ESTIMATING THE NEED FOR SUBSTANCE ABUSE TREATMENT IN MARYLAND: AN UPDATE OF REUTER ET AL. (1998)

Prepared for

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

George S. Yacoubian, Jr., Ph.D.
Margaret Hsu, M.H.S.
Eric D. Wish, Ph.D.

May 2002 (Revised February 2004)

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

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. ADAA contracted with the Center for Substance Abuse Research (CESAR) to conduct a family of studies that focused on household residents and arrestees. The Substance Abuse Need for Treatment among Arrestees (SANTA) study provided a key element to estimating treatment need in Maryland by surveying a sample of arrestees in Baltimore City. With the 1995 SANTA data and data from household respondents collected through the 1990 Maryland Telephone Survey of Alcohol and Other Drug Abuse (MTSAODA), Reuter et al. (1998) estimated that approximately 262,700 Maryland residents (household members and arrestees) were in need of alcohol or other drug (AOD) 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 planning regions in Maryland and to use these estimates, in conjunction with the 1990 MTSAODA data, to compute an updated statewide estimate of treatment need in Maryland.

Individuals meeting Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for abuse/dependence of alcohol or other drugs are defined as "in need of treatment." Data from the household and arrestee populations were collected, respectively, by the MTSAODA and the SANTA study. The MTSAODA data are based on DSM-Third Version, revised (DSM-III-R) criteria, while SANTA estimates are based on DSM-Fourth Version (DSM-IV) criteria.

As in the modeling report by Reuter et al. (1998), we utilized a scenario that assumed that need for treatment among the arrestee population is best represented by the SANTA data and that the household data should be used to estimate drug dependence only among nonarrested individuals. Thus, we subtracted from the household population those persons who self-reported that they had been arrested, assuming that no others were arrested in the survey year. This approach was implemented in detail for the six planning regions within Maryland. We estimate that approximately 285,994 Maryland residents currently need AOD treatment, up from 262,700 estimated by Reuter et al. (1998). The approximately 23,000 additional Maryland residents that we estimate are currently in need of AOD treatment is probably due to the large number of residents in Region 2 (DC Metro) and Region 6 (Central Maryland) that need treatment, who were not accounted for in the earlier study.

ACKNOWLEDGMENTS

We wish to acknowledge the contributions of the following persons, without whose help this study would not have been possible. William Rusinko, Vickie 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 the SANTA 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

It is widely believed that there is a large, unmet need for treatment of persons suffering from alcohol and other drug (AOD) abuse or dependence. National estimates of need for AOD treatment (Gerstein and Harwood, 1990; Anthony et al., 1994) have identified that only 25% of individuals needing treatment are actually in treatment programs. Yet little is known about the gap across demographic groups, regions, drug types, modalities of treatment, and potential financing sources. Estimating this distribution is critical for purposes of planning and allocating resources, particularly at the state level. For example, a comparison of the characteristics of current treatment supply (location, modality, funding form) with unmet need allows determination of which kinds of treatment most require expansion. A need also exists to develop an understanding of the mechanisms that convert need into demand.

This study provides estimates of the need for AOD treatment for the state of Maryland. It is part of a family of studies funded by the Center for Substance Abuse Treatment (CSAT) that aims to provide a comprehensive assessment of AOD use and treatment need in Maryland. Under subcontract to Maryland's Alcohol and Drug Abuse Administration (ADAA), the Center for Substance Abuse Research (CESAR) conducted a survey of household residents in Maryland in 1993-1994 (Petronis and Wish, 1996) that generated estimates of the prevalence of drug use at the regional level. To update the Baltimore City arrestee findings from 1995, data were collected on a statewide sample of adult arrestees between 1999 and 2001 (Wish and Yacoubian, 2002).

This project is intended to assist ADAA, using available data collected under the CSAT needs assessment contract, to estimate total treatment needs by age/race/sex groups for CSAT's distribution of its SAPT Block Grant monies. We use the same analytic approach as that used to create the earlier Maryland estimates (Reuter et al., 1998). That is, we combined projections of the need for AOD treatment among the Maryland household population with projections from the statewide Maryland arrestee population.

METHODS

A variety of methods have been used to estimate the need for drug treatment. These methods can be distinguished from each other by the specific assumptions they make about the social and physical nature of the need for drug treatment. Some of the more popular methods used to estimate the need for drug treatment are Poisson models, capture-recapture models, social indicator models, and synthetic estimation models (Dewit and Rush, 1996). This study used the synthetic estimation approach.

Synthetic Estimation Models

Synthetic estimation models combine data directly and indirectly related to drug use. However, synthetic estimation models postulate a specific functional relationship between drug use and indicators of drug use (Rhodes, 1993). The type of functional relationship employed is exemplified by two broad approaches to synthetic estimation. The first approach, referred to as the *principal components approach,* combines indicators of drug use from multiple geographic areas to create a composite indicator of drug use (Hser et al., 1992). Because this approach is often used to develop synthetic estimates for small geographic areas within the areas to which the indicators pertain, it is often referred to as *small area estimation* in the statistical literature (Platek et al., 1987). A recent example of this approach employed random effects logistic regression models to 1991-1993 data from the National Household Survey on Drug Abuse (NHSDA) to develop estimates of substance abuse for 25 metropolitan statistical areas (MSA) and 26 states (Substance Abuse and Mental Health Services Administration (SAMHSA), 1996). The second approach, known as the *population projection approach*, was originally developed by the National Center for Health Statistics to provide estimated prevalence rates in MSA. It applies the known rate of

drug use in one population subgroup to another subgroup in which the rate is unknown (Hser et al., 1992), and it assumes the relationship between demographic characteristics and the rate of drug use is constant across population subgroups.

Using a combination approach, the Institute of Medicine (IOM) developed a synthetic estimate of the need for drug treatment in the United States by combining data from the 1988 NHSDA with data from studies of drug use among criminal justice populations, the homeless, and pregnant women (Gerstein and Harwood, 1990). The estimated number of drug dependent individuals was assumed to estimate the need for drug treatment in each of these populations during 1987-88. The sum of individuals in need in these populations was 5.925 million: 4.6 million household residents; 170,000 homeless persons; 320,000 inmates; 730,000 probationers and parolees; and 105,000 pregnant women. The final estimate of drug treatment need was adjusted for overlap between the populations. The IOM estimated that 30% of drug dependent parolees (45,000), 50% of drug dependent probationers (270,000), 30% of the drug dependent homeless persons (50,000), and 100% of drug dependent pregnant women (105,000) were also represented in the NHSDA sample. Hence, 470,000 was subtracted from the sum of 5.925 million, yielding a final estimate of 5.455 million persons in need of drug treatment during 1987-88. The National Drug and Alcohol Treatment Utilization Survey (NDATUS) did not conduct a census in 1988, but it reported that 613,703 individuals received treatment (from clinics that received at least some public funds) in 1987 and 734,955 in 1989 (SAMHSA, 1995). The IOM estimate, therefore, implies there was a substantial gap between treatment need and delivery. Little detail, however, was published about the characteristics of that need. Further, the IOM estimate did not take into account underreporting by the household population.

The synthetic model employed by the IOM relied heavily on the NHSDA data because the household population is the largest of the populations considered. However, more detailed analyses of the NHSDA estimates of the need for treatment have cast doubt on their utility in developing policy-relevant estimates. For example, more than half of those classified as dependent on illicit drugs self-report use of marijuana and of no other illicit drug (Burnam et al., 1997), yet treatment for marijuana as a primary drug of abuse accounts for 15% of all drug (i.e., non-alcohol) treatment admissions (SAMHSA, 1997). Opiate dependence is second only to cocaine dependence in its contribution to actual treatment demand. In 1995, primary use of opiates accounted for less than 21% of all drug admissions compared to 24% for cocaine (SAMHSA, 1997). Yet, the NHSDA estimated that a very small fraction of the treatment need came from opiate dependence.

Synthetic estimation models are relatively inexpensive to implement because they rely on data collected for other purposes (often at great expense). The data used are often sufficiently detailed to provide estimates for population subgroups, thus explaining why they are commonly employed in drug use research (Hser et al., 1992). Their shortcomings, however, cannot be dismissed lightly. They typically do not yield a statistic to measure the variability in the estimates they provide because confidence intervals often cannot be calculated around synthetic estimates. Synthetic estimates are limited by the census data they employ to project to the population of interest. Thus, the use of decennial census data between censuses can result in failure to account for important demographic shifts.

Data Sources

The two principal data sources for this study are from the 1993-94 Maryland Telephone Survey of Alcohol and Other Drug Abuse (MTSAODA) (Petronis and Wish, 1996) and the Substance Abuse Need for Treatment among Arrestees (SANTA) study (Wish and Yacoubian, 2002). The two surveys are described below.

The MTSAODA was administered to 5,095 persons between June 1993 and December 1994. The overall response rate for the telephone survey was 80%. The sample was drawn to allow estimates of drug use in each of six regions of the state, as defined by ADAA: Region 1 (Western Maryland) includes Allegany, Garrett, and Washington counties; Region 2 (DC Metro area) includes Frederick, Montgomery, and Prince George's counties; Region 3 (Southern Maryland) includes Calvert, Charles, and St. Mary's counties; Region 4 is Baltimore City; Region 5 (Eastern Shore) includes Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Washington counties; and Region 6 (Central Maryland) includes Anne Arundel, Baltimore, Carroll, Harford, and Howard counties. The interview included questions to assess drug abuse and dependence as defined by the third revised version of the Diagnostic and Statistical Manual (DSM-III-R).

The state-level sample matches the population characteristics for Maryland in the 1990 Census with respect to age, race, and sex and has been appropriately weighted to reflect any discrepancies. The sample does, however, substantially underrepresent those who have not completed high school (10% in the survey versus 21% in the 1990 Census) and correspondingly overrepresents those with more than a college degree (15% versus 9% in the 1990 Census). This may reflect the concentration of nonphone households among low-income groups, as well as education-related differences in response rates.

Data for the SANTA project were collected in six sites between December 1999 and July 2001: Baltimore City and Anne Arundel, Charles, Prince George's, Washington, and Wicomico counties. Arrestees were interviewed with an instrument that included the questions to assess AOD abuse and dependence, and thus need for treatment, according to DSM-IV criteria. A copy of the SANTA data collection instrument can be found in Wish and Yacoubian (2002).

Analytic approach

Our basic analytic strategy was to start with estimates of total treatment need based on the telephone household survey, which asked a number of questions to assess drug abuse and dependence. Telephone household surveys are known to be subject to four important sources of error for purposes of estimating either drug use or treatment need: 1) omission of certain institutional populations (e.g., residents of homeless shelters, prisons, and jails); 2) selective underreporting by respondents; 3) omission of some households because they lack phones; and 4) high rates of nonresponse by those whose drug use makes them particularly difficult to locate for a telephone interview. We focus here particularly on remedying the problems related to phone coverage and potential omissions related to criminal justice system involvement.

Limits of Telephone Surveys

Telephone surveys appear to produce underreporting compared to in-person surveys for two reasons: (1) respondents are less willing to disclose drug use over the telephone and (2) nonphone households have more drug users than phone households. On the first point, Gfroerer and Hughes (1991) report that a 1988

telephone survey produced an estimate of past year marijuana prevalence of 5.2% (1.4% for cocaine); the NHSDA, using in-person interviews for persons in households with phones, generated an estimate of 8.0% (3.1% for cocaine). The comparison is not perfect because the telephone survey used a shortened instrument, which might have increased the salience of the sensitive drug use questions.

Given that the principal concern is underreporting rather than exaggeration of drug use in surveys, it seems reasonable to assume that telephone surveys produce underestimates of drug use even in households with telephones, which makes the integration with arrestee data even more urgent. We might account for the underreporting in phone surveys by an upward adjustment of a relative 50% (roughly the difference between the two marijuana estimates above) in the estimate for phone households. However, there are no data on the relative estimates for more frequent use levels (e.g., past week), which are more relevant to the estimation of need-for-treatment populations. Thus, it would be difficult to justify any particular percentage for the upward adjustment.

For our study, the 1990 Census data show that 7.8% of Baltimore households did not have a phone on the premises (Bureau of the Census, 1993). Published census tables for Baltimore City show that the percentage is much higher for blacks than for whites, 10.5% versus 4.6%. In addition, we know that the fraction of aged households (with a householder aged 65 or over) without a telephone in Baltimore City is much lower than for the population generally; only 3.3% of the aged households in Baltimore City are without a phone. No other Baltimore City data were available in published form. For example, we do not know average household size by phone status or the age and sex compositions of the nonphone household

population. Nationally, we know that persons in households without phones are *inter alia* more likely to be under age 25, have low incomes and low educational attainment, and be unemployed (Gfroerer and Hughes, 1991). These factors are also associated with higher rates of drug use.

We generally adjusted for nonphone status simply by assuming that, within each racial category, the population characteristics (in particular, age and sex) of the phone and nonphone populations were identical, unless we were using data specific to arrest status. Because we know that elderly households (which have very low treatment need rates) are much less likely to be without a telephone than other age groups, our assumption is likely to produce conservative estimates of the need for treatment.

The SANTA interview included a question about whether the respondent lived in a household without a telephone. It took account of the instability of arrestees' life-styles by including a question about the variety of places that the respondent might consider his or her residence and then asked if the respondent could be reached by telephone at that location. If the answer to the second question was negative, we classified the respondent as living in a nonphone household. There may have been incentives for respondents to conceal that they were in a household with a telephone, because such a report would facilitate contact by the authorities. On the other hand, there may be some who reported a phone in one of their potential household addresses, but were in fact there so infrequently to effectively not be covered by the household telephone survey sample.

Integrating Criminal Justice and Household Data

The central problem in using our two data sets is the overlap estimation. As in our earlier modeling report (Reuter et al., 1998), we assume that drug dependence among the arrestee population is best represented by the SANTA data and that the household data should be used to estimate drug dependence only among the nonarrested. Thus, we subtract from the household population those who self-report that they have been arrested, assuming that no others were arrested in the survey year. We assume that nonphone, nonarrested residents have the same dependence rates as the nonarrested residents with phones.

RESULTS

Table 1 illustrates treatment need by age, sex, and race, based on 1994 population projections, for the state of Maryland. A total of 285,994 adult males and females were estimated to need treatment across the state. Of these, 155,843 are white males, while 51,968 are white females. A total of 56,514 are black males; 17,784 are black females. The majority of males and females in need of treatment are between the ages of 25 and 44.

Table 1. Treatment Need by Age, Sex, and Race, for State of Maryland*

Age	White		Black		Total**	
	Male	Female	Male	Female	Male	Female
18-24	40,364	11,319	11,514	4,866	52,182	17,488
25-44	93,552	34,051	34,404	10,993	128,439	45,099
45-64	17,032	6,599	10,259	1,102	28,974	7,756
65+	4,896	0	337	823	5,233	823
TOTAL	155,843	51,968	56,514	17,784	214,828	71,166

* Estimates are adjusted to reflect 1994 population projections.

** Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics, API, and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of AOD dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study.

As shown in Tables 2 through 8, the region with the greatest number of adults in need of treatment is Central Maryland (96,071), followed by the DC Metro area (67,000) and Baltimore City (61,056). These are the three largest regions in the state – they account for 84% of the state's adult population and 81% of the adults in need of treatment. As stated above, one goal of the project is to assist the state in completing the SAPT

Block Grant application. Breakdowns by these demographic characteristics are provided for each region in Tables 3-8.

Table 2. Maryland Adult Residents in Need of Treatment,* Total and by Region

Planning Area** (N=adult population ≥ 18 years***)	Final Estimate
Region 1—Western MD (N=172,698)	13,123
Region 2—DC Metro (N=1,238,390)	70,982
Region 3—Southern MD (N=162,303)	16,066
Region 4—Baltimore City (N=554,848)	58,316
Region 5—Eastern Shore (N=260,715)	25,050
Region 6—Central MD (N=1,224,582)	102,457
State Total (N=3,613,536)	**285,994**

*Estimates are adjusted to reflect 1994 population projections.
**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.
***N=1990 U.S. Bureau of Census counts of adult residents.
SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study

Table 3. Treatment Need by Age, Sex, and Race, for Western Maryland

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	3,506	923	149	65	3,654	988
25-44	4,720	2,207	200	86	4,921	2,293
45-64	713	303	77	0	790	303
65+	174	0	0	0	174	0
TOTAL	9,113	3,433	426	151	9,539	3,584

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.
SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study

Table 4. Treatment Need by Age, Sex, and Race, for DC Metro

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	5,946	5,230	5,304	1,694	11,335	7,813
25-44	25,713	7,088	8,589	704	34,447	7,820
45-64	1,157	1,079	3,532	654	5,981	1,734
65+	1,851	0	0	0	1,851	0
TOTAL	34,668	13,397	17,425	3,052	53,615	17,367

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study.

Table 5. Treatment Need by Age, Sex, and Race, for Southern Maryland

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	3,440	1,196	1,179	225	4,634	1,422
25-44	3,981	2,706	1,042	101	5,149	2,812
45-64	1,596	77	285	0	1,882	77
65+	0	0	90	0	90	0
TOTAL	9,018	3,979	2,596	326	11,755	4,311

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study

Table 6. Treatment Need by Age, Sex, and Race, for Baltimore City

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	7,314	181	1,842	1,452	9,180	2,046
25-44	9,542	2,673	18,880	7,527	28,468	10,201
45-64	2,161	41	4,297	110	6,829	151
65+	619	0	0	823	619	823
TOTAL	19,636	2,895	25,019	9,912	45,095	13,221

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study.

Table 7. Treatment Need by Age, Sex, and Race, for Eastern Shore

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	3,833	1,818	419	61	4,433	1,879
25-44	8,258	3,108	2,582	57	10,855	3,165
45-64	3,032	938	0	337	3,032	1,331
65+	356	0	0	0	356	0
TOTAL	15,479	5,864	3,000	455	18,676	6,374

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study.

Table 8. Treatment Need by Age, Sex, and Race, for Central Maryland

Age	White		Black		Total*	
	Male	Female	Male	Female	Male	Female
18-24	16,324	1,971	2,622	1,370	18,946	3,340
25-44	41,336	16,270	3,110	2,517	44,598	18,809
45-64	8,373	4,160	2,067	0	10,461	4,160
65+	1,896	0	248	0	2,144	0
TOTAL	67,929	22,401	8,047	3,887	76,148	26,309

* Total columns include projections for all races (i.e., white, not Hispanic; black, not Hispanic; Hispanic; Asian/Pacific Islander (API); and American Indian, Eskimo, or Aleut (AEA)). Age/sex-specific projections for Hispanics and API and AEA are not provided because the household and arrestee samples from which the estimates were derived were too small to provide precise estimates of drug (including alcohol) dependence.

SOURCE: Based on data from the 1993-1994 MTSAODA and the 1999-2001 Maryland SANTA Study.

SUMMARY AND CONCLUSIONS

With arrestee data collected through the 1995 Substance Abuse Need for Treatment among Arrestees (SANTA) study, and data from household respondents collected through the 1990 Maryland Telephone Survey of Alcohol and Other Drug Abuse (MTSAODA), 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, in conjunction with the 1990 MTSAODA data, to compute an updated statewide estimate of treatment need in Maryland.

This study provided projections of the number of Maryland residents in need of substance abuse treatment using data collected from household and arrestee populations. We utilized a scenario that assumes that drug dependence among the arrestee population is best represented by the SANTA data and that the household data should be used to estimate drug dependence only among nonarrested individuals. Thus, we subtracted from the household population those who self-reported that they had been arrested, assuming that no others were arrested in the survey year. This approach was implemented in detail for the six planning regions within the state of Maryland. We estimated that approximately 285,994 Maryland residents currently need AOD treatment, up from 262,700 estimated by Reuter et al.

(1998). The approximately 23,000 additional Maryland residents that we estimated are currently in need of AOD treatment is probably due to the large number of residents in Region 2 (DC Metro) and Region 6 (Central Maryland) that need treatment, who were not accounted for in the earlier study.

The estimates of the number of individuals in need of treatment are based on population counts from the 1990 Census. Changes in the population since 1990 will affect our estimates, and hence, we provided adjusted estimates based on 1994 Bureau of the Census population projections. Although the Bureau of the Census does produce 1994 population projections, data are not available for the age/race/sex groups used in this report. We made crude adjustments, for each region, by calculating the change in total population between 1990 and 1994 and applying that rate to the estimates.

One purpose for developing these estimates was to enable the state to respond to the federal mandate for estimating substate treatment needs by specific demographic categories. The race-specific estimates have been provided for only two groups, blacks and whites. With very small fractions of the Maryland population being of either Hispanic, Asian, or Native American origin, the household survey provided no basis for estimating treatment needs for these groups. The arrestee population also included such small numbers for these groups that separate estimates could not be produced. The estimates of the total in need of treatment, by age and sex, do reflect the total resident and arrestee populations; hence, the numbers for blacks and whites in need of treatment do not sum to the total.

REFERENCES

Anthony, J.C., L. Warner, and R. Kessler. (1994). Comparative epidemiology of dependence on tobacco, alcohol, controlled substances and inhalants: Basic findings from the national comorbidity study. *Experimental and Clinical Psychopharmacology* 2(3): 244-268.

Bureau of the Census. (1993). *1990 Census of Housing, Detailed Housing Characteristics, Maryland*. Washington, DC: U.S. Department of Commerce.

Burnam, M.A., P. Reuter, J.L. Adams, A.R. Palmer, K.E. Model, J.E. Rolph, J.Z. Heilbrunn, G.N. Marshall, D.F. McCaffrey, S.L. Wenzel, and R.C. Kessler. (1997). *Assessing the Block Grant Allocation Formula for Substance Abuse and Mental Health.* Santa Monica, CA: RAND.

Gerstein, D.R., and H.J. Harwood. (1990). *Treating Drug Problems, Volume I.* Washington, D.C.: National Academy Press.

Gfroerer, J.C. and A. L. Hughes. (1991). The feasibility of collecting drug abuse data by telephone. *Public Health Reports* 106 (4):384-393.

Hser Y., M.D. Anglin, T.D. Wickens, M.L. Brecht, and J. Homer. (1992). *Techniques for the estimation of illicit drug-use prevalence: An overview of relevant issues*. Presentation at the Interagency Workshop on Drug Abuse Prevalence Estimation Methods, October 17-18, 1991. Washington, DC: National Institute of Justice.

Petronis, K.R., 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.

Platek, R., J.N. Rao, C.E. Sarndal, and M.P. Singh. (1987). *Small Area Statistics: An International Symposium.* New York: John Wiley and Sons.

Reuter, P., M. Hsu, K. Petronis, and E.D. Wish. (1998). *Estimating the Need for Substance Abuse Treatment in Maryland*. College Park, MD: Center for Substance Abuse Research.

Rhodes, W.M. (1993). Synthetic estimation applied to the prevalence of drug use. *Journal of Drug Issues* 23(2):297-321.

Substance Abuse and Mental Health Services Administration (SAMHSA). (1995). *Overview of the FY94 National Drug and Alcoholism Treatment Unit Survey (NDATUS): Data from 1993 and 1980-1993*. Rockville, MD.

_____. (1996). *Substance Abuse in States and Metropolitan Areas: Model Based Estimates from the 1991-1993 National Household Surveys on Drug Abuse Summary Report.* Rockville, MD.

_____. (1997). *National Admissions to Substance Abuse Treatment Services: The Treatment Episode Data Set (TEDS) 1992-1995.* Rockville, MD.

Wish, E.D., and G. Yacoubian. (2002). *Statewide Adult Substance Abuse Need for Treatment among Arrestees (SANTA) in Maryland*. College Park, MD: Center for Substance Abuse Research (CESAR).