STATEWIDE ADULT SUBSTANCE ABUSE NEED FOR TREATMENT AMONG ARRESTEES (SANTA) IN MARYLAND

Prepared for

Maryland Alcohol and Drug Abuse Administration (ADAA)
Department of Health and Mental Hygiene
201 W. Preston Street
Baltimore, MD 21201

Eric D. Wish, Ph.D.
George S. Yacoubian, Jr., Ph.D.

May 2002

Center for Substance Abuse Research (CESAR)
University of Maryland
4321 Hartwick Road, Suite 501
College Park, MD 20740
(301) 403-8329 – Telephone
(301) 403-8342 – Facsimile
www.cesar.umd.edu

STATEWIDE ADULT SUBSTANCE ABUSE NEED FOR TREATMENT AMONG ARRESTEES (SANTA) IN MARYLAND

Technical Report[1]

May 2002

[1] Maryland's Alcohol and Drug Abuse Administration (ADAA) funded this research under contract #270-96-0010 from the federal Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA).

ABSTRACT

In 1992, the federal Center for Substance Abuse Treatment (CSAT) awarded funds to Maryland's Alcohol and Drug Abuse Administration (ADAA) to assess the need for alcohol and other drug (AOD) treatment among a variety of populations. The Substance Abuse Need for Treatment among Arrestees (SANTA) study, conducted by the Center for Substance Abuse Research (CESAR), provided a key element to estimating treatment need in Maryland by surveying a sample of arrestees in Baltimore City. Data collected through the 1995 SANTA study illustrated significant need for AOD treatment among the Baltimore City arrestee population. With these arrestee data, and data from household respondents collected through the 1990 Maryland Telephone Survey of Alcohol and Other Drug Abuse, Reuter et al. (1998) estimated that approximately 262,700 Maryland residents (household members and arrestees) were in need of substance abuse treatment. This analysis was limited, however, because it applied the estimates of treatment from arrestees in Baltimore City to all arrestees statewide. To address this limitation, SANTA was expanded to develop estimates of treatment need within the adult arrestee population in the six AOD planning regions in Maryland and to use them to compute a new statewide estimate of treatment need in Maryland.

Data were collected in five counties between December 1999 and July 2001: Anne Arundel, Charles, Prince George's, Washington, and Wicomico. In addition, a collection was conducted in Baltimore City in March 2001 to update the findings from 1995. While the drug use prevalence estimates varied by site, the sites with the highest percentage of arrestees testing positive for at least one illicit drug were Baltimore City (77%) and Prince George's County (59%). The three most prevalent illicit drugs detected

by urinalysis were cocaine, marijuana, and opiates. Forty-four percent of the arrestees in Baltimore City tested positive for cocaine, while 42% tested positive for opiates. Thirty-eight percent of the arrestees in Prince George's County tested positive for marijuana.

The study used the Diagnostic Interview Schedule, fourth version (DIS-IV), to diagnose current abuse or dependency for eight classes of drugs. The sites with the highest prevalence of current dependence in *any* of the drug classes were Anne Arundel (43%) and Washington (43%) counties. Current alcohol dependence was highest in Washington County (33%), current cocaine dependence was highest in Anne Arundel County (17%) and in Baltimore City (17%), and current opiate dependence was highest in Baltimore City (26%). Estimates of treatment need ranged from a low of 24% in Prince George's County to a high of 56% in Anne Arundel County. Approximately one-half of the arrestees surveyed perceived a need for AOD treatment and/or were diagnosed in need of treatment. While our findings provide minimum estimates at best, we suspect that approximately half (50.9%) of the statewide arrestee population in 1999, or 98,600 arrestees, need AOD treatment.

ACKNOWLEDGMENTS

We wish to acknowledge the contributions of several individuals without whose help this study would not have been possible. William Rusinko, Vicky Kaneko, and Stephen Goldklang of Maryland's Alcohol and Drug Abuse Administration (ADAA) served as key state contacts throughout this project. We extend our gratitude to Commissioner LaMont Flanagan in Baltimore City; to Superintendent Richard Baker, Assistant Administrator William H. Martin, and Molly S. Nussear in Anne Arundel County; to Director William Mancuso and Deputy Director Walter Poynor in Charles County; to Barry Stanton and Lt. Kathleen Costello in Prince George's County; to Charles R. Messmer and Warden Van Evans in Washington County; and to Assistant Warden Mark Stephenson and the staff at Life Crisis Center in Wicomico County. Michael Wagner and Thomas A. Gray were responsible for the development and programming of the instrument used for data collection. Deanna M. Pérez served as Project Manager through August 2000. Jill D. Choyka of CESAR served as site supervisor and oversaw the interviewing staff. Allison Bunge, Megan Fitzgerald, Kristine Larsen, Heidi Powell, and Eric Roche conducted the interviews.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

In 1992, the federal Center for Substance Abuse Treatment (CSAT) awarded funds to Maryland's Alcohol and Drug Abuse Administration (ADAA) to assess the need for alcohol and other drug (AOD) abuse treatment among a variety of populations. The Substance Abuse Need for Treatment among Arrestees (SANTA) study, conducted by the Center for Substance Abuse Research (CESAR) in 1995, provided a key element to estimating treatment need in the state of Maryland by surveying a sample of arrestees in Baltimore City. Findings from that study illustrated a significant need for treatment among individuals under criminal justice supervision. As shown in Table 1, 41% of the males and 60% of the females were diagnosed in need of some form of AOD treatment, primarily for opiates (heroin). Table 1 also highlights the considerable amount of recent drug use among arrestees in Baltimore City, with 67% of males and 75% of females testing positive by urinalysis for at least one illicit drug. These estimates, in conjunction with those from other studies and data sources, were used to create statewide estimates of treatment needs in Maryland.[2] While these findings demonstrated the extensive need for treatment among arrestees in Baltimore City, the results could not be used to estimate need for treatment among arrestees in other regions across Maryland or within other populations.

[2] Other studies assessed the level of drug abuse and need for treatment among juvenile detainees (Gray and Wish, 1998), adult household residents (Petronis and Wish, 1996), and callers to crisis hotlines in Maryland (Wagner and Wish, 1996). A final study (Reuter et al., 1998) employed statistical modeling techniques to combine data from the preceding studies to produce estimates of the overall need for treatment in Maryland.

Table 1. 1995 Baltimore City SANTA Summary Findings[a]

OUTCOMES	MALE	FEMALE
Need for Treatment:	41%	60%
Alcohol	15%	13%
Cocaine	16%	33%
Opiates	26%	41%
Marijuana	3%	2%
Urinalysis Positive:*	67%	75%
Multiple Positive:*	38%	48%
Cocaine	51%	64%
Opiates	37%	48%
Marijuana	21%	10%

[a] Excerpted from Gray and Wish (1998).
*Excluding alcohol

When CSAT provided Maryland with additional funding to conduct a second phase of needs assessments, SANTA was expanded to produce estimates of statewide treatment need among the arrestee population. The second wave of collection was designed to complement the results obtained from the Baltimore City study by developing estimates of treatment need among the adult arrestee population in the five remaining AOD planning regions within the state of Maryland. The study objectives included producing estimates of drug use prevalence, dependence, and treatment need among adult arrestees in Maryland, by geographic area. The findings in the current study are based on data collections in booking facilities in five Maryland counties between December 1999 and July 2001: Anne Arundel, Charles, Prince George's, Washington, and Wicomico. In addition, a new collection was conducted in Baltimore City's Central Booking in March 2001. The current report presents the results from our study of these arrestees across Maryland.

METHODS

The present study expanded the data collection of the 1995 Baltimore City study by collecting self-reported and objective drug use information from the adult arrestee population in the six state planning regions. Data were collected between December 1999 and March 2001.

Sample Selection

ADAA divides the state's 24 counties into six regions: Western (Allegany, Garrett, and Washington); DC Metro (Frederick, Montgomery, and Prince George's); Southern (Calvert, Charles, and St. Mary's); Eastern (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester); Central (Anne Arundel, Baltimore, Carroll, Harford, and Howard); and Baltimore City. One county from the five service regions was targeted for study based upon: 1) representativeness, 2) arrestee flow, and 3) willingness to provide access and interviewing facilities. The counties of Anne Arundel, Charles, Prince George's, Washington, and Wicomico were selected to represent the five planning regions. A description of each county is provided below.

Anne Arundel County. Annapolis, the state capital of Maryland, is located in Anne Arundel County. As shown in Table 2, 9.3% of the total state population resides in Anne Arundel County, and an almost equal percent (9.2%) of all adult arrests in the state occurred in this county. Anne Arundel is the second largest county with the second highest number of adult arrests in the Central Region.

Table 2. State Population and Adult Arrest Composition for SANTA Sites

County	Population Size*	% of State Population	Total State Adult Arrests**	% of State Adult Arrests
Anne Arundel	480,483	9.3	24,081	9.2
Charles	120,946	2.3	6,332	2.4
Prince George's	781,781	15.1	34,032	12.9
Washington	127,791	2.5	5,721	2.2
Wicomico	79,560	1.5	4,106	1.6
Totals	1,590,561	30.7	74,272	28.3

*Source: U.S. Census Bureau Annual Population Estimates for Maryland's Jurisdictions 1999; total State of Maryland population equals 5,171,634

**Source: *Crime in Maryland 1998 Uniform Crime Report*; total adult arrests in 1998 equal 263,123.

Charles County. Charles County, whose western and southern borders are constituted by the Potomac River, is predominantly rural, home to 2.3% of the total state population. It is the largest county in the Southern region, with the highest incidence of adult arrests – 2.4% of all adult arrests were made in Charles County.

Prince George's County. Prince George's County is largely urban and borders Washington, DC. It is the second most populous county in both the state and the DC Metro Region, accounting for 15.1% of the total population. Although the proportion of adult arrests made in the county (12.9%) is lower than the population proportion, Prince George's County has the highest number of adult arrests in the DC Metro Region.

Washington County. Predominantly rural, Washington County is only slightly more populated than Charles and Wicomico counties, with 2.5% of the total state population. Adult arrests in this county comprised 2.2% of all adult arrests. Washington is the largest county in the Western region and likewise has the highest incidence of adult arrests.

Wicomico County. Wicomico County is the smallest county participating in the study, with 1.5% of the total population of the state and 1.6% of all adult arrests. Wicomico County is located approximately 25 miles from a popular beach resort, Ocean City, Maryland. It is the second largest county with the third highest incidence of adult arrests in the Eastern region.

The study was designed to collect completed interviews and urine specimens from a sample of 700 (500 male and 200 female) adult arrestees across the state of Maryland. As such, approximately 100 male and 40 female arrestees were targeted from each site. All persons arrested within the previous 48 hours were eligible for inclusion. The study design called for excluding those arrestees who had been in custody longer than 48 hours because the longer length of confinement would have reduced the likelihood of detecting recent illicit drug use by urinalysis. During data collection, interviewers accessed a listing of all eligible arrestees and systematically selected a sample using a table of random numbers. All arrestees in custody at the beginning of a data collection shift had an equal chance of being selected for the study.

To obtain 140 interviews and urine specimens, we determined that a larger number (approximately 200) of persons would need to be approached because not all individuals who agree to the interview would provide a urine specimen.[3] During the fieldwork phase of the study, it became apparent that the flow of arrestees, and therefore the eligible pool, was lower in the rural regions of the state (i.e., Charles, Washington, and Wicomico counties). Given that the overarching goal of the study was to produce estimates of AOD dependence rather than to estimate the prevalence of recent drug use

[3] Previous research has shown that approximately 80% of all arrestees who agree to participate in the interview will consent to the urinalysis (Gray and Wish, 1998; National Institute of Justice (NIJ), 1997).

(as measured by urinalysis), and in order to complete data collection within the scheduled timeframe, the study was modified in these three counties to target 140 respondents for interview, regardless of whether they provided a urine specimen.

Assurances of confidentiality

The University of Maryland Institutional Review Board (IRB) for the Protection of Human Subjects approved the data collection protocol. Potential respondents were approached by trained interviewers and introduced to the study. The introduction included the purpose and sponsorship of the study and informed consent provisions. Arrestees were assured that their participation was voluntary, that their responses were confidential, and that they would receive a candy bar as an incentive for participation. Subjects were interviewed out of hearing range of correctional officers or other arrestees.

Participation Rates

Table 3 illustrates the participation rates for the five counties and Baltimore City. A total of 921 adult male and female arrestees were approached for interviewing in Anne Arundel, Charles, Prince George's, Washington, and Wicomico counties. Of these 921 arrestees, 828 (90%) completed the interview. Of the 828 arrestees who completed the interview, 601 (73%) provided a urine specimen. The overall rate of participation for the five counties – which is calculated by dividing the total number of arrestees who completed the interview *and* provided a urine specimen by the total number of eligible arrestees – was 66%. In Baltimore City, 353 arrestees were approached for interviewing,

of which 339 (96%) agreed. Of the 339 arrestees who completed the interview, 90% (n=305) provided a urine specimen, for an overall participation rate of 86%.

Table 3. Participation Rates, by Site

	Anne Arundel n	%	**Charles** n	%	**Prince George's** n	%
(Of Eligible Arrestees) Completed Interview	(223) 192	86%	(148) 129	87%	(242) 224	93%
(Of Completed Interview) Provided Urine Specimen	(192) 144	75%	(129) 79	61%	(224) 165	74%
Overall Participation Rate	65%		58%		69%	
	Washington n	%	**Wicomico** n	%	**Total** n	%
(Of Eligible Arrestees) Completed Interview	(135) 133	98%	(173) 150	87%	(921) 828	90%
(Of Completed Interview) Provided Urine Specimen	(133) 124	93%	(150) 89	59%	(828) 601	73%
Overall Participation Rate	91%		51%		66%	
	Baltimore City n	%				
(Of Eligible Arrestees) Completed Interview	(353) 339	96%				
(Of Completed Interview) Provided Urine Specimen	(339) 305	90%				
Overall Participation Rate	86%					

Washington County and Baltimore City had the two highest overall participation rates (91% and 86%, respectively), while Charles and Wicomico counties had the lowest participation rates (58% and 51%, respectively). With the exception of Washington

County and Baltimore City, these rates of participation were lower than those generated in other studies of arrestees (Gray and Wish, 1998; NIJ 1997).

Analyses of the survey data from the five counties are thus based upon information from those arrestees (n=828) who completed the interview. Analyses of drug test results are based upon the subset of those arrestees (n=601) who also provided a urine specimen. In Baltimore City, analyses are based on the 339 arrestees who completed the interview, while urinalysis results are based on the 305 arrestees who provided a urine specimen.

Measures

The computerized version of the SANTA instrument (AutoSANTA) included five primary sections: demographics, official records, criminal justice, AOD assessment, and treatment. The instrument is included in Appendix A. With the exception of the official records section, all of the information was obtained via self-report. Data for the official records section were obtained from a copy of the arrestee's booking sheet. Information contained on the booking sheet included primary charge, sex, race/ethnicity, and date of birth. No personal identifying information available from the form (i.e., name, social security number, or driver's license number) was retained.

Interview Variables

Demographic information contained in the interview included sex, age, race/ethnicity, education, marital status, employment, household composition, and access to health insurance. Data were also collected on criminal justice status and prior adult

and juvenile criminal justice history. Following the completion of the AOD assessment sections, information was collected on perceived need for treatment, prior and current treatment experience(s), and barriers to treatment.

Dependence and Abuse and Need for Treatment

The primary goal of this study was to estimate the need for AOD treatment among a statewide sample of arrestees. The needs assessment section of the instrument, originally based upon the National Technical Center (NTC) household survey using Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) criteria (American Psychiatric Association (APA), 1994), was updated with the alcohol and drug sections of the Diagnostic Interview Schedule, fourth version (DIS-IV) (Robins et al., 1998). These sections contain screening and assessment questions for alcohol, cocaine/crack, hallucinogens (e.g., phencyclidine (PCP) and lysergic acid diethylamide (LSD)), inhalants, marijuana, opiates, sedatives, and stimulants. If the screening threshold (i.e., lifetime drug use five or more times/lifetime alcohol use six or more times) set by the DIS-IV is met, the subject is asked the assessment questions for each class of drugs to obtain symptom and duration responses based upon DSM-IV criteria for abuse/dependence.

Need for treatment for a substance was operationalized as a diagnosis of dependence on, or abuse of, that class of substance. The DSM-IV substance dependence criteria are:

1. Substance is often taken in larger amounts or over longer periods than intended;
2. Persistent desire or unsuccessful efforts to cut down or control substance use;
3. A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects;
4. Important social, occupational, or recreational activities given up or reduced because of substance use;
5. Tolerance, as defined by either: (a) need for increased amounts of the substance in order to achieve intoxication or desired effect; or (b) markedly diminished effect with continued use of the same amount;
6. Withdrawal, as manifested by either: (a) characteristic withdrawal syndrome for the substance; or (b) the same (or closely related) substance is taken to relieve or avoid withdrawal symptoms; and,
7. Continued substance use despite knowledge of having a persistent or recurrent psychological or physical problem that is caused or exacerbated by use of the substance (APA, 1994).

The DSM-IV substance abuse criteria are as follows:

1. Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household);

2. Recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use);
3. Recurrent substance-related legal problems (e.g., arrests for substance-related disorderly conduct); and,
4. Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.

The above symptoms should not meet the criteria for substance dependence for this class of substance in order to be diagnosed as substance abuse (APA, 1994).

For each of the DSM-IV dependence and abuse criteria, multiple questions drawn from the DIS-IV instrument were asked to determine if the respondent had exhibited any of the criteria. A diagnosis of *lifetime dependence* for that class of substance was made if s/he presented with a "maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the [substance dependence criteria], occurring at any time in the same 12-month period" (APA, 1994:181). A diagnosis of *current dependence* was made if the respondent exhibited three or more of the criteria in the 12 months prior to interview. To qualify for a diagnosis of *lifetime abuse*, the respondent must have presented with a "maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the [substance abuse criteria] occurring within a 12-month period" (APA, 1994: 182). *Current abuse* was diagnosed if one or more of the criteria were met in the 12 months prior to the interview.

The AutoSANTA instrument computed diagnoses for alcohol, cocaine/crack, hallucinogens, inhalants, marijuana, opiates, sedatives, and stimulants. The screening threshold set by the DIS-IV must be met before the subject is asked the assessment questions for each substance. For all drugs, arrestees who reported using a substance five or more times in their lifetime (six times for alcohol) screened into the assessment questions for that class of substance. If this threshold was established, respondents were asked the assessment questions relating to lifetime and current diagnosis of dependence/abuse.

For each substance evaluated, there are three possible diagnostic outcomes: no diagnosis of substance dependence or abuse, lifetime dependence, or lifetime abuse. Respondents diagnosed for either lifetime dependence or lifetime abuse were then evaluated for current dependence or current abuse, respectively.

Drug Use

Drug use was measured by both self-report (interview) and from urinalysis. Respondents were queried about their lifetime, past 90-day, past 30-day, and past three-day use of cocaine/crack, hallucinogens, inhalants, marijuana, opiates, sedatives, and stimulants. At the conclusion of each interview, respondents were asked to provide a urine specimen. Urine specimens were shipped to a single laboratory and screened by the Enzyme Multiplied Immunoassay Test (EMIT) for amphetamines, barbiturates, benzodiazepines (Valium), cocaine, marijuana, methadone, methaqualone, opiates, PCP, and propoxyphene (Darvon). Any specimens screening positive for amphetamines required confirmation by gas chromatography (GC) to eliminate any false-positives due

to over-the-counter (OTC) compounds. Drug use detected by urinalysis was coded as either negative or positive for each of the 10 drugs screened.

Analytic Strategy

The major variables of study were self-reports of substance use; assessments of treatment need for alcohol, cocaine/crack, hallucinogens, inhalants, marijuana, opiates, sedatives, and stimulants; perceived dependence and perceived need for treatment; and test results from the urine specimens. Demographic variables analyzed include sex (results are presented separately for each sample), race/ethnicity, and age.

Study Limitations

Like the 1995 study of Baltimore City arrestees, the present study was designed so that an equal probability sample could be drawn from the daily sampling frame. Unlike Baltimore City, however, the number of arrestees eligible for interview during any given shift in the five sites typically averaged four (this varied across sites with an average of five or six eligible arrestees per shift in Anne Arundel and Prince George's counties and two or three in Charles, Washington, and Wicomico counties). As such, every attempt was made to approach the entire population of eligible persons using the random sampling procedure. However, losses from releases, transfers, and general unavailability due to factors such as illness or routine processing obligations prohibited such a census.

Most importantly, estimates of substance dependence/abuse and need for treatment are based upon arrestee self-reports. Evidence from validity studies of self-

reports indicates that respondents greatly underreport their recent use of drugs even when they are interviewed by researchers under conditions of anonymity and confidentiality (Wish et al., 2000; Hser et al., 1999). Research has also shown, however, that self-reported drug use increases as recency decreases (e.g., use in the past three days versus lifetime use) (Gray and Wish, 1998). Given that a diagnosis of *lifetime* dependence or abuse is not conditional on reporting of recent drug use, the estimates of lifetime need for treatment may be more accurate than the estimates of current need (which rely on admitting use in the past year). Nevertheless, because the estimates presented in this report are based on self-reports, they should be viewed as a conservative measure of the minimum amount of treatment needed within this population.

FINDINGS

Demographic Characteristics

Table 4 presents characteristics of the arrestees interviewed in each county, by gender, race, age, offense seriousness, offense category, education, marital status, and means of economic support. Some of these characteristics were coded from booking information prior to initiating contact with the respondent. The charge information comes from the arrest report filled out by the police, while age and race were either self-reported at the time of booking or coded from previous arrest records. Age was approximated using respondent's birth year.

As shown, a majority of arrestees in each county were male and, with the exception of Anne Arundel and Washington counties, black. The age distribution was comparable between the six sites, with the mean ages ranging from a low of 29.1 years old in Prince George's County to a high of 32.5 years in Charles County. In each of the six sites, the majority of arrests were for misdemeanor offenses. In Wicomico County, personal offenses and alcohol or other drug offenses each accounted for 29% of the arrest charges.

A majority of the arrestees in each of the six sites were either high school graduates or had their General Equivalency Diplomas (GED). In Prince George's County, 11% of the arrestees reported having an advanced degree. A majority of the arrestees in each of the sites were single and reported being employed at the time of arrest. Less than 10% in each of the sites reported illegal activity as their primary means of support during the 12 months preceding the interview.

Table 4. Demographic Characteristics, by Site

	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
Gender						
Male	71%	80%	75%	81%	75%	67%
Race						
Black	35%	61%	87%	35%	57%	81%
White	62%	36%	9%	63%	41%	18%
Hispanic	2%	2%	4%	--	2%	
Other	1%	1%	--	2%	1%	1%
Age						
Under 21	14%	10%	18%	13%	21%	16%
21-29	32%	31%	41%	40%	29%	26%
30-39	34%	37%	26%	28%	27%	37%
Over 39	20%	22%	15%	19%	23%	21%
Mean Age (In Years)	31.6	32.5	29.1	30.4	31.2	31.9
Offense Seriousness						
Misdemeanor	73%	66%	69%	72%	62%	64%
Offense Charge						
Personal	17%	18%	20%	13%	29%	19%
Property	27%	30%	21%	10%	19%	17%
Alcohol or Drug	24%	16%	26%	20%	29%	37%
Miscellaneous	32%	36%	33%	57%	23%	37%

Note: Personal offenses include assault, homicide, kidnapping, and robbery. Property offenses include arson, burglary, and theft. Drug offenses include sale and possession. Miscellaneous offenses include failure to appear and parole/probation violations.

Table 4 (cont'd). Demographic Characteristics, by Site

	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
Highest Education						
No terminal degree	32%	35%	19%	36%	32%	46%
High school graduate	42%	48%	54%	45%	42%	35%
GED	17%	9%	9%	17%	15%	13%
Trade school	3%	7%	7%	--	4%	2%
College degree	6%	1%	11%	2%	7%	4%
Marital Status						
Single, never married	58%	70%	68%	67%	61%	79%
Separated, divorced	26%	18%	14%	20%	23%	12%
Married	15%	12%	18%	12%	16%	9%
Widowed	1%	--	--	1%	--	--
Primary Means of Support, Past Year						
Working	71%	78%	74%	69%	76%	56%
Family/spouse	10%	11%	11%	13%	13%	18%
Disability	4%	2%	2%	5%	3%	6%
Welfare	2%	2%	1%	1%	1%	6%
Student/retired	1%	4%	3%	--	3%	--
Unemployment	1%	--	3%	--	--	1%
Other legal	2%	2%	2%	3%	--	1%
Illegal activity	6%	1%	3%	3%	3%	9%
No income	3%	--	1%	6%	1%	3%

Self-Reported Alcohol and Other Drug (AOD) Use

Table 5 presents self-reported use of alcohol, marijuana, cocaine, opiates, hallucinogens, stimulants, sedatives, and inhalants for each of the six sites. Alcohol was the most prevalent drug reported across the state. Use of alcohol five or more times ranged from a low of 88% in Charles County to a high of 97% in Washington County. After alcohol, the most prevalent drugs reported were marijuana, cocaine, and opiates. Use of marijuana five or more times ranged from a low of 61% in Charles County to a high of 82% in Anne Arundel County. Use of cocaine five or more times ranged from a low of 21% in Prince George's County to a high of 56% in Anne Arundel County. Lifetime opiate use ranged from a low of 8% in Prince George's County to a high of 43% in Baltimore City.

There was a considerable decline in the prevalence rates between use five or more times and the more recent (30-day and three-day) time frames. While the use of hallucinogens, stimulants, and sedatives five or more times was fairly high, there was virtually no past 30-day or three-day use of these drugs reported across the six sites. The highest past three-day marijuana prevalence rate was in Washington County (30%), while the past three-day cocaine (22%) and opiate (28%) rates were highest in Baltimore City. Given the sensitivity of the behavior reported, the population studied, and the context in which the study took place, the validity of the self-report data is suspect, and respondents most likely underreported their recent use of illicit drugs (Wish et al., 1997; Harrison, 1995; Mieczkowski et al., 1991).

Table 5. Self-Reported Alcohol and Other Drug (AOD) Use, by Site

Self-Reported Use	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
Ever used 5 or more times						
Alcohol (6 or more times)	93%	88%	92%	97%	90%	90%
Marijuana	82%	61%	67%	77%	74%	62%
Cocaine (powder or crack)	56%	39%	21%	46%	37%	46%
Opiates	38%	11%	8%	21%	18%	43%
Hallucinogens	43%	25%	16%	34%	23%	9%
Stimulants	26%	13%	8%	24%	15%	8%
Sedatives	31%	11%	8%	26%	20%	11%
Inhalants	10%	4%	1%	4%	3%	2%
Past 30 days						
Marijuana	30%	27%	34%	47%	29%	31%
Cocaine (powder or crack)	23%	10%	11%	18%	15%	30%
Opiates	13%	4%	5%	5%	3%	32%
Hallucinogens	3%	1%	2%	2%	1%	0%
Stimulants	1%	1%	0%	2%	0%	1%
Sedatives	4%	2%	0%	8%	3%	2%
Inhalants	0%	0%	0%	0%	0%	0%
Past three days						
Marijuana	15%	12%	26%	30%	18%	20%
Cocaine (powder or crack)	10%	6%	9%	8%	7%	22%
Opiates	7%	2%	5%	3%	0%	28%
Hallucinogens	0%	1%	1%	1%	1%	0%
Stimulants	0%	0%	0%	1%	0%	0%
Sedatives	3%	0%	0%	2%	1%	1%
Inhalants	0%	0%	0%	0%	0%	0%

Urinalysis Results

Urinalysis results are provided in Table 6 for the six sites. Cocaine, marijuana, and opiates were the three most prevalent drugs detected by urinalysis. Cocaine-positive rates ranged from a low of 16% in Washington County to a high of 44% in Baltimore City. Marijuana-positives ranged from a low of 18% in Anne Arundel County to a high of 38% in Prince George's County. Opiate-positive rates ranged from a low of 1% in Charles and Wicomico counties to a high of 42% in Baltimore City.

Less than 8% of the arrestees in any of the sites tested positive for benzodiazepines, methadone, PCP, barbiturates, propoxyphene, amphetamines, and methaqualone. The range of drug-positives for any of the tested drugs ranged from a low of 35% in Charles County to a high of 77% in Baltimore City. Forty-two percent of the arrestees in Baltimore City and 15% of the arrestees in Anne Arundel County tested positive for two or more drugs.

Table 6. Urinalysis Drug Positive Rates, by Site

Drug Class	Anne Arundel (n=144)	Charles (n=79)	Prince George's (n=165)	Washington (n=124)	Wicomico (n=89)	Baltimore City (n=305)
Cocaine	23%	18%	23%	16%	26%	44%
Opiates	11%	1%	6%	6%	1%	42%
Cannabinoids (Marijuana)	18%	29%	38%	27%	28%	27%
Benzodiazepines	4%	1%	2%	7%	4%	2%
Methadone	5%	0%	1%	0%	0%	5%
Phencyclidine (PCP)	3%	0%	3%	0%	0%	0%
Barbiturates	1%	0%	0%	2%	1%	1%
Propoxyphene	2%	0%	0%	2%	1%	0%
Amphetamines	0%	0%	0%	0%	2%	11%
Methaqualone	0%	0%	0%	0%	0%	1%
Positive for any drug (of 10)	46%	35%	59%	44%	55%	77%
Positive for at least two drugs	15%	5%	1%	9%	9%	42%

Validity of Self-Reports

As indicated above, the self-reported drug use by arrestees is suspect because of the context in which the interview was conducted and because of respondents' perceptions of possible consequences. The interview questions regarding the type of drugs used and frequency of use provide an opportunity to compare arrestees' self-reported use with the urinalysis results. Given the approximate detection window of 24 to 72 hours provided by urinalysis, most comparisons of drug test results are made with self-reported use in the past three days. However, given the variability in retention times for drugs and the arrestee's possible willingness to admit to use beyond the past three days, comparisons over longer periods are also useful.

Table 7 presents the self-reported use of cocaine, opiates, and marijuana, urinalysis results for cocaine, opiates, and marijuana, the percent agreement between the two measures, and kappa statistics. Kappa statistics, which measure the agreement between the evaluation of two raters (self-report and urinalysis) when both are rating the same object (recent drug use), is considered an appropriate measure of agreement when the time periods covered by the self-reports and the criterion measure are similar (Magura and Kang, 1996). The kappa statistics for cocaine and marijuana indicate moderate agreement, ranging from a low of .34 in Wicomico County to a high of .53 in Prince George's County for cocaine and a low of .36 in Wicomico County to a high of .61 in Prince George's County for marijuana. The agreement between the two measures was strongest for opiates, ranging from a low of .53 in Washington County to a high of .83 in Prince George's County. These findings suggest low to moderate agreement between the self-reports and urinalysis results and call into question the validity of the self-reported symptoms used to diagnose dependence.

Table 7. Validity of Self-Reported Drug Use, by Drug and Site

	Anne Arundel (n=144)	Charles (n=79)	Prince George's (n=165)	Washington (n=124)	Wicomico (n=89)	Baltimore City (n=305)
Cocaine						
Past three-day use	10%	6%	9%	8%	7%	22%
Urinalysis results	23%	18%	23%	16%	26%	44%
Kappa	.50	.51	.53	.48	.34	.51
Opiates						
Past three-day use	7%	2%	5%	3%	2%	28%
Urinalysis results	11%	1%	6%	6%	1%	42%
Kappa	.67	.66	.83	.53	--[4]	.68
Marijuana						
Past 30-day use	30%	27%	34%	47%	29%	31%
Urinalysis results	18%	29%	38%	27%	28%	27%
Kappa	.53	.52	.61	.49	.36	.56

[4] The two offenders who reported past three-day opiate use did not provide a urine specimen. As such, no kappa statistic could be computed.

Self-Reported Use among Drug-Positive Arrestees

Table 8 illustrates self-reported lifetime, past 30-day, and past three-day use of marijuana, cocaine, and opiates for those arrestees who tested positive for the respective drug. Willingness to report past 30-day marijuana use among the marijuana-positive arrestees was fairly consistent across the six sites. Past 30-day self-reports are used because marijuana can be detected up to 30 days in the urine of chronic users. The percentage of marijuana-positive arrestees who reported 30-day marijuana use ranged from a low of 64% in Wicomico County to a high of 94% in Washington County. Urinalysis results for cocaine and opiates are most sensitive to the three-day self-report measures. The percentage of cocaine-positive arrestees who reported past three-day cocaine use ranged from a low of 30% in Wicomico County to a high of 49% in Baltimore City. The percentage of opiate-positive arrestees who reported past three-day opiate use ranged from a low of 43% in Washington County to a high of 80% in Prince George's County. Given that only one-third to one-half of the cocaine-positive arrestees reported using the drug within the past three days, these results suggest that the use of cocaine may be the most stigmatizing of the three drugs. Low self-reports of cocaine or opiate use would then translate into underreporting of diagnostic symptoms and thus may underestimate the need for cocaine treatment among arrestees.

Table 8. Percentage of Drug-Positive Arrestees Who Self-Reported Use, by Site

	Anne Arundel	Charles	Prince George's	Washington	Wicomico	Baltimore City
Marijuana	**(n=26)**	**(n=15)**	**(n=62)**	**(n=33)**	**(n=25)**	**(n=80)**
Ever used 5 or more times	100%	87%	90%	97%	88%	88%
Past 30-day use	85%	73%	73%	94%	64%	78%
Past three-day use	54%	53%	63%	85%	48%	64%
Cocaine	**(n=33)**	**(n=14)**	**(n=38)**	**(n=20)**	**(n=23)**	**(n=131)**
Ever used 5 or more times	82%	64%	71%	75%	61%	78%
Past 30-day use	72%	43%	53%	65%	44%	63%
Past three-day use	42%	43%	42%	40%	30%	49%
Opiates	**(n=15)**	*	**(n=10)**	**(n=7)**	*	**(n=126)**
Ever used 5 or more times	80%	*	80%	86%	*	83%
Past 30-day use	67%	*	80%	43%	*	75%
Past three-day use	53%	*	80%	43%	*	66%

*Too few cases to be analyzed.

Substance Dependence and Abuse

According to the DSM-IV, the classification of dependence and abuse differs principally in the extent of dysfunction resulting from substance use. As mentioned earlier, while dependence is unquestionably the more serious disorder, it is important to note that individuals could be diagnosed into both the abuse and dependence categories. For the purpose of this study, therefore, a diagnosis of either dependence or abuse is considered indicative of a need for treatment.

Table 9 presents lifetime diagnoses of substance dependence and abuse and need for treatment for alcohol, marijuana, cocaine, opiates, hallucinogens, stimulants, sedatives, and inhalants. In Anne Arundel (36%), Charles (30%), Washington (46%), and Wicomico (21%) counties, alcohol was the drug for which most of the arrestees were diagnosed lifetime dependent. In Prince George's County, 12% of the arrestees were diagnosed lifetime alcohol- or marijuana-dependent. In Baltimore City, 20% of the arrestees were diagnosed lifetime alcohol-dependent, but 22% were diagnosed lifetime cocaine-dependent, and 32% were diagnosed lifetime opiate-dependent. Five percent or less of the arrestees in each of the six sites were diagnosed as lifetime-dependent on hallucinogens, stimulants, sedatives, or inhalants. The rates of lifetime dependence for *any* of the eight drug classes ranged from a low of 30% in Prince George's County to a high of 56% in Washington County.

The rates for lifetime abuse were considerably lower than those for dependence. In each of the sites, marijuana was the drug for which most of the arrestees were diagnosed lifetime-abusive. Lifetime marijuana abuse ranged from a low of 9% in

Baltimore City to a high of 24% in Anne Arundel County. The rates of lifetime abuse for *any* of the eight drug classes ranged from a low of 23% in Wicomico County and Baltimore City to a high of 43% in Anne Arundel County. Less than 10% of the arrestees in each of the sites were diagnosed for abuse of opiates, hallucinogens, stimulants, sedatives, or inhalants. Overall, the lifetime need for treatment estimates ranged from a low of 45% in Prince George's County to a high of 74% in Anne Arundel County.

Table 9. Lifetime Diagnoses of Dependence and Abuse, by Drug and Site

Diagnosis by Drug	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
Lifetime Dependence on:						
Alcohol	36%	30%	12%	46%	21%	20%
Cocaine	23%	18%	11%	18%	15%	22%
Opiates	18%	8%	3%	5%	5%	32%
Marijuana	6%	14%	12%	15%	9%	8%
Hallucinogens	2%	4%	3%	1%	2%	0%
Stimulants	1%	2%	1%	4%	1%	1%
Sedatives	4%	2%	1%	5%	3%	0%
Inhalants	1%	0%	0%	1%	1%	0%
Any of the eight drugs	55%	49%	30%	56%	33%	50%
Lifetime Abuse of:						
Alcohol	13%	12%	9%	4%	4%	6%
Cocaine	9%	7%	3%	14%	5%	7%
Opiates	5%	2%	1%	5%	4%	5%
Marijuana	24%	12%	13%	19%	15%	9%
Hallucinogens	7%	7%	3%	9%	3%	1%
Stimulants	4%	2%	2%	7%	3%	1%
Sedatives	5%	2%	0%	5%	2%	0%
Inhalants	2%	0%	0%	0%	0%	0%
Any of the eight drugs	43%	33%	24%	34%	23%	23%
Lifetime Need for Treatment [a]	74%	70%	45%	70%	47%	64%

[a] Diagnosis of dependence or abuse for any of the drugs evaluated.

Table 10 presents current diagnoses of substance dependence and abuse and need for treatment for the eight drug classes. In Anne Arundel (21%), Charles (19%), Washington (33%), and Wicomico (11%) counties, alcohol was the drug for which most of the arrestees were diagnosed as currently dependent. In Prince George's County, 5% of the arrestees were currently dependent on alcohol, while 9% were currently dependent on cocaine. In Baltimore City, only 11% of the arrestees were currently dependent on alcohol, while 17% were currently dependent on cocaine and 26% of the arrestees were currently dependent on opiates. Eight percent or less of the arrestees in each of the six sites were currently dependent on marijuana, hallucinogens, stimulants, sedatives, or inhalants. The rates of current dependence for *any* of the eight drug classes ranged from a low of 21% in Prince George's County to a high of 43% in Anne Arundel and Washington counties.

The rates for current abuse were considerably lower than those for dependence. In each of the sites, marijuana was the drug most commonly abused. Current marijuana abuse ranged from a low of 3% in Prince George's County and Baltimore City to a high of 14% in Anne Arundel County. Less than 6% of the arrestees in each of the sites currently abused on alcohol, cocaine, opiates, hallucinogens, stimulants, sedatives, or inhalants. The rates of current abuse for *any* of the eight drug classes ranged from a low of 8% in Prince George's County to a high of 26% in Anne Arundel County. Overall, the current need for treatment estimates ranged from a low of 24% in Prince George's County to a high of 56% in Anne Arundel County.

Table 10. Current[a] Diagnoses of Dependence and Abuse, by Drug and Site

Diagnosis by Drug	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
Current Dependence on:						
Alcohol	21%	19%	5%	33%	11%	11%
Cocaine	17%	11%	9%	9%	9%	17%
Opiates	15%	5%	2%	4%	3%	26%
Marijuana	3%	5%	7%	8%	5%	6%
Hallucinogens	0%	1%	1%	0%	1%	0%
Stimulants	0%	1%	0%	2%	1%	1%
Sedatives	2%	1%	0%	2%	1%	0%
Inhalants	0%	0%	0%	0%	0%	0%
Any of the eight drug classes	43%	35%	21%	43%	22%	42%
Current Abuse of:						
Alcohol	3%	5%	2%	1%	1%	2%
Cocaine	5%	2%	1%	4%	3%	4%
Opiates	3%	1%	0%	1%	0%	3%
Marijuana	14%	5%	3%	9%	6%	3%
Hallucinogens	2%	0%	0%	1%	0%	0%
Stimulants	1%	1%	0%	1%	1%	1%
Sedatives	1%	1%	0%	1%	1%	0%
Inhalants	1%	0%	0%	0%	0%	0%
Any of the eight drug classes	26%	17%	8%	14%	11%	12%
Current Need for Treatment[a]	56%	45%	24%	52%	29%	50%

[a] Diagnosis of dependence or abuse for any of the drugs evaluated.

Self-Reported Current Need for Treatment v. Diagnosed Current Need for Treatment

To provide a more accurate estimate of treatment need, we explored the relationship between self-reported current need for treatment and diagnosed current treatment need. As shown in Table 11, with the exception of Prince George's and Wicomico counties, a majority of arrestees did perceive a need for AOD treatment *and/or* were diagnosed in need of AOD treatment by the clinical interview. In Anne Arundel County, for example, 59% of the arrestees either perceived a need for AOD treatment and/or were diagnosed in need of AOD treatment by the DIS-IV, while the rates in Washington County and Baltimore City were 62% and 59%, respectively. These data indicate that approximately one-half of the arrestees in the sample either perceived a need for AOD treatment and/or were diagnosed in need of treatment by the clinical interview.

In Table 12 we applied the SANTA sample estimates from Table 11 to produce regional and statewide estimates. Based on 1999 Uniform Crime Report (UCR) arrest data, estimates of treatment need range from a low of 5,847 persons in the Western Region (Allegany, Garrett, and Washington Counties) to a high of 31,027 persons in the Central Region (Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties). While our findings provide minimum estimates at best, we estimate that approximately half (50.9%) of the statewide arrestee population in 1999, or 98,600 arrestees, needed AOD treatment.

Table 11. Self-Reported Current Need for Treatment v. Diagnosed Need for Current Treatment

Need for Current Treatment	Diagnosis of Current Need for Treatment	Anne Arundel (n=192)	Charles (n=129)	Prince George's (n=224)
No	No	41%	43%	66%
Yes	No	3%	12%	7%
No	Yes	19% } 59%	17% } 57%	9% } 34%
Yes	Yes	37%	28%	18%

Table 11. Self-Reported Current Need for Treatment v. Diagnosed Need for Current Treatment

Need for Current Treatment	Diagnosis of Current Need for Treatment	Washington (n=133)	Wicomico (n=150)	Baltimore City (n=339)
No	No	38%	58%	41%
Yes	No	10%	13%	9%
No	Yes	19% } 62%	12% } 42%	9% } 59%
Yes	Yes	33%	17%	41%

Table 12. Number of Statewide Arrestees in Need of AOD Treatment, Total and by Region*

Regions**	Total Number of Arrestees***	SANTA Estimates of AOD Treatment Need	Total Number of Arrestees in Need of AOD Treatment
Region 1 – Western	9,431	62%	5,847
Region 2 – DC Metro	48,759	34%	16,578
Region 3 – Southern	11,894	57%	6,780
Region 4 – Baltimore City	50,184	59%	29,609
Region 5 – Eastern	20,854	42%	8,759
Region 6 – Central	52,588	59%	31,027
Total	193,710	50.9%	98,600

*The SANTA site estimates were applied to its regions.
**Region 1: Allegany, Garrett, and Washington counties
Region 2: Frederick, Montgomery, and Prince George's counties;
Region 3: Calvert, Charles, and St. Mary's counties;
Region 4: Baltimore City;
Region 5: Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester counties; and,
Region 6: Anne Arundel, Baltimore, Carroll, Harford, and Howard counties.
***Data for total number of arrests were obtained from the 1999 Uniform Crime Reports (UCR), while arrestee-specific estimates were provided by Maryland's Criminal Justice Information System (CJIS).

SUMMARY AND CONCLUSIONS

Data collected through the 1995 SANTA study illustrated significant need for AOD treatment among the Baltimore City arrestee population. The results, however, could not be used to estimate need for treatment among arrestees in other regions across Maryland. The current SANTA study was designed to develop estimates of treatment need among the adult arrestee population in the five remaining AOD planning regions in Maryland. Data were collected in five counties between December 1999 and July 2001: Anne Arundel, Charles, Prince George's, Washington, and Wicomico. In addition, a collection was conducted in Baltimore City in March 2001 to update the findings from 1995.

A total of 921 adult male and female arrestees were approached for interviewing in Anne Arundel, Charles, Prince George's, Washington, and Wicomico counties. Of these 921 arrestees, 90% completed the interview. Of the 828 arrestees who completed the interview, 73% provided a urine specimen. In Baltimore City, 353 arrestees were approached for interviewing, of which 96% agreed. Of the 339 arrestees who completed the interview, 90% provided a urine specimen. With the exception of Washington County and Baltimore City, these rates of participation were lower than those generated in other studies of arrestees.

While the drug use prevalence estimates varied by site, the sites with the highest percentage of arrestees testing positive for at least one illicit drug were Baltimore City (77%) and Prince George's County (59%). The three most prevalent illicit drugs detected by urinalysis were cocaine, marijuana, and opiates. Forty-four percent of the arrestees in Baltimore City tested positive for cocaine, while 42% tested positive for opiates. Thirty-

eight percent of the arrestees in Prince George's County tested positive for marijuana.

Kappa statistics were generated to explore the agreement between the urinalysis results and the self-report drug use measures. Kappa statistics ranged from a low of .34 in Wicomico County to a high of .53 in Prince George's County for cocaine and a low of .36 in Wicomico County to a high of .61 in Prince George's County for marijuana. The agreement between the two measures was strongest for opiates, ranging from a low of .53 in Washington County to a high of .83 in Prince George's County. These findings indicated low to moderate agreement between the self-report drug use measures and their respective urinalysis results and thus call into question the validity of the self-reported symptoms used to estimate need for AOD treatment.

The study used the DIS-IV to diagnose current abuse or dependence, and thus need for treatment, for eight classes of drugs. The sites with the highest prevalence of current dependence in *any* of the drug classes were Anne Arundel (43%) and Washington (43%) counties. Current alcohol dependence was highest in Washington County (33%), current cocaine dependence was highest in Anne Arundel County and Baltimore City (17%), and current opiate dependence was highest in Baltimore City (26%). Estimates of treatment need ranged from a low of 24% in Prince George's County to a high of 56% in Anne Arundel County. It is important to note that estimates of the type of treatment needed varied by site. In Washington County, for example, arrestees primarily needed alcohol treatment, while Baltimore City arrestees were primarily in need of cocaine and opiate treatment.

Because of underreporting and to get a better measure of treatment need, we combined the clinical diagnoses with self-reports of perceived treatment need. This

combined estimate ranged from a low of 34% in Prince George's County to a high of 62% in Washington County. While our findings provide minimum estimates at best, we suspect that approximately half (50.9%) of the statewide arrestee population in 1999, or 98,600 arrestees, need AOD treatment.

With the arrestee data collected through Baltimore City SANTA in 1995, and data from household respondents collected through the 1990 Maryland Telephone Survey of Alcohol and Other Drug Abuse, Reuter et al. (1998) generated projections of the number of Maryland residents in need of AOD treatment. Reuter et al. (1998) estimated that approximately 262,700 Maryland residents (household members and arrestees) were in need of substance abuse treatment. Unfortunately, however, the arrestee estimates contained in Reuter et al. (1998) were based exclusively on SANTA data available from only Baltimore City arrestees. To address this limitation, the 2001 Baltimore City arrestee findings, together with the estimates of treatment need among the statewide population of arrestees contained in this report, are utilized to provide an updated estimate of treatment need among Maryland residents (Yacoubian, Hsu, and Wish, 2002).

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition. Washington, DC: American Psychiatric Association.

Gray, T.A., and E.D. Wish. (1998). *Substance Abuse Need for Treatment among Arrestees (SANTA) in Maryland.* College Park, MD: Center for Substance Abuse Research (CESAR).

Harrison, L. (1995). The validity of self-reported data on drug use. *Journal of Drug Issues, 25,* 91-111.

Hser, Y., M. Maglione, and K. Boyle. (1999). Validity of self-report of drug use among STD patients, ER patients, and arrestees. *American Journal of Drug & Alcohol Abuse, 25,* 81-91.

Magura, S., and S. Kang. (1996). Validity of self-drug use in high-risk populations: A meta-analytical review. *Substance Use and Misuse, 31,* 1131-1153.

Mieczkowski, T., D. Barzelay, B. Gropper, and E.D. Wish. (1991). Concordance of three measures of cocaine use in an arrestee population: Hair, urine, and self-report. *Journal of Psychoactive Drugs, 23,* 241-246.

National Institute of Justice. (1997). *1996 Drug Use Forecasting: Annual Report on Adult and Juvenile Arrestees*. Washington, DC: National Institute of Justice.

Petronis, K., and E.D. Wish. (1996). *Substance Abuse and Need for Treatment in Maryland: Results of a Telephone Survey Conducted as Part of the Maryland State Demand and Needs Assessment Studies*. College Park, MD: Center for Substance Abuse Research.

Reuter, P., M. Hsu, K. Petronis, and E.D. Wish. (1997). *Estimating the Need for Substance Abuse Treatment in Maryland*. College Park, MD: Center for Substance Abuse Research.

Robins, L., L. Cottler, K. Bucholz, and W. Compton. (1998). *Diagnostic Interview Schedule for DSM-IV*. St. Louis, MO: Washington University.

Wagner, M., and E.D. Wish. (1996). *The Maryland Automated Hotline Reporting System (MAHRS): Final Report*. College Park, MD: Center for Substance Abuse Research.

Wish, E.D., T. Gray, J. Sushinsky, G. Yacoubian, and N. Fitzgerald. (2000). An experiment to enhance the reporting of drug use by arrestees. *Journal of Drug Issues, 30(1),* 55-76.

Wish, E.D., J.A. Hoffman, and S. Nemes. (1997). The validity of self-reports of drug use at treatment admission and at follow-up: Comparisons with urinalysis and hair assays. In. L. Harrison and A. Hughes (Eds.), *The Validity of Self-Reported Drug Use: Improving the Accuracy of Survey Estimates*. Rockville, MD: National Institute of Drug Abuse.

Yacoubian, G., M. Hsu, and E.D. Wish. (2002). *Estimating the Need for Substance Abuse Treatment in Maryland: An Update to Reuter et al. (1998)*. College Park, MD: Center for Substance Abuse Research (CESAR).