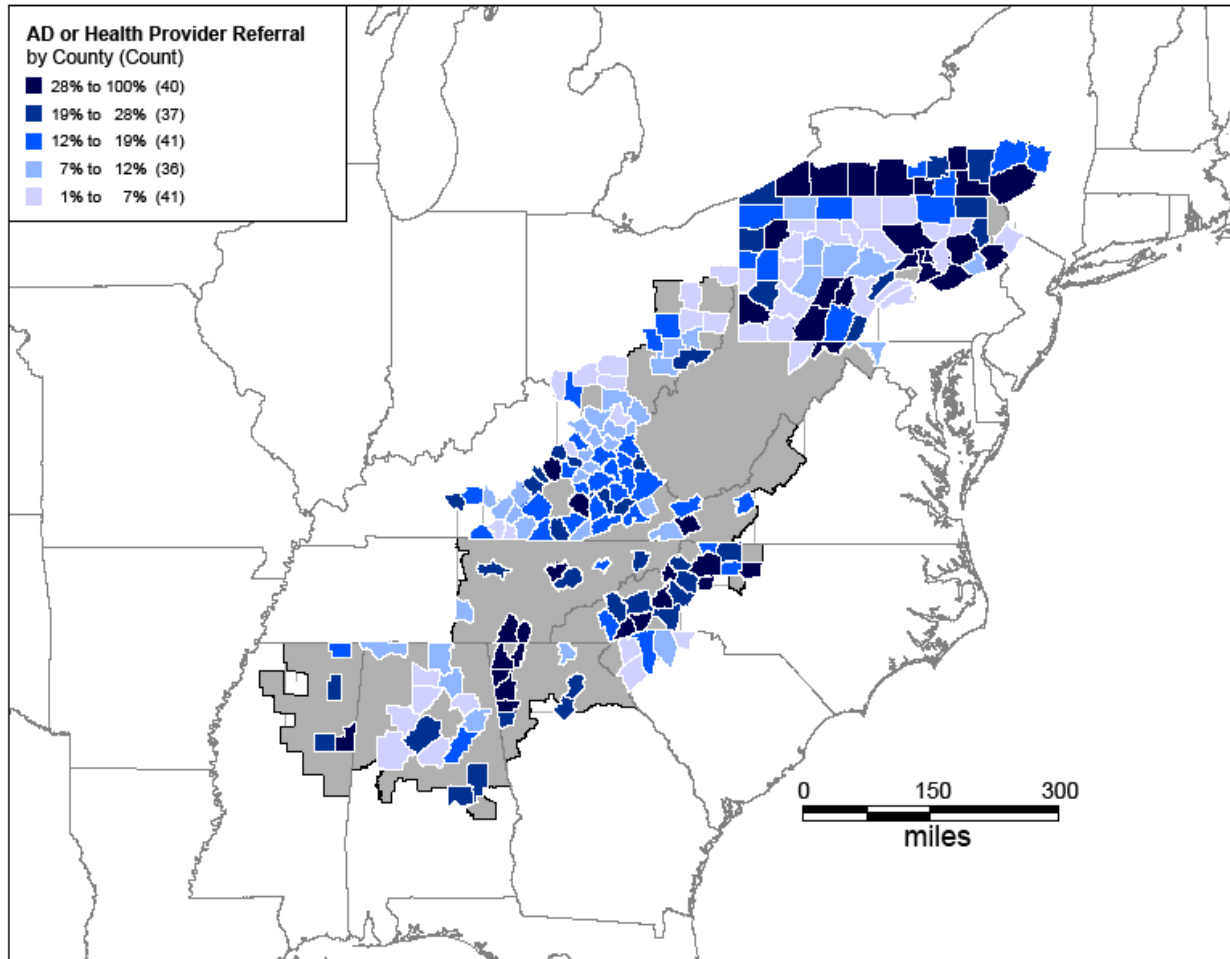
Map 3.2. Percentage of Persons with No Prior Treatment Episodes



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.3, below, shows patterns of referrals to substance abuse treatment. Northern Appalachia has the greatest concentration of referrals to treatment from health providers or substance abuse specialists, especially along the southern New York border and in central Pennsylvania. There are relatively fewer referrals from the central sub-region. Within the southern sub-region, there are relatively high referral levels among counties reporting TEDS data in Georgia, North Carolina and Mississippi.

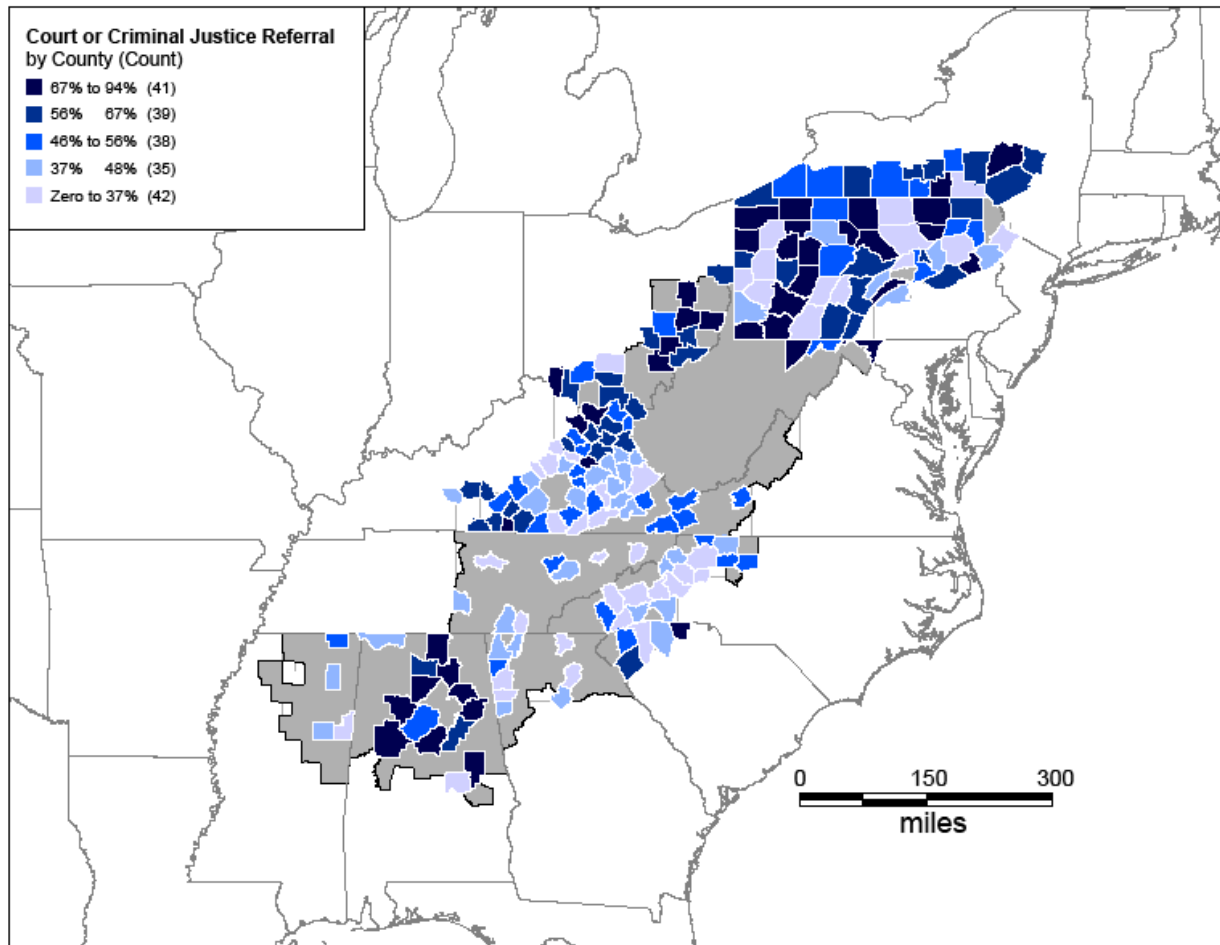
Map 3.3. Percentage of Persons Who Had an Alcohol and Drug or Health Provider Referral



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.4, below, shows the geographical patterns of criminal justice referrals to substance abuse treatment, and, for the most part, the distribution is not unlike the distribution presented in **Map 3.3**. The majority of criminal justice referrals to treatment are in the northern sub-region, especially in sections of Ohio and Pennsylvania. There is a small pocket of criminal justice referrals in the central sub-region, especially in eastern Kentucky. Finally, northern and central Alabama counties also show a number of counties with high levels of criminal justice referrals to treatment.

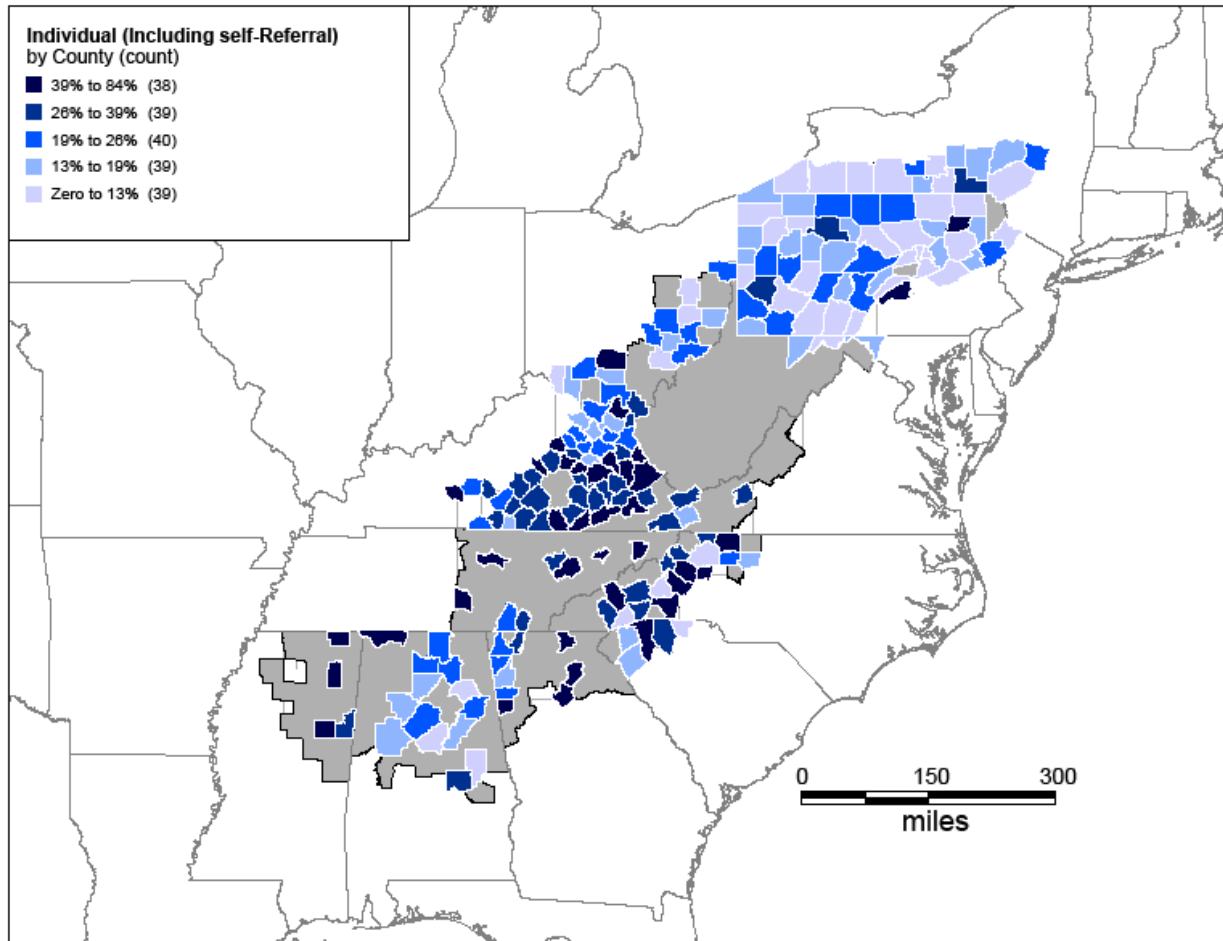
Map 3.4. Percentage of Persons Who Had a Court or Criminal Justice Referral



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.5, below, shows the distribution of individual and self-referrals to substance abuse treatment. The greatest density of individual referrals within Appalachia is found in the central sub-region, centering around eastern Kentucky and including counties in Tennessee. Counties reporting TEDS data in the southern sub-region, especially in the Carolinas and Mississippi, also show high levels of individual referrals. There is a lower concentration of individual referrals in the northern sub-region.

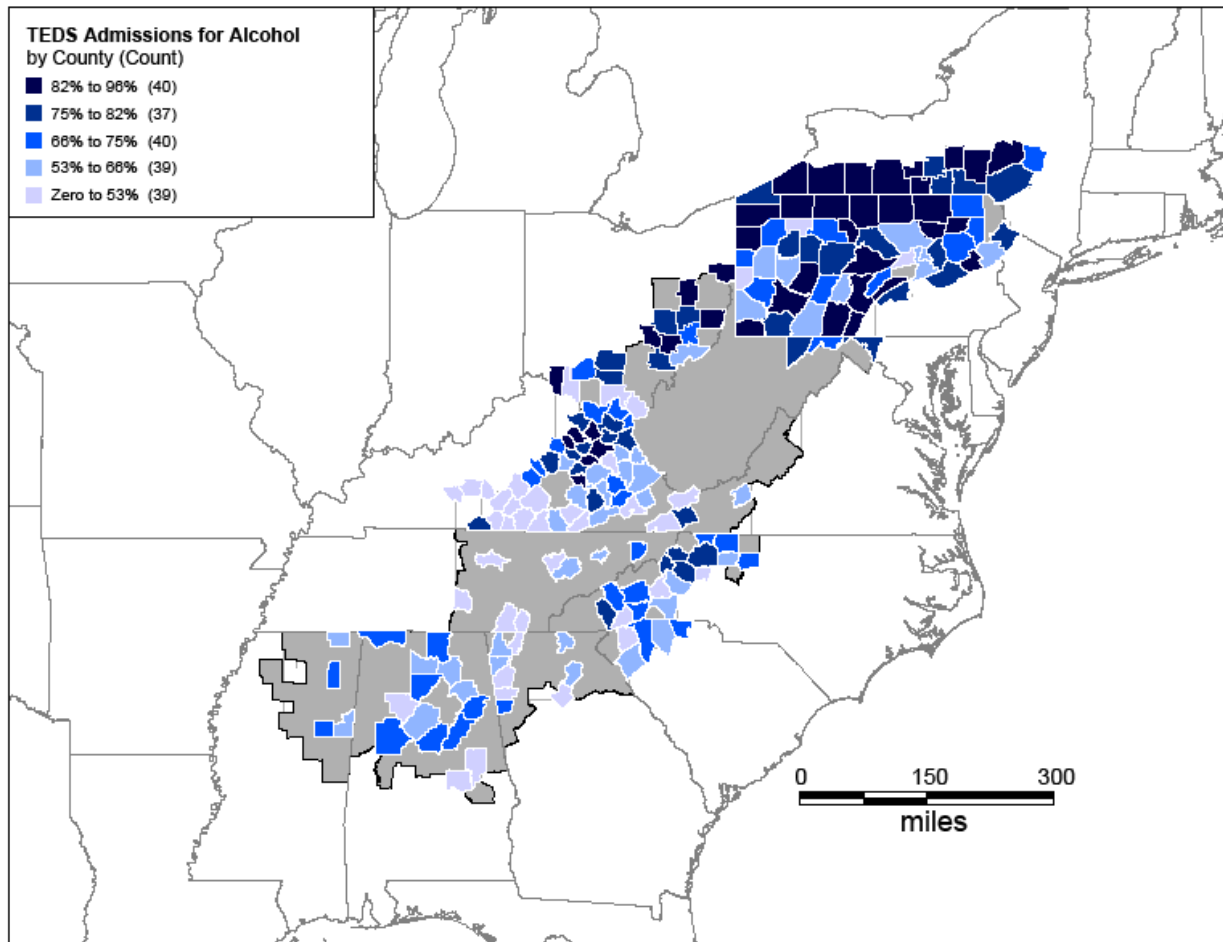
Map 3.5. Percentage of Persons Who Had an Individual Referral (Including Self-Referral)



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.6, below, shows the geographical distribution of substance abuse admissions for alcohol use. The greatest density of admissions for alcohol use is in the northern sub-region, especially along the southern New York border and into northern Pennsylvania. There are small pockets in the central sub-region.

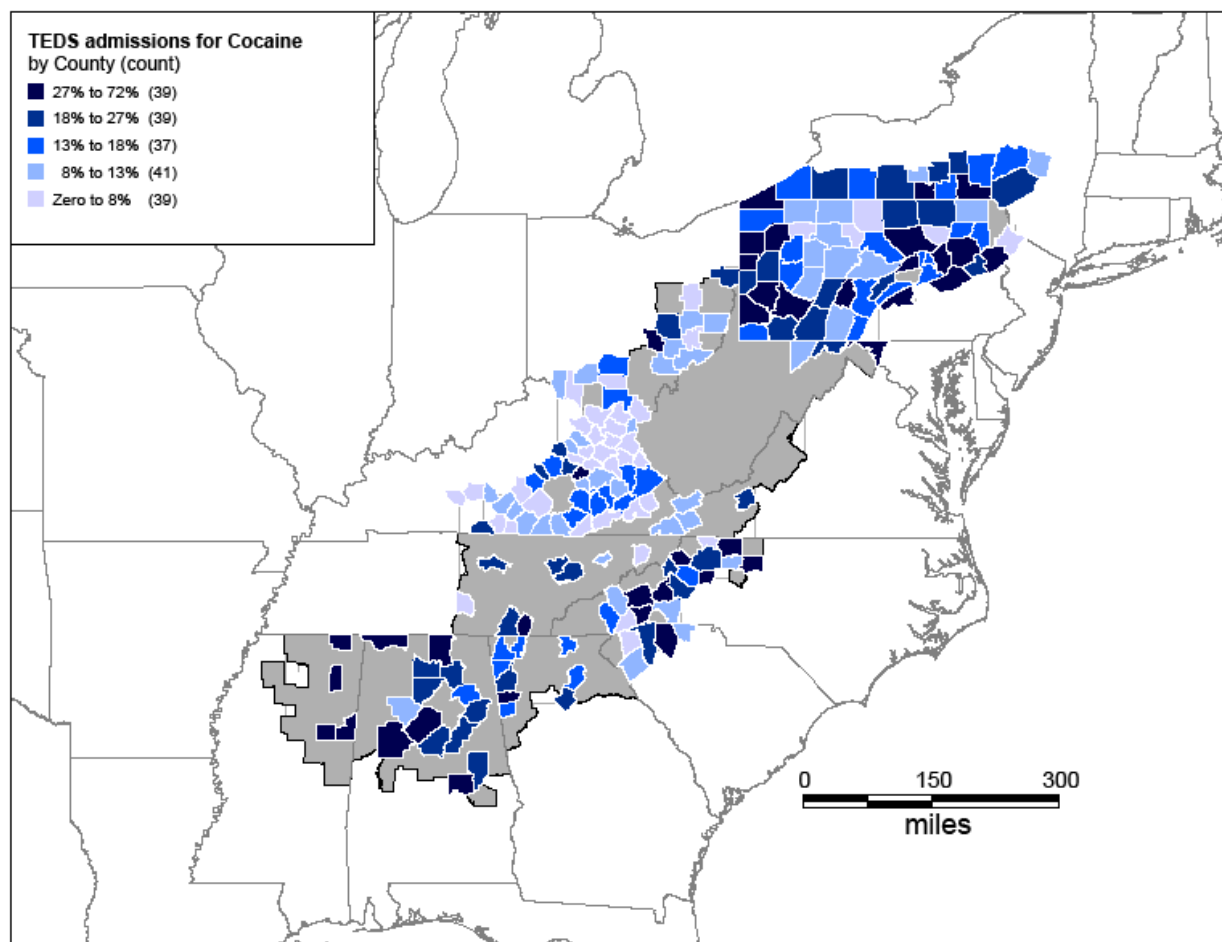
Map 3.6. Percentage of Persons Admitted to Treatment for Alcohol Use



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.7, below, presents the geographical distribution of substance abuse treatment admissions for cocaine use. Unlike **Map 3.6**, there are several pockets of high levels of admission for cocaine use in the southern sub-region, especially in Mississippi, Alabama, and the Carolinas. There are very few admissions for cocaine use in the central sub-region. In the northern sub-region, there are many pockets of high levels of admissions for cocaine use, especially in western and central Pennsylvania.

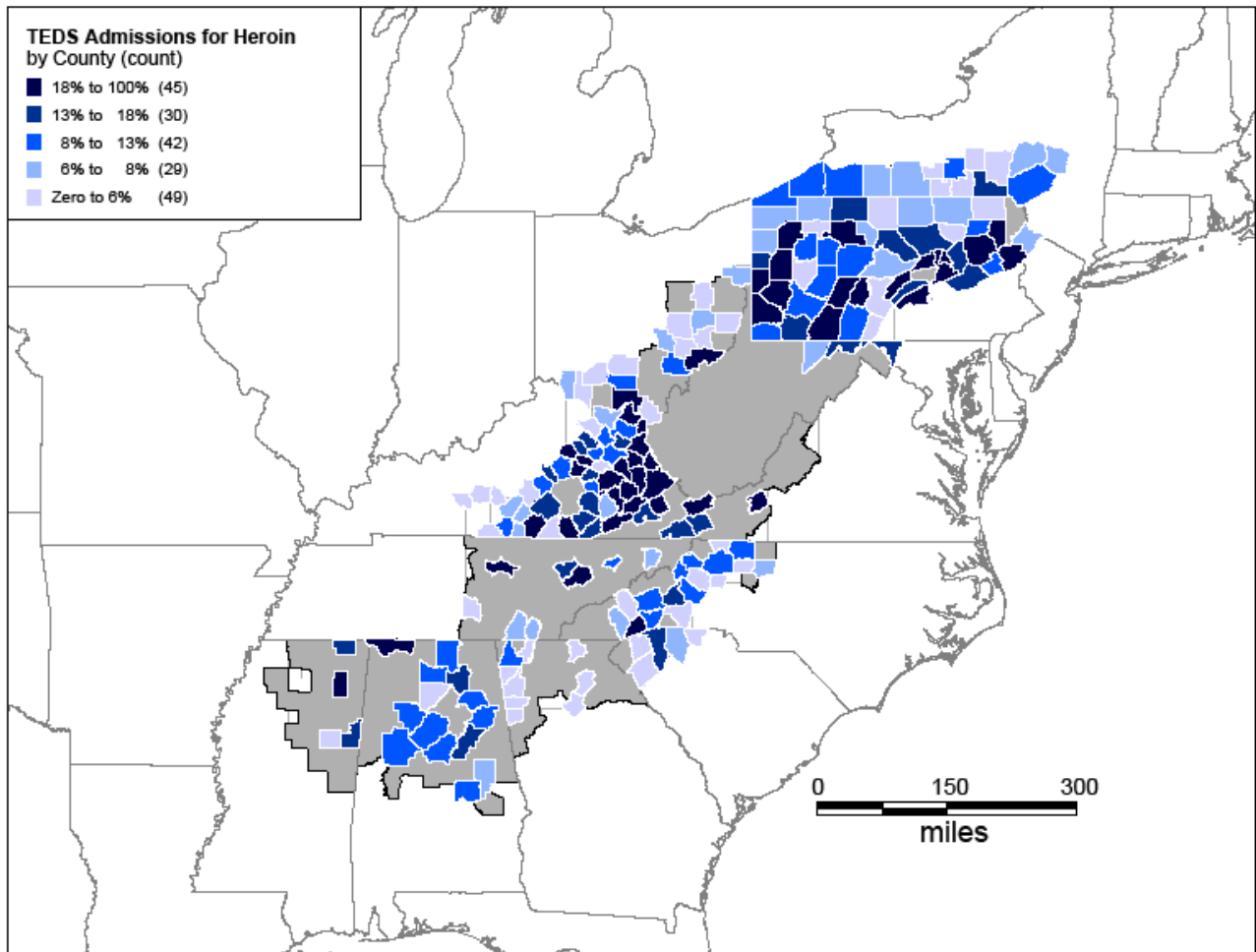
Map 3.7. Percentage of Persons Admitted to Treatment for Cocaine Use



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.8, below, depicts the geographical distribution of substance abuse admissions for heroin use. There are large areas of admission for heroin use in the northern sub-region in western and eastern Pennsylvania, as well as in the central region, in eastern Kentucky.

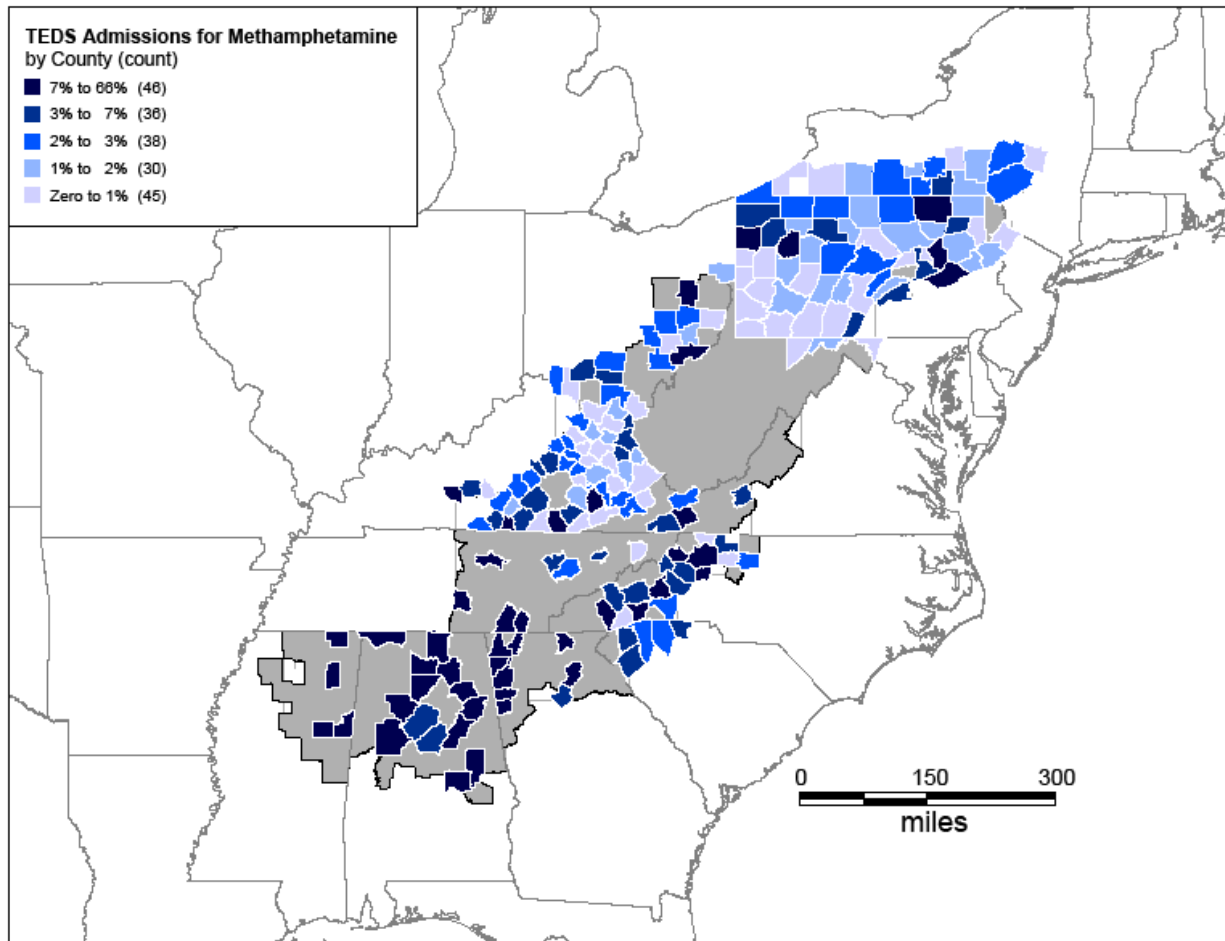
Map 3.8. Percentage of Persons Admitted to Treatment for Heroin Use



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.9, below, presents the geographical distribution of substance abuse admissions for methamphetamine use. Most admissions for methamphetamine use are clustered in the southern sub-region in Mississippi, Alabama, and Georgia. There are lower levels of admissions in the central region, as well as in the northern region, especially in western Pennsylvania.

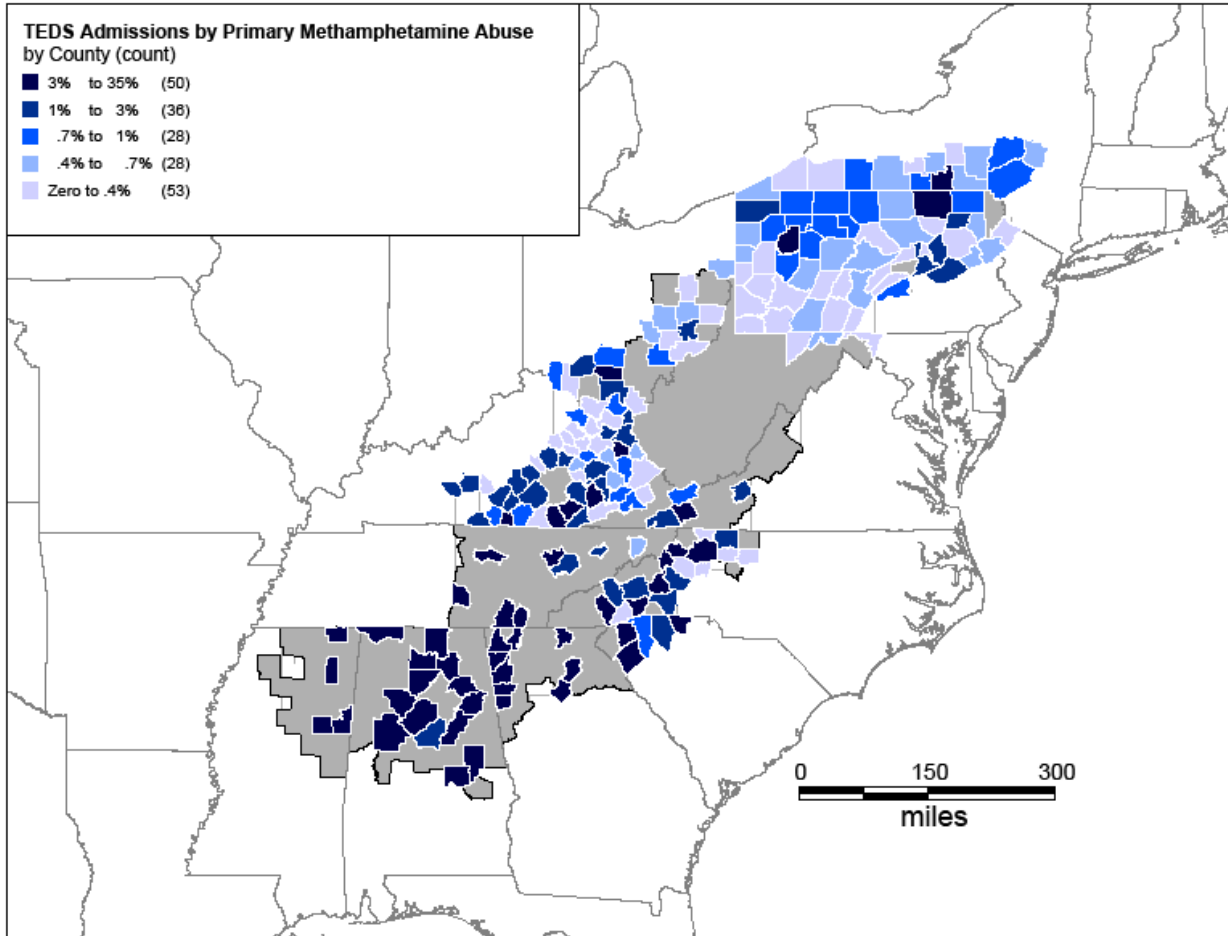
Map 3.9. Percentage of Persons Admitted to Treatment for Methamphetamine Use



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.10, below, shows the geographical distribution of substance abuse admissions by primary methamphetamine abuse. This map is quite similar to **Map 3.9**, with the highest concentration of admissions in the southern sub-region of Appalachia. Besides the concentration in Mississippi, Alabama, and Georgia, the Carolinas present a greater concentration of admissions by primary methamphetamine abuse.

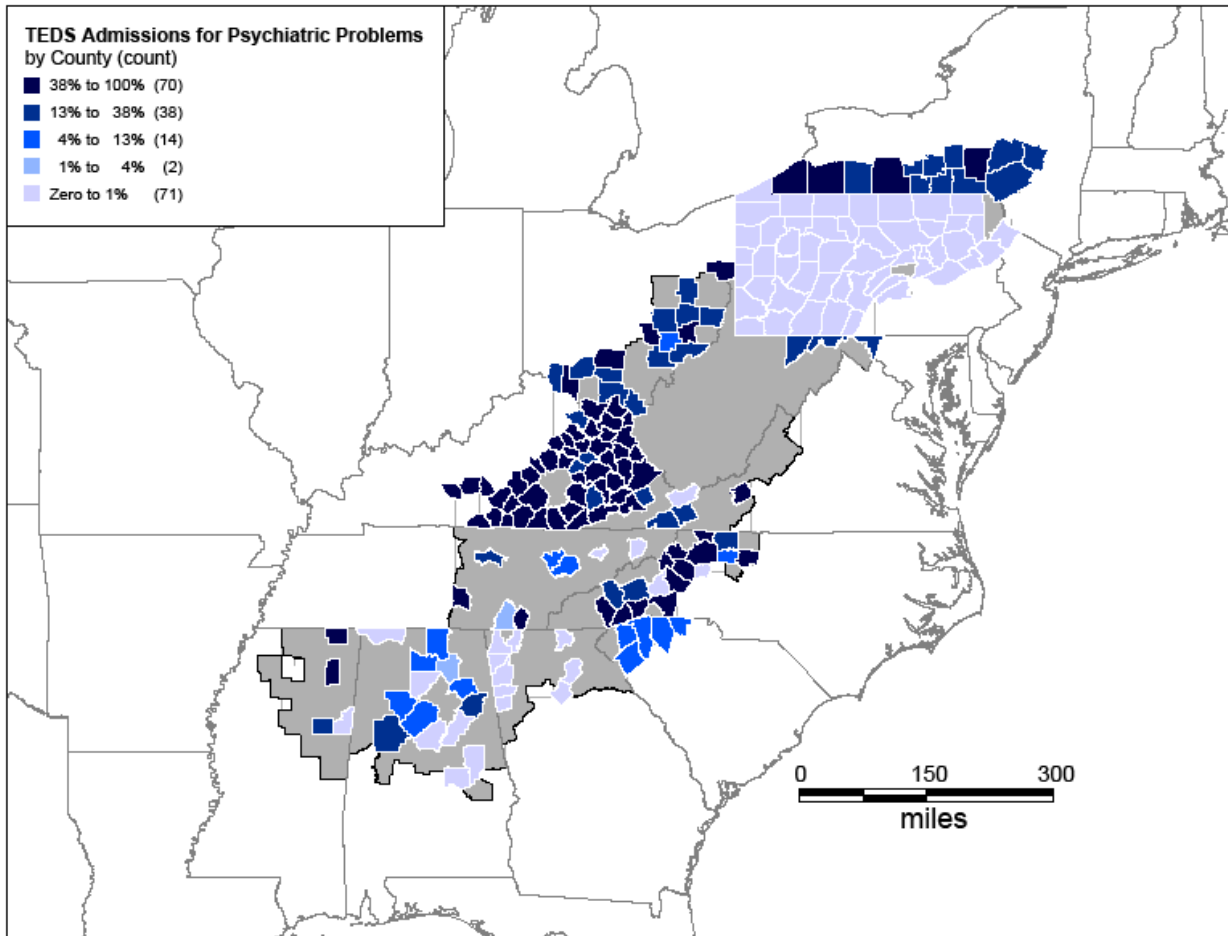
Map 3.10. Percentage of Persons Admitted to Treatment for Primary Methamphetamine Abuse



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Map 3.11, below, presents the geographical distribution of admission for psychiatric problems (both substance-related and non-substance-related). The central sub-region has the greatest density of admissions for psychiatric problems. Other pockets are seen in New York, Ohio and North Carolina.

Map 3.11. Percentage of Persons Admitted to Treatment for Psychiatric Problems



SOURCE: "Treatment Episode Data Set (TEDS) 2000 - 2004: National Admissions to Substance Abuse Treatment Services." Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

3.5 Discussion

Consistent with estimations at the national level and with prior research findings, alcohol use stands as the most-cited primary reason for treatment in Appalachia at the time of admission to treatment.⁵³ This is followed by marijuana use, cocaine use, heroin use, and the use of other opiates or synthetics. This is not the case across counties when analyzing the data by economic development status, however. For counties at lower economic development status levels (“distressed” and “at risk”), other opiates or synthetics are the most-cited primary reason for admission after alcohol and marijuana use. Despite relatively low overall prevalence, the proportions of admissions citing tranquilizer and sedative use were also the highest in the “distressed” counties.

It is noteworthy that admissions to treatment for “other opiates or synthetics” include people using OxyContin. This finding supports recent media reports and other anecdotal evidence that OxyContin and non-medical use of prescription drugs have become serious problems in certain rural areas and within the Appalachian region.^{54,55,56} Furthermore, according to the Coalition on Appalachian Substance Abuse Policy (CASAP), TEDS data may actually understate the non-medical use of prescription drugs in Appalachia. CASAP noted that methadone treatment for prescription drug abuse is likely underreported in Appalachia because most methadone treatment is provided by private facilities. However, private facilities do not submit TEDS data. In the case of Kentucky, for example, CASAP indicated that there are nine facilities that offer methadone treatment – two of which are publicly funded. However, only one of the two publicly funded facilities submits TEDS data. As a result, TEDS data may not provide a comprehensive picture of the prescription drug problem in Appalachia due to the facility’s funding stream and/or reporting practices.

The TEDS data also show that the central Appalachian region had the highest proportion of admissions with other opiates or synthetics as the primary reason for admission among Appalachian sub-regions. This finding is also consistent with recent media reports.⁵⁷ TEDS data also showed that the proportion of adult admissions for primary abuse of other opiates and synthetics is considerably higher than in the U.S. between 2000 and 2004, and also more than doubled from 3.49% to 7.54% during this time period.

About two-thirds of admissions in Appalachia were associated with mood disorders – both those substance-related and non-substance-related – based on either the third edition revised or the fourth edition of the *American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R or DSM-IV)*. The highest prevalence of mood disorders occurs in “transitional” counties and in the northern Appalachian sub-region. The reasons for this pattern of comorbidity require further study. Furthermore, we also see that the central sub-region of Appalachia has the greatest density of admissions for psychiatric problems (both substance-related and non-substance-related). Other pockets are seen in New York, Ohio and North Carolina.

Treatment referral by the criminal justice system or the courts was more common in the “distressed” and “at-risk” counties than in the “transitional” and “competitive” counties, and least likely in “attainment” counties. In contrast, the “attainment” counties had the highest proportion of admissions referred by individual clients (e.g., self-referral). Additionally, the proportion of admissions that were referred from health care providers was considerably lower in “distressed” counties. Although different criminal justice practices at the state level may affect the ways in which clients are referred to admission, it appears that the economic development status of the

counties where the facilities were located may also impact how substance abuse clients come to be admitted to treatment.

The vast majority (94.21%) of the admissions in “distressed” counties were made into ambulatory care settings. Interestingly, while 14% of admissions across the Appalachian region were to rehabilitation or residential settings, only about 4% of admissions in “distressed” counties were to such settings. Future research should evaluate the effect of treatment settings on treatment outcomes by combining admissions and discharge data for the same clients.

REFLECTIONS FROM PRACTITIONERS

From the Coalition on Appalachian Substance Abuse Policy

Challenges Associated with Using the Treatment Episode Data Set (TEDS) to Explore Substance Abuse and Mental Health in Appalachia

- **The drug indicated as the “primary reason for admission” may not be the most relevant drug to the client’s treatment.** The counselor selects the “primary” drug upon admission – not the client. This is an important distinction. If the counselor believes that heroin is the most important drug, he/she may designate heroin as the primary drug upon admission.
- **Criminal justice clients and clients with multiple prior treatment episodes tend to do as well if not better in terms of treatment outcomes than their counterparts.** CASAP noted that criminal justice clients do well in treatment, if not better than clients who are not coming from the criminal justice system. In addition, CASAP noted that clients with multiple prior treatment episodes tend to have better outcomes in treatment, than clients with zero prior treatment episodes. Most clients have had a previous treatment episode.
- **TEDS may be missing important subgroups of the population.** For a client to qualify as a TEDS admission, he/she must meet certain required criteria. If certain peak fields in TEDS are missing, the client is not a TEDS admission. For example, court referred people are not counted because they have a limited number of treatment visits, and do not receive a treatment plan.
- **Facility reporting practices are often affected by payment.** Facilities may underreport or over-report specific conditions to secure payment. In Virginia, if a client is admitted with a co-occurring disorder, the facility may choose to report that he/she has a mental health condition to secure payment, although the client is receiving treatment for substance abuse issues as well. According to CASAP, the federal government should recognize co-occurring disorders to ameliorate payment concerns at treatment facilities.

About one-third of the admissions in distressed counties were clients who had previously accessed treatment at the facility. In contrast, about two-thirds of admissions across Appalachian counties were clients who had previously sought treatment. Drug users who have been in and out of treatment programs multiple times are of particular concern. Past research has suggested that multiple prior treatment episodes might be indicative of less effective current treatment, everything

else being equal.^{58,59,60} Interestingly, CASAP suggested that clients with multiple prior treatment episodes do well, if not better than clients with zero prior treatment episodes. Given the special geographic and economic contexts of the Appalachian region, future studies may examine the outcome of new treatments in economically distressed areas.

Item non-responses should be taken into consideration when interpreting admissions data. For example, unknown status of health insurance is quite common in TEDS. Health insurance is regarded as a key treatment access enabling factor and non-response to this item may affect overall admissions.⁶¹ Overall, the health insurance status was unknown for almost half of the admissions during the 2000-2004 period. Importantly, the distribution of this unknown status was uneven across sub-regions – while nearly two-thirds of admissions had unknown health insurance status in the southern Appalachian region, slightly less than one-third of admissions in the central Appalachian region had unknown health insurance status. Future data collection efforts should attempt to determine the reasons for the missing health insurance information and consistent patterns that may influence data interpretation.

Finally, it is important to note that TEDS data do not provide a comprehensive understanding of all of the facility-level factors that may affect access to and utilization of treatment services. Additional data elements that would be useful to collect through TEDS in future years include staff turnover rates at substance abuse and mental health treatment facilities, and staff shortages at the facility-level. Such information may reveal other important deficiencies and disparities in access to treatment across Appalachia.