Abt Associates Inc.

Arrestee Drug Abuse Monitoring (ADAM II)

Part B – Collection of Information Employing Statistical Methods

Request for OMB Review

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January 12, 2007

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Arrestee Drug Abuse Monitoring Program (ADAM) II

Abstract

The Office of National Drug Control Policy's (ONDCP's) mission, since its authorization in 1988, has been to establish the Nation's drug control policy, to set priorities for advancing that policy, and to identify and monitor objective measures of that policy's success. The original Arrestee Drug Abuse Monitoring program (ADAM) was a critical source of data for ONDCP in meeting its objectives, and its demise in 2003 left a serious gap in accurate and timely information on trends in drug use.

The first ADAM data collection was instituted in 2000 as a replacement for the Drug Use Forecasting program (DUF), which employed a non-scientific sampling procedure to select primarily felony arrestees in 23 urban areas throughout the country. The year 2000 revision of ADAM instituted a representative sampling strategy among booked male arrestees in an expanded network of 35 sites. The original OMB approval for this collection authorized 100,000 responses and a time burden of 62,500 hours (OMB control # 1121-0137). That authorization expired in 2005.

With ADAM II, ONDCP and its contractor, Abt Associates, Inc., will initiate a new data collection that will replicate the ADAM methodology in order to obtain data comparable to previously established trends. ADAM II will implement two quarters of data collection in ten sentinel ADAM sites to revive monitoring drug trends, with a particular focus on obtaining valid and reliable information on methamphetamine use. Representing minimal adjustments to the previously approved ADAM survey, the ADAM II survey will collect data about drug use, drug and alcohol dependency and treatment, and drug market participation among booked male[1] arrestees within 48 hours of arrest. Data collection will take place across two back-to-back quarters in each of 10 counties from a county-based representative sample of 250 male arrestees per quarter for a total of 500 arrestees annually per site or a total of 5000 arrestees across sites annually. Collection will occur in two cycles at each site to provide estimates for two calendar quarters each year. One year of collection will occur beginning April 1, 2007 and ending March 31, 2008. If additional data collection periods are optioned by ONDCP, subsequent cycles of back-to-back data collection will occur beginning April 1, 2008. Participation is voluntary and confidential, and the procedures will include a personal interview (lasting approximately 20 minutes) and collection of a urine specimen. Though a convenience sample of female and juvenile arrestees was a part of the previous ADAM program, those groups will be excluded from this effort for the purposes of economy.

[1] ADAM II will obtain data from male arrestees because the adult male component was the most robust segment of the ADAM study.

Part B: Collection of Information Employing Statistical Methods

1. Respondent Universe and Sampling Methods

The Arrestee Drug Abuse Monitoring (ADAM) Program II is an 18-month study. The respondent universe will be booked male arrestees in each of 10 counties designated as ADAM II sites. Data collection will take place in 10 counties from an annual, county-based representative sample of 250 arrestees (within 48 hours of arrest) per quarter, for a total of 5000 arrestees. Collection will occur in two cycles at each site to provide estimates for two back-to-back calendar quarters in the time period from April 1, 2007 to September 31, 2007. If additional data collection periods are optioned by ONDCP, subsequent quarters of collection will occur annually between April 1 and September 31. Data collected will include a voluntary and anonymous personal interview and urine specimen.

Sampling Sites and Facilities

Like the original ADAM sites, sites in ADAM II do not constitute a probability sample of counties. ADAM sites were originally selected by NIJ through a competitive grant process rather than in a sampling plan, and ten former ADAM sites have been selected for ADAM II data collection−seven east and three west of the Mississippi. The ten sites selected for this study will provide a *sentinel system*: If these ten sites reveal trends in drug use, those trends are likely to appear in other sites that are not part of the sentinel system. ADAM II can serve as a "bellwether," especially for methamphetamine use in the East. To provide a bellwether, ADAM II sites must provide:

- Geographic spread, as trends in drug use are often regional;
- A focus on counties east of the Mississippi to monitor the emergence of methamphetamine use; and
- Consistent, biannual data collection points for three years prior to support statistical trend analysis.

ADAM II data will provide a basis for drawing probability-based estimates of prevalence and trends in drug use *within the sentinel site*s. Because, as in the original ADAM system, sites are not a probability sample of all counties in the United States, it's not possible to easily derive a probability-based estimate of trends in the U.S., or even of trends east of the Mississippi. Nevertheless, it's reasonable to conclude that those sites are representative (especially east of the Mississippi) in a more colloquial use of the term "representative," and, in that sense, comprise a sentinel system, e.g., if methamphetamine use were expanding in these sentinel sites, it would be surprising if methamphetamine use were not expanding in non-sampled sites in the same area. Similarly, if methamphetamine use remained largely absent in these sentinel sites, one can assume with confidence that methamphetamine continues to principally be a problem west of the Mississippi. A larger, probability-based sample of counties would provide a stronger basis for inference, but the planned sample will nevertheless be sufficiently informative as a basis for informing public policy. The sentinel sites for ADAM II are:

New York, NY
Washington, DC
Charlotte, NC

Atlanta, GA
Indianapolis, ID
Chicago, IL
Minneapolis, MN
Portland, OR
Sacramento, CA
Denver, CO

Alternates:
Phoenix, AZ
Philadelphia, PA

Sampling Within A County. Within each county sampling will be done from the total number of booking facilities in the county to create a representation of all persons arrested in that county in the two, two-week data collection periods for this project. The process of creating that sample involves developing a frame of all facilities in the county, tracking any movement of arrestees that may occur (transport prior to booking) and assembling data on the numbers of arrestees booked into each facility. Facilities are stratified by size of arrestee volume and random selection made within the strata.

Many counties have one central intake facility for booking all county arrestees; others have only a few and others have many facilities with a complex relationship to each other in terms of arrestee transfers. In identifying sites appropriate for the ADAM II data collection, the ease of implementing sampling methodology was taken into consideration. Jurisdictions with a complicated feeder jail system of booking and holding arrestees were considered less desirable, as were jurisdictions with numerous booking facilities. Three sampling models developed for the original ADAM project will be implemented for ADAM II:

- Single booking facility

  Arrestee cases will be sampled in the one facility as described below.

- Multiple booking facilities (fewer than 6)

  Arrestee cases will be sampled in all facilities as described below.

- Cluster sampling

  In counties with a large number of booking facilities, the facilities will be arrayed proportional to size and the appropriate number of facilities will be randomly selected within strata to adequately represent the county.

Stock and Flow Sampling Method for Respondent Selection

Consistent with the sampling plan for ADAM, ADAM II will employ a sampling method that systematically samples persons held in the facility when interviewing begins ("stock") and persons entering the facility during the data collection shift ("flow"). The stock and flow method addresses practical challenges inherent in surveying the ADAM target population. First, jails are chaotic, and

law enforcement officials may not allow interviewers to be stationed within the jail during certain hours, particularly during hours when the booking process is most intense, due to security concerns and disruptions caused by our need to access booking records and arrestees. Second, during certain shifts, so few arrestees are booked into the jail that interviewers stationed in the jail during those hours of relative quiescence could interview just one or two arrestees in an eight hour shift, compared to high-volume periods when many arrestees are available to be interviewed.

In order to address these practical problems, interviewers will randomly sample from a "stock" of accused offenders who have been booked since the interviewers were last in the jail, while sampling from the "flow" of accused offenders entering the jail continues so long as the interviewers remain on duty.[2] The division between the stock and flow samples are set to achieve proportional samples from the stock and flow.

The stock and flow sampling plan is tailored to each jail, so there is some variation across jails and over counties regarding when the interviewers arrive for duty and how long they stay on duty. Within set parameters that vary across settings, interviewers follow a rigorous protocol for selecting the sample.

The Illustration Box below shows site-specific modifications.

Illustration of How a Sampling Plan Is Designed

Based on county X's arrest data, a target of 250 cases each data collection would provide an adequate sample. In county X, all arrestees are booked into a single facility. Booking data for a seven-day period is reviewed to identify, the number of arrestees booked into the jail each hour on each day. This information is used to identify during what 8-hour period the highest proportion of arrestees are booked, and the proportion of arrestees booked during that 8-hour period versus the remaining 16-hour period. For this illustration, assume that 60% of arrestees are booked between 4:00 P.M. and 11:59 P.M., and the remaining 40% of arrestees are booked between 12:00 A.M. and 3:59 P.M. Assume also that the flow of arrestees is sufficient to produce the desired number of cases in a 14-day data collection period. This information provides the foundation for the development of the site's sampling plan.

The 250 cases would be distributed evenly across a 14-day period, resulting in a target of 36 completed cases a day. The target of 36 would be divided between stock and flow, based on the percentage of bookings occurring during those time periods. In this case, interviewers would be looking to get fourteen interviews from stock and twenty-two from the flow each day of data collection.

The sample that results from adherence to these protocols is well balanced; that is, one that achieves a roughly equal sampling probability for all arrestees. This sampling scheme provides a well-balanced sample for two reasons. First, the sampling rates are known and do not differ wildly over the sample. Second, examination of the data shows that weighted and unweighted estimates are about the same.

[2] When a person is arrested and taken to a booking facility, one of two things will happen to him. For some charges, and for some types of accused offenders, police are authorized to release the arrestee pending his appearance at a scheduled hearing. For others, the accused offenders are brought before a judge or magistrate who is authorized to release them set the conditions for their release, or detain them pending trial. The appearance before a judge/magistrate is typically scheduled for a specific time during the court day, so that the stock builds as arrestees await a hearing. The flow into the jail is continuous. Arrestees become available for interviewing once they have been processed through the booking procedure, although some are too intoxicated to provide interviews.

Given that drug use varies systematically over the arrestee population, the fact that weighted and unweighted estimates are similar strongly suggests that the sample is well-balanced.

Replacing the Sample Case. Should the selected stock arrestee be unavailable or previously released from the facility, a replacement is required. The replacement arrestee will be the person on the booking log who immediately precedes the arrestee needing to be replaced. For stock interview purposes, this replacement procedure continues until the required number of stock interviews is completed. Should a replacement be required for a flow arrestee, the Lead Interviewer will select the arrestee booked most closely to the time at which replacement becomes necessary. For example, if a flow arrestee begins an interview at 4:05 P.M. but refuses to continue at 4:10 P.M., the Lead Interviewer will identify the arrestee booked most closely following 4:10 P.M. Flow interviewers will continue selecting arrestees across the eight-hour data collection shift, irrespective of whether the required number of flow interviews have been obtained, thus allowing all arrestees booked during that shift to have some estimated probability of selection for the ADAM survey.

Response Rates

ADAM II response rates are expected to be comparable to those achieved in the ADAM data collection period from 2000–2003. Abt Associates will carefully select a team of professional field interviewers to conduct data collection in each ADAM II site. Each data collection team will be under the supervision of a Lead Interviewer who will organize data collection in each site and observe the interviewing team for quality control purposes. Respondents will be provided with a small food incentive for participation.

Exhibit 2

Response Rates, ADAM Data Collection 2000 – 2002

Data Collection Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2000	79%	76%	76%	72%
2001	77%	75%	82%	81%
2002	81%	82%	84%	83%

2. Information Collection Procedures

The ADAM II study methodology will establish comparability of findings with the ADAM data series (2000–2003).

Data Collection Methodology

Site Selection. ONDCP selected ten ADAM II sites from the universe of extant ADAM sites with the goal of extending trend analysis begun in 2000. In selecting ADAM II sites, ONDCP considered the selection criteria noted earlier.

Site Director Appointment. Site Directors played a central role in ADAM and will do so in the ADAM II study, although their direct involvement in data collection will be diminished. In the prior ADAM program, local Site Directors and Coordinators were responsible for hiring data collection staff and implementing data collection. In ADAM II Abt Associates will contract with local Site Directors to serve as conduits to police and the community, assuring access for Abt professional survey staff during interview periods and maintaining positive relations and contact with law enforcement during non-data collection periods. The appointment of Site Directors minimizes risks to implementation, maintains necessary facility access, and assures data integrity.

Site Initiation. After final identification of sites and following the engagement of a local Site Director in each site, Abt Associates will reinitiate sites through the following steps:

1) Revision of Sampling Plans:
    i. The number of operational county booking facilities will be reviewed in order to determine any changes in number, staffing or physical layout that may be important to ADAM.
    ii. In order to finalize appropriate sampling plans, the current availability and format of census data will be analyzed and arrestee flow data will be reviewed.
2) Obtain cooperation of local police in each facility and identify physical space for data collection
3) Establish data collection schedule

Interviewer Recruitment and Training. Trained Abt survey staff working closely with local Site Directors will conduct data collection in each site. Each site data collection team will consist of professional field interviewers led by a designated Lead Interviewer. The Lead Interviewer will be responsible for receiving and organizing interview supplies each collection period, initiating each night's data collection and managing site sampling. The Abt Associates Field Manager (FM) will recruit, train, and schedule/reschedule interviewers. The Abt Associates Survey Director will monitor weekly project performance of all interviewers.

Quality Control. The Abt Associates' Field Manager will conduct all interviewer trainings to ensure that every aspect of the ADAM protocol is presented in a consistent manner. In addition to Abt staff quality control procedures, the *ADAM II Site Manual* will provide a site operations reference guide for everyday use by ADAM site staff. Additionally, Abt will re-train or replace interviewers if feedback reports on interview performance or reviews of sampling integrity identify significant weaknesses among any interviewers.

Logistics of Sample Selection. Interviewers will randomly sample from a stock of accused offenders who have been booked since the interviewers were last in the jail, while sampling from the flow of accused offenders entering the jail so long as the interviewers are on duty. Random sampling is required to allow inferences about the arrestee population as a whole. Sampling will be conducted according to the following protocol:

- The Lead Interviewer will arrive prior to the beginning of the site's eight-hour data collection shift;

- S/he will request a log of all arrestees booked since the end of the previous day's ADAM shift and up to the start of the current day's collection shift;

- S/he will review the list and eliminates any arrestees who are ineligible for participation in the ADAM study (i.e., transfers from other facilities who have been in jail longer than 48 hours, arrestee holds from other jurisdictions and federal detainees, self-commit detainees serving post-adjudication sentences, court commitments);

- As a representative sample of female arrestees was not a part of the prior ADAM program, and resources do not allow for one to be constructed in ADAM II, all female arrestees will be eliminated from the booking list;

- The arrestees will be ordered by booking time;

- The number of eligible male arrestees remaining on the booking log will be counted;

- Using the site's unique sampling plan, the number of stock arrestees will be determined (i.e., arrestees who were booked in the hours between ADAM collection shifts), and the total number of eligible male arrestees will be divided by the number of stock interviews required by the sampling plan to determine an interval on the booking log for selecting arrestees;

- Randomly select the first stock arrestee from the booking list;

- Select all remaining stock arrestees by counting down the interval number identified above;

- After selecting the total number of stock arrestees, complete facesheets for selected arrestees.

- Work with facility staff to identify arrestees as they are booked for flow sampling; and

- Uses booking information to complete facesheets for selected arrestees.

Facesheet Completion. Fields on the front of the ADAM facesheet will be completed by the Lead Interviewer and represent information from official records only. These fields contain such information as arrest and booking date and time, location of arrest, arrestee demographic characteristics, offense characteristics, sample identifying characteristics (i.e., site and facility ID, stock or flow status, editor ID). Initial facesheets for stock arrestees will be completed prior to each shift. Flow facesheets will be completed as arrestees are identified for sampling purposes. Facesheets must be completed for every arrestee selected for participation in the ADAM II study.

Securing Arrestee's Consent. Two steps will be taken prior to initiating an interview for each arrestee. The first step will involve a determination of language capability and an assurance that the arrestee has not been in jail for a period in excess of 48 hours. The second step will require securing arrestee consent. Unless an arrestee voluntarily agrees to participate, the interview cannot be done.

Each study subject must voluntarily agree to participate prior to administering the ADAM questionnaire. The back of the ADAM II facesheet will provide a consent script to be read to potential respondents that has been approved by Abt's IRB for reading to study subjects. It includes two separate consent agreements: one for the interview and one for providing a urine specimen. The subject may agree to the interview and not agree to provide a specimen and still be included in the sample.

Interview Administration and Specimen Collection. The *ADAM Site Manual* will detail the step-by-step procedure for collecting interview and urine specimens followed in ADAM. The steps are summarized below.

1. The interviewer will obtain the name and bar-coded interview forms and specimen kit for the next respondent selected from stock or flow to be interviewed. The respondent's facesheet, interview form and test kit all carry the same barcode label.

2. The interviewer will inform the participating police officer of the name of the subject. Depending on the site, the officer either directs the interviewer to the location of the subject (in one of the holding cells) or brings the subject from the holding area to a designated area for the interview. The area for interviews is site-specific.

3. The interviewer will read the consent and confidentiality information contained on the consent sheet and will ask the respondent if he wishes to participate in the interview and if he is willing to provide a urine sample.

4. If the subject consents, the interview will be complete. If the subject is unwilling, the reason for refusal is recorded, the subject will be returned to the holding area and all materials (interview form, facesheet and lab supplies) stored. The interviewer will return to the Lead Interviewer for the next potential subject's name and forms.

5. At the completion of the interview, the interviewer will provide the subject with the specimen kit and (depending on the site) either request that the officer escorts the subject to a nearby lavatory or waits while the subject moves to the lavatory to provide the sample. The interviewer may use this time to check the completed interview for missing information. The sample will be returned to the interviewer who, wearing protective gloves, will check the security of the barcode and places it in the lab mailer.

Incentive Delivery. Either during or subsequent to the interview (depending on site regulations) the interviewer will provide the subject with a small food incentive for participation (candy bar, potato chips, sandwich).

Census Data Collection. The ADAM data in the past has used census data gathered for the time period during which data collection occurs to assign a post-stratification weight to respondent cases. This post-stratification estimation will continue in ADAM II, though the methodology will change, as described below. The last step in the quarterly data collection will be the shipment of the census data to the Data Center. Census data will be collected from each facility. The census data represent every person arrested and booked into those facilities in the course of the interview period. These data will be sent to the Abt Data Center in an electronic format under arrangements made with each police

department. The minimal information requirements for each arrestee contained in the census data are: booking date and time, offense characteristics, and date of birth. These data will be shipped no later than 30 days following the end of interview data collection.

Census data will be a used to ensure the sampling plan is being implemented as designed at each facility. After census data are entered, analyses will be run to compare cases in the ADAM II sample to all of the cases booked during that same time period. The sample will be reviewed looking for obvious problems with the data; for example, the booking data may help to explain why a site was not able to reach its sample targets; i.e., because the booking flow was exceptionally low or there was a shift in the volume of bookings during certain periods of the day. Offense charges may also be reviewed to ensure the sample is representative of the cases that were booked during that time period.

Weighting and Estimation Procedure

Model Based Estimators. Model-based estimators will be used to estimate sampling probabilities as well as to provide estimates that control for yearly drug use cycles and changes in police tactics. A propensity score approach to weighting the data is suggested[3] and offers two advantages. The first advantage is that a substantial statistical literature has established the properties of propensity score estimation, so this is not a novel application. The second advantage is that the propensity score approach provides a single weight, comparable to the post-stratification weight used in the original ADAM application. In contrast to the weight procedure used by ADAM, however, the ADAM II weight based on propensity scores is both easier to construct and relatively robust.
To explain the propensity score approach, let:

S_i This is a dummy variable coded 1 when the ith member of the population is selected for the sample and coded 0 otherwise. The subscript runs from i=1..N, where there are N members of the population. A value to S_i can be assigned because booking records and ADAM face sheets document whether or not a member of the population of arrestees appeared in our sample.

X_i This is a vector of variables that explains the sampling probabilities. This vector can be more refined than the simple stratification used for the original ADAM weights. In practice, working with a similar procedure using the ADAM data, Fourier transformations were used to control for daily and weekly cycles.[4] To deal with clustering, X must include a dummy variable for the jail when the site books into more than one jail. The vector includes offense type and may include other data known at booking, such as the arrestee's age. There is no reason that this list of variables must be the same across the sites. These data come from the booking records.

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[3] Rosenbaum, P. and Rubin, D. (1984). Reducing Bias in Observational Studies Using Sub classification on the Propensity Score. *Journal of the American Statistical Association*, 79(38):516–524.

Rosenbaum, P. (1984). From Association to Causation in Observational Studies: The Role of Tests of Ignorable Treatment Assignment. *Journal of the American Statistical Association 79 (385):41–48.*

[4] Sampling probabilities vary during the day especially because some members of the stock are released prior to being recruited into the sample. Sampling probabilities vary across the week principally because the number of bookings is greater on the weekends, but interviewing resources are fairly constant over the course of the week.

Using logistic regression (or a robust substitute), *S* would be regressed on *X* for the entire population of arrestees. The regression specification would be:

[1] $$P(S_i = 1 \mid X_i) = \frac{1}{1 + e^{-X_i \delta}}$$

Here *i* runs from 1 to N, the number of arrestees in the booking population, and δ is a vector of unknown parameters conformable with *X*. Because [1] gives the estimated probability of being included in the sample conditional on *X*, the weight for cases that are actually included in the sample is given by [2].

[2] $$W_j = 1 + e^{X_j \hat{\delta}}$$

where the subscript runs from *j*=1..n and n is the number of arrestees in the sample.

The weights from [2] can be used for tabulation, cross tabulation, and other analysis. Standard statistical software can be used for this purpose, with the caveat that standard errors require adjustment. However, adjustments to the standard errors are readily available[5] and will be employed in analysis. Design effects will be provided for other users of these data.

One especially useful application of these weights is used in the trend estimates in drug use. To illustrate this approach, let:

Z_j This is a vector of variables known from the ADAM interview. At a minimum, the vector includes the charged offense, variables that control for seasonality, the jail (to deal with clustering) and variables that represent trends. The vector includes the charged offense because the analysis must control for police arrest practices, and changes in police practices are most likely to manifest themselves as changes in the number of arrests and bookings for specific types of crimes. The vector might include Fourier transformations to account for cycles during the calendar year, although other approaches might serve as substitutes.[6] Finally, and most importantly, the vector must include linear (or perhaps nonlinear) trend variables, because our principal interest is estimating trends.

Y_j This is the outcome measure of interest to the study, such as an indicator that the study subject tested positive for cocaine. The subscript runs from j=1..n, where n is the number of individuals who were sampled.

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[5] Woodridge, J. (2002). Inverse Probability Weighted M-Estimation for Sample Selection, Attrition and Stratification. *Portuguese Economic Journal* 1, 117–139.

Woodridge, J. (1999). Asymptotic Properties of Weighted M-Estimators for Variable Probability Samples. *Econometrica*, Vol. 67, No. 6: 1385–1406.

Robins, J., Rotnitzky, A. and Zhao, L. (1995). Analysis of Semi parametric Regression Models for Repeated Outcomes in the Presence of Missing Data. *Journal of the American Statistical Association*, Vol. 90, No. 429, pp:106–121.

Robins, J. and Rotnitzky, A. (1995). Semi parametric Efficiency in Multivariate Regression Models with Missing Data. *Journal of the American Statistical Association*, Vol. 90, No. 429, pp:122–129.

[6] There exists a rich econometric literature for dealing with cyclical behaviors. See Greene (2003, p. 624) for an overview of spectral analysis.

For example, if *Y* were a dummy variable coded 1 if the arrestee tested positive for cocaine and coded 0 otherwise, then *Y* has a Bernoulli distribution; a weighted logistic regression might be used to estimate the probability of testing positive conditional on *Z*:

$$[3] \qquad P(Y_j = 1 \mid Z_j) = \frac{1}{1 + e^{-Z_j \beta}}$$

The weights are determined from the estimation of [1].[7] Here β is a parameter vector that is conformable with *Z*. Of primary interest is the parameter estimate associated with the linear (or nonlinear) trend, and testing for the statistical significance of trends is based on that estimated parameter and its standard error. Estimating the standard error is complicated by the fact that the sampling probability itself was estimated, but as noted earlier, the published literature provides robust estimates of standard errors.

When reporting trends, it is best to convert the parameter estimate into a probability of testing positive for cocaine or whatever drug is used in the analysis. That requires setting the control values to fixed values, such as their weighted mean values across the years, and then showing how the estimated probability of testing positive for a drug changes over time conditional on seasonality and offense charge. These site-specific estimates can then be averaged across the ten ADAM sites, and standard errors are available for these averages.

As an example of "conditioning" on seasonality and offense charge, analysis might include estimating how the probability of testing positive for cocaine has changed between March and September. When making this comparison, it would be important to take account of the fact that drug use typically decreases by 10 percent between March and September, so that when a 15 percent drop is observed, it's recognizable that two-thirds of that drop results from seasonality. Recognizing and adjusting for that seasonality is what is meant by "conditioning on seasonality." Likewise, when making the comparison, one might want to take account of the fact that police have recently concentrated on domestic violence, so that the proportion of bookings for spouse abuse has increased markedly. Since spouse abuse is frequently associated with alcohol but less frequently with illegal drug abuse (at least relative to the prevalence of drug use among other offenders), cocaine prevalence numbers might be adjusted by holding constant the proportion of spouse abuse cases. This is what is meant by "conditioning on offense type." The objective is to use a regression-based estimator to distinguish trends in drug use from exogenous factors (seasonality and police arrest practices) that

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[7] Whether regression is needed is arguable. For a discussion, see Carrington, Eltinge and McCue (2000) and Deaton (1997). Generally, unweighted regressions are more efficient, which in this case means that an unweighted regression would have a smaller sampling variance than would a weighted regression. However, weighted regressions are seen to be more robust to specification errors. On balance, it is difficult to know if the regressions should be weighted or unweighted, but certainly a minimal test for justifying an unweighted regression is that it does not provide estimates that are much different from a weighted regression.

Carrington, W., Eltinge, J. and McCue, K. (2000). *An Economist's Primer on Survey Samples*, Discussion Papers, Center for Economic Studies, Washington Plaza II, Room 206, Bureau of the Census, Washington, D.C.

Deaton, A. (1997). The Analysis of Household Surveys: A Microeconomic Approach to Development Policy, The Johns Hopkins University Press, Baltimore, MD.

cause measured drug use among arrestees to rise and fall for reasons that are independent of drug use among the population of drug users who are vulnerable to being arrested and booked.

The key word is "independent." Police may change arrest practices in response to changes in drug use. For example, as methamphetamine use increases, police may crackdown on methamphetamine use, thereby increasing the number of arrests for methamphetamine use. Conditioning on the charge would mask the fact that more and more arrestees are testing positive for methamphetamines. In this illustration, conditioning on offense type could obscure a real increase in drug use. As is often noted, however, drug use among arrestees is not driven by arrests of offenders charged with drug use violations. If methamphetamine use were increasing in the general population of drug users who are vulnerable to being arrested, it would appear within all charge categories. This suggests that a useful trend of drug use among arrestees might exclude arrests for drug use violations altogether.

3. Methods to Maximize Response Rates

A key to conducting a successful study is ensuring that response rates remain at acceptable levels throughout the study. Abt Associates' rigorous procedures for interviewer selection, training, and quality control will support consistency in response rates between ADAM and ADAM II. In previous iterations of ADAM, a response rate of approximately 75%–84% has been achieved across all quarters, with response rates at least as high as 81% in the last six quarters of data collection. This experience supports expectations for attaining a statistically valid and powerful analysis for the proposed study.

4. Tests of Procedures

The utility of the core ADAM instrument for analysis and ease of administration has been demonstrated in the nearly 90,000 interviews collected since 2000. This instrument was developed beginning with de novo question creation in a series of focus groups of drug users and sellers in sites throughout the country. Final sets of questions underwent cognitive testing with heavy drug users in Boston. Additional validity testing of specific sections[8] was undertaken during development (the calendar portion and the dependency screener). The entire instrument and sampling protocols underwent beta testing and revisions at two large ADAM sites (New York and San Antonio) in the Fall of 1999. The modifications (see below) are minimal.

ADAM also has the advantage of being able to assess the validity of one of its most important pieces of data, self-report of drug use, through a separate source, the urine test results. While there is variation in the reliability of time frames for particular drugs in urine tests, the rate of truth telling can be approximated. Specifically, ignoring a small rate of false positive tests, arrestees who test positive for a drug have used that drug within the last two or three days (longer for marijuana). Across all the ADAM sites and over the four years of ADAM data collection, 80% of cocaine-positive arrestees admitted 30-day use, 82% of heroin-positive arrestees admitted 30-day drug use, 82% of methamphetamine-positive arrestees admitted 30-day drug use, and almost all marijuana-positive arrestees admitted 30-day drug use.[9]

[8] Hoffman, N., Hunt, D., Rhodes, W. and Riley, J. (2003). UNCOPE: A brief substance abuse screener for use with arrestees, *Journal of Drug Issues*, Winter, 29–44.

Protocols for sampling in ADAM II are identical to those used and approved in ADAM. For ADAM II, revisions to the original ADAM instrument and protocols are minimal, and added questions are derived from the Drug Use Forecasting Methamphetamine Addendum, an established data collection tool implemented in the 1990s by the National Institute of Justice. These measures are intended to expand ONDCP's understanding of the methamphetamine manufacturing process among drug users and are an addition to the methamphetamine data collected by the existing ADAM market section. Even small changes, however, may affect the skip patterns or flow of questionnaire administration. To understand the effect of changes, Abt Associates will conduct limited pilot testing with one ADAM II site. This testing will be restricted to 9 or fewer respondents because it will precede receipt of OMB clearance and any results will be reported to OMB for consideration.

[9] Arrestees are less likely to admit to use within the last two or three days. This may be because they fear that an admission of recent use will jeopardize their pending release statuses or even their criminal cases. Based on analysis done at Abt Associates, it appears that chronic drug users are more truthful than occasional drug users. This is important because some of ADAM's most important applications pertain to drug use and market behaviors by chronic drug users.

ADAM II Instrument Modifications		
Item #	**Question**	**Source**
H0	In the past 12 months, how many places did you live in?	Added de novo item to improve transience measure.
MU30	We talked about this earlier, but please remind me; regardless of how or when you got it, did you use [drug] in the past 30 days?	Deleted
MU31	On how many days did you use [drug] in the past 7 days?	Incorporated into Calendar
MU32	On how many of the past 30 days did you use [drug]?	
MU33	During the past 3 days did you use [drug]?	
MU34	Think about the last time you used [drug]. How did you use it? [response list]	
MU35a.	In the past 30 days, did you have 5 or more drinks of beer, wine, or any other type of alcohol on the same day?	
MU35b.	Please tell me your best estimate of the number of days you had 5 or more drinks on the same day in the past 30 days.	
MU36	In the past 3 days, did you use any …[secondary drug use response list]	Drug added [OxyContin]
MU5.	What else, besides cash, was exchanged or traded the last time you bought [drug]?	Added category: Trade Chemicals
MU23.	The last time you got [drug] without cash, how did you contact the person who gave it to you?	Added category: Trade Chemicals
METH1.	You said you used meth in the past 12 months. The last time you used meth, was it meth you made yourself?	Derived from DUF Methamphetamine addendum.
METH1a.	Do you know the person who cooked your meth?	
METH1b.	Was it the person who sold it to you?	
METH1c.	Was the meth made in…[response list]	
METH2a.	Have you ever made/ manufactured methamphetamine? By manufacture, we mean cooked methamphetamine out of raw materials or chemicals.	
METH2b.	Have you made methamphetamine in the past 30 days?	
METH2c.	In the past 30 days, have you gotten chemicals for someone else to make meth with?	
METH2d.	The last time you [made meth] [or got chemicals], what chemicals did you use [get]?	
METH2e.	Where did you get the [ephedrine/pseudoephedrine/OTC pills/blister packs] you used to make meth [got for someone else]?	
METH2f.	Was it hard to get the ephedrine/pseudoephedrine?	
METH2g.	Where did you cook it?	
METH2h.	What did you do with the waste?	
METH3a.	Where did you learn to cook meth?	

5. Individuals Consulted on Statistical Aspects of the Design

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