

Assessment of Drug Abuser Treatment Needs in Rhode Island

ABSTRACT

Background. Rhode Island's Division of Substance Abuse asked us to assess the State's drug treatment needs and make recommendations regarding its treatment system for the next three years.

Methods. We used a statewide telephone drug use survey of 5,176 households supplemented by drug-related hospital discharges, Division of Drug Control statistics, and interviews with providers, state officials, and out-of-state experts. Drug abuse was measured with items from the Diagnostic Interview Schedule. Abusers were asked if they were receiving or wanted to receive treatment.

Results. Survey responses, used to estimate the unmet need for drug treatment, indicated a need to triple drug treatment services. Regression models using survey data indicated that the treatment network was overly centralized in the Providence area. Interviews with state officials, clinicians, and out-of-state experts provided material for recommendations on reimbursement policy, treatment mix, quality assurance, and cost containment.

Conclusions. The RI Department of Health's certificate-of-need program adopted our overall recommendation for tripling the drug treatment system as its guideline in evaluating proposals for new treatment facilities. With State funding of a new adolescent center and expansion of outpatient slots in the private sector, this recommendation has now been fully implemented. (*Am J Public Health* 1991;81:365-371)

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Introduction

Recent federal and foundation initiatives on drugs and acquired immunodeficiency syndrome (AIDS) among intravenous (IV) users have led many states and communities to assess their needs for drug treatment services. Up to now, attempts to determine drug abuse treatment needs have lacked adequate tools. In the 1970s when substantial public funds for drug treatment first became available, planners based their needs assessments on census data, arrests, treatment admissions, and occupancy rates.^{1,2} At best, however, such statistics represent only indirect approximations of addict prevalence and may be influenced by actions of the agencies that report the data.³ For example, if services are too expensive, not well located, or not well matched to addict clinical or cultural needs, underutilization of treatment facilities may occur even when there is substantial unmet need for services in a state. The present study sought to develop improved methodologies.

In 1986, the Rhode Island Division of Substance Abuse (DSA) sought documentation of unmet need for drug abuse services to convince legislators of the necessity for third-party reimbursement of drug abuse treatment and to establish guidelines for regulators evaluating proposed treatment facilities. DSA had previously contracted with Brown University for a needs assessment of the combined alcohol and drug treatment system.⁴ Although the Brown Report estimated drug use prevalence in Rhode Island from age- and gender-specific *national* rates reported in a 1982 survey of drug use by the National Institute on Drug Abuse (NIDA), the Report's authors recommended that a local drug abuse prevalence survey be conducted.

Several developments in the last two decades have made improved needs assessments possible for state and local agencies. In 1972, the federal government demonstrated the feasibility of household surveys of nonmedical drug use employing face-to-face interviews with a cross-section of the nation's population.⁵ Some states (e.g., New York and New Jersey) have now initiated periodic household surveys of their own.

In 1981 and 1986, the New York State Division of Substance Abuse Services conducted a statewide survey of drug use by telephone interview.⁶ A pilot study (1980) found that random digit dialing and a sample drawn from local telephone directories both returned response rates similar to those of a previous face-to-face survey of drug use (66 percent to 72 percent). Drug use rates in the statewide telephone survey were similar to those found in the 1979 NIDA face-to-face household survey, thereby confirming experiments which had found no significant difference between telephone and face-to-face responses to a variety of interview questions (see Discussion). Compared to personal interviews, telephone interviews represent an attractive approach for localities with limited budgets since telephone in-

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interviews cost an average of half as much as face-to-face surveys using identical questions.⁷

Measures of drug use, however, have limited value in estimating the number of persons in the population who need treatment. Effective planning requires a measure of clinical levels of drug abuse. In 1981, Robins and her colleagues developed the Diagnostic Interview Schedule (DIS)⁸ for epidemiological studies of mental disorders including alcohol and drug abuse. The DIS combines answers to questions on the frequency and consequences of use to form reliable scales of abuse and dependence that satisfy the American Psychiatric Association's formal (DSM-III) criteria for drug abuse and dependence.⁹ Studies have demonstrated that the DIS can be used successfully in face-to-face household interviews,¹⁰ and its use permits comparison with other populations already reported in the literature.¹¹ When DIS scores were compared with clinical diagnoses based on patient charts and DSM-III checklists, results showed moderate agreement (kappas for individual symptom scales ranged from -.01 to .63 with an average of .22 in one study¹² and .30 in another¹³).

Methods

The primary source of drug abuse data for this study was a telephone survey of Rhode Island households. The survey employed a proportional, stratified, multistage sample of persons age 12 or over living in households with telephones. The telephone numbers were identified by random digit dialing. A random sample of telephone numbers was drawn from each of the state's eight drug treatment catchment areas, with each area represented by a total proportionate to its share of the state population. Assuming a response rate similar to those found in previous New York State drug surveys (66 percent to 72 percent), we planned to use 7,000 of these numbers to reach the goal of 5,000 interviews. Interviewers asked to speak to the person in the household (12 years or older) with the most recent birthday; no substitutions were permitted.

The sample statistics were weighted¹⁴ to produce representative parameter estimates for catchment areas and the state as a whole. Each respondent received an initial weight equal to the total number of persons age 12 or over in the household; the number of respondents in each catchment area was also weighted by the actual population size of the area. The

weights were adjusted to correct for differences in response rate among catchment areas and multiplied by a constant to make the weighted sample size equal to the unweighted sample size of 5,176 completed interviews.

To increase community acceptance of the survey, all treatment and prevention agencies were notified about it and the Governor mentioned the study in his State of the State address. Several articles appeared in Rhode Island newspapers urging community cooperation.

We used the 1986 New York State drug survey⁶ for basic drug use items and the Diagnostic Interview Schedule⁸ for measures of abuse and dependence. We designed questions to measure interest in obtaining treatment. The final instrument was translated into Spanish for Spanish-speaking respondents.

Interviewers called each number in the sample until they succeeded in interviewing the designated respondent; determined that the number was either a business phone, had been disconnected or never assigned to a household by the telephone company; or reached the cut-off point of seven attempts. Interviewers made their first few calls in the evening (5:00 to 9:00); if these were not successful, they made further attempts on weekends. As a last resort, they tried calling on weekday mornings and afternoons. When a respondent refused to be interviewed, the survey supervisor arranged to have a more experienced interviewer try again several weeks later.

Reliability and Validity Studies

For 100 consecutive interviews conducted by several different interviewers, we compared the answers recorded by a supervisor listening on a remote monitor with the answers recorded by the interviewers. To estimate the potential bias of respondents who refused to cooperate, we compared the responses of persons (N = 130) who initially refused to respond but agreed to be interviewed when called again, to the responses of individuals who never refused. To estimate the potential bias of households that failed to answer the telephone, our research staff called all numbers not reached after seven attempts by the subcontractor. We then compared the responses of hard-to-reach individuals (the 92 reached by our staff) to those of respondents who were reached with seven or fewer calls. We also compared the sample demographics with census data.

To evaluate the truthfulness of respondents, we conducted a "randomized

response" experiment in which a randomly selected subsample of respondents (N = 167) flipped three coins to determine whether or not to answer questions on drug use truthfully.¹⁵ Since these respondents tossed the coins at home, interviewers could not tell whether the respondents were answering truthfully or just obeying the dictates of the toss ("yes" if all heads, "no" if all tails). Aggregate responses were statistically adjusted for expected frequencies. We then compared the resulting frequency of drug use reported by experimental subjects with the frequency of drug use reported by respondents in the general survey.

Drug Use and Abuse Measures

We estimated the percentage of lifetime and current moderate users, potential abusers and abusers. *Potential abusers* were respondents who reported "pathological" drug use (i.e. use of a drug daily for two weeks or more without a prescription) or that they had tried to cut down and failed to do so. *Abusers* were those who admitted to both pathological use and significant social impairment as a result of that use or to being drug dependent (showed signs of withdrawal and tolerance) whether or not they met the other two criteria.⁸

Computation of Unmet Demand

We defined the effective demand for drug treatment services as the number of services likely to be requested at current prices, assuming widespread knowledge of the availability of services and reasonable accessibility to them. We divided effective demand into *met demand* (the aggregate of clients enrolled in a drug treatment program at some time during the last twelve months) and *unmet demand* (the number of abusers who had not been in treatment during that period but who represented suitable candidates for admission). We asked all respondents who qualified as abusers by DIS criteria whether they were in treatment and, if not, whether they wanted treatment or at least had ever thought about entering treatment.

A conventional approach to estimating effective demand involves multiplying the estimated number of abusers in a population by a fixed percentage of abusers thought likely to seek treatment, the rule of thumb being 15 percent to 20 percent.⁴ Using estimates of drug abuse prevalence from the telephone survey, we also estimated demand for treatment using this fixed percentage method.

TABLE 1—Validity Studies on Subpopulations

% Ever Used	Converted Refusals (n = 130)	Never Refused (n = 5046)	Difference (95% CI)	Hard to Reach (n = 92)	Not Hard To Reach (n = 5084)	Difference (95% CI)	Randomized Response* (n = 167)	Main Survey (n = 5176)	Difference (95% CI)
Marijuana	10.7	24.4	-13.7 (-19.2, -8.2)	29.7	24.0	5.7 (-3.7, +15.1)	28.0	24.1	3.9 (-3.0, +10.8)
Cocaine	3.0	7.3	-4.3 (-7.3, -1.3)	8.6	7.1	1.5 (-4.3, +7.3)	8.5	7.2	1.3 (-3.0, +5.6)
LSD/PCP	3.0	3.7	-0.7 (-3.7, +2.3)	3.0	3.7	-0.7 (-4.2, +2.8)	3.3	3.7	-0.4 (-3.2, +2.4)
Heroin	0.0	0.5	-0.5 (-0.7, -0.3)	0.0	0.5	-0.5 (-0.7, -0.3)	-7.5	0.5	

*Frequencies have been statistically adjusted for forced choice. The negative frequency for heroin use suggests that some respondents in the experiment could not bring themselves to say "yes" to having used heroin, even when the coin toss dictated that answer. The percent saying "yes" (6.9) was less than expected on the basis of chance alone. Subtracting the actual percent from the expected percent produced a negative number. Without additional data, that negative frequency is uninterpretable. Because the other three drugs showed no significant difference, it seems reasonable to conclude that the same was true for heroin.

Community Indicators of Drug Abuse

We analyzed established drug abuse indicators¹⁶⁻¹⁸ to validate the telephone survey findings and to estimate optimal geographic distribution of services. Indicators were drug treatment admissions, hospital discharges (primary or secondary diagnoses of drug overdose, and so on), from the Rhode Island Department of Health, drug-related criminal complaints (suspected use, possession, or sales) from the Rhode Island Division of Drug Control, and drug arrests from the Federal Bureau of Investigation.

Allocating New Slots

We were asked to estimate the number of new treatment slots needed (if any), and to recommend how those slots should be distributed across both treatment modalities and catchment areas. To do so, we first looked at the drug use patterns of those respondents who said they wanted treatment now. Opiate users (who might be appropriate for methadone maintenance) were separated from users of other drugs. We then considered the current mix of treatment modalities in Rhode Island and used interviews with providers and state officials to identify gaps in modalities and levels of patient care. We also weighed the relative cost-effectiveness of different treatments. We estimated the optimal geographic distribution of admissions from their regression on survey drug abuse rates, criminal complaints, and hospital discharges.

Interviews with Providers and State Officials

A staff sociologist interviewed 38 drug program directors and state officials regarding current programs and problems involving client access, availability of services, AIDS, special needs, and other

issues encountered in day-to-day operations, such as financing mechanisms, regulatory functions, relationships among agencies, and the continuum of care. To broaden our understanding of policy alternatives, we interviewed professionals from 13 states outside of Rhode Island.

The total cost (including indirect expenses) of the needs assessment was \$150,000, of which our subcontractor received \$50,000 (\$10 per completed interview). The entire study (including a final report) took exactly six months to complete.

Results

Validity of Survey Findings

Of the 7,364 eligible households in the sample, 5,176 (70.3 percent) completed the interview. In the 100 consecutive cases where a supervisor coded responses independently of the interviewer, 99.3 percent of the responses were coded identically. Since most of the inconsistencies involved a question about friends' behavior, we excluded that item from further analysis.

Fifteen percent of those who initially refused to be interviewed eventually agreed to participate in the study. These 130 "converted refusals" reported lower frequencies of drug use and abuse than did those respondents who never refused (Table 1). The differences, however, were small except for ever-use of marijuana.

A comparison of 92 hard-to-reach respondents with those that were reached without extra effort revealed no significant differences in either drug use or abuse (Table 1).

The 167 respondents who were given the opportunity to disguise their answers in the "randomized response" experiment were no more likely to report illicit

drug use than those in the general survey who were asked the same questions directly (Table 1).

A comparison of the survey sample with 1980 census figures for Rhode Island indicates close agreement on age, gender, and ethnicity.¹⁹ A regression of catchment area drug abuse prevalence rates (measured by the survey) on drug-related hospital discharges and drug complaints provides further evidence ($R^2 = .89$) of the validity of the survey results.

Extent of Drug Use

Our survey yielded an estimated total of 13,948 current abusers, less than 2 percent of the state's 12 or older population of 793,334 (Table 2); 8,430 residents qualified as current potential abusers and 60,388 additional residents qualified as current minimal-to-moderate users. Approximately one-fourth of Rhode Island residents age 12 or older admitted to having ever used at least one illicit drug (marijuana, cocaine, LSD, or heroin) or licit psychoactive drug (sedative, amphetamine, or prescribed pain killer) without a prescription. The figure for current use (at least once in the past year) was 10.4 percent. Marijuana was used and abused more than any other drug, followed by cocaine, opiates, sedatives, amphetamines, and hallucinogens in that order.

Unmet Demand for Treatment

To determine unmet demand for treatment, we divided abusers not in treatment into a matrix of five levels of interest in treatment by three levels of the currency of abuse (Table 3). Analysis of the matrix generated 5,365 abusers (rows 1 and 2, and "recent" and "present abusers" in row 3) that made up the unmet demand for drug abuse treatment. We assumed that "past abusers" and "recent abusers" in row 1 were using currently

TABLE 2—Estimated Current Users, Potential Abusers, and Abusers, by Type of Drug

In Last Year	At Least One	Marijuana	Cocaine	Opiates**	Sedatives*	Amphetamines*	LSD/PCP
Users (Minimal or Moderate)	60,388	49,813	18,239	10,116	6,591	5,364	3,525
Potential Abusers	8,430	7,664	1,839	153	153	1,073	0
Abusers	13,948	10,269	4,292	1,839	2,605	1,839	766
Total	82,766	67,746	24,370	12,108	9,349	8,276	4,291
(% of R.I. pop.)	(10.4)	(8.5)	(3.1)	(1.5)	(1.1)	(1.0)	(0.5)

*Used on own (i.e., without prescription).
 **Includes heroin, and pain killers used without a prescription.

TABLE 3—Levels of Unmet Demand for Treatment

Level	Definition	Past Abusers ^a (33,414)	Recent Abusers ^b (6,284)	Present Abusers ^c (7,089)
1	Want Treatment? Yes	307	920	920
2	Want Treatment? Not sure	460	0	460
3	Ex-clients ^d	2,146	1,073	1,225
4	Thought about Treatment ^e	1,686	460	460
5	Never Thought about Treatment ^f	28,815	3,831	4,024

^aHave abused in past but not in last year.
^bHave abused in past year but not in last month.
^cHave abused in last month.
^dFormer drug clients who said "no" to wanting treatment now.
^eSaid "no" to wanting treatment now, have never been in treatment, but have considered treatment in past.
^fSaid "no" to wanting treatment now, have never been in treatment, and have never considered treatment.

but not at the point of abuse, or were in early recovery. The "not sures" in row 2 were included on the assumption that they would decide to enter a program if openings at the most sought-after services (methadone maintenance and short-term residential programs) were not in such short supply. Despite not wanting treatment now, the "present abusers" in row 3 were included because they had sought treatment before, had relapsed, but, we believed, would want treatment again were it readily available. The "recent abusers" in row 3 would similarly want intermediate care or aftercare. We excluded the respondents in row 3 who had not abused for over a year on the assumption that they were sufficiently recovered.

To get the total demand for treatment, we added unmet demand and met demand. Rather than estimating met demand from the number of survey respondents *currently* in treatment (which would exclude individuals discharged earlier in the year),

we used actual MIS admissions (2,212) for the previous year. In this way, we estimated total effective demand to be 7,577 in 1986. We recommended that Rhode Island should expand its treatment system until it could accommodate all 7,577.

According to the traditional rule of thumb for estimating the number of addicts who will avail themselves of treatment at any one time, there were 2,789 Rhode Island residents (20 percent of the estimated 13,948 current drug abusers in the State) who were candidates for drug abuse treatment at the time of our study. This estimate suggests that if Rhode Island were to provide treatment for all addicts who wanted it, it would have to expand its services by 26 percent (from 2,212 to 2,789) as opposed to the 243 percent expansion (2,212 to 7,577) indicated by the first method.

Expansion of Services

Given the State's fiscal constraints and siting difficulties for new facilities, we recommended that the expansion of serv-

ices be divided into two phases. In phase I (two to three years) the State would add enough slots to accommodate the estimated 2,150 abusers who said in the telephone interview that they wanted treatment right now (all abusers from row 1). Adding 2,150 admissions would nearly double the present treatment system. In phase II, which would extend for several years beyond phase I, the State would add enough slots to accommodate the remaining 3,200 abusers (all abusers from row 2 and most from row 3) whom we deemed likely applicants for new treatment slots but whose desire to enter a program immediately was less definite under present conditions. A phased expansion would allow for adjustments if drug abuse indicators suggested substantial changes in addict prevalence during phase I or if our conclusions about demand for services were not borne out by experience.

For most treatment modalities, we recommended making phase I increases proportionate to the number of slots already in existence. We assumed that the mean number of admissions per slot would remain constant in the future and that the current mix of services reasonably reflected the demand for different types of services. We suggested a somewhat larger expansion for methadone maintenance programs, however, because half of the abusers who said they wanted treatment reported heroin addiction, and because, at the time of the study, there was a two-year waiting period at the State's only methadone center. We also recommended adding a small number of residential 28-day drug treatment slots and a still smaller number of outpatient narcotic antagonist (Naltrexone) slots^{20,21} to serve the opiate addicts. Neither of these latter two modalities formally existed in Rhode Island at the time of the study.

To guide geographic distribution of new treatment slots, we regressed treatment admissions on a weighted index of

drug-related hospital discharges, drug-related complaints to the Division of Drug Control, and our survey results on the number of drug abusers in each catchment area. For outpatient drug-free admissions (including day treatment), the regression of treatment capacity on the weighted index of hospital discharges, drug complaints, and abusers revealed in the survey yielded an R^2 of .55. The results (Figure 1) confirmed the opinion expressed by some officials that treatment facilities were overly concentrated in central regions of the state. We recommended that proportionately more new admissions should be added according to the discrepancy between actual and expected number of slots.

To determine where new methadone slots should be sited, we performed a similar regression analysis and comparison using opiate admissions as the dependent variable and opiate use as reported in the survey as the independent variable. In the case of short-term (28 day) and long-term (therapeutic community) residential modalities where the number of existing slots was too small and concentrated for a regression analysis, we adopted the rule of thumb that the State should locate new slots in areas that presently had no residential facilities for drug abusers. This made sense in light of the survey finding that there were significant numbers of drug abusers in every catchment area.

Interview Results

Providers and state officials were in agreement that the primary problem was the inadequacy of treatment capacity. While providers stressed shortage of staff and low salaries, state officials stressed the need for mandation of third-party reimbursement of substance abuse services, quality assurance, and greater access to treatment for subpopulations such as adolescents and the poor. We used these interview results in recommending increased funding and new mechanisms for improving utilization of existing funds (revision of traditional lengths of stay and establishment of a statewide panel to review treatment practices). Interviews with policymakers in other states provided us with valuable information on some of the problems to be expected with third-party mandation such as changes in the number of drug abusers seeking care and increases in premium cost. We also recommended for-profit programs and "medical maintenance"²² for increasing methadone slots in the face of limited public allocations.

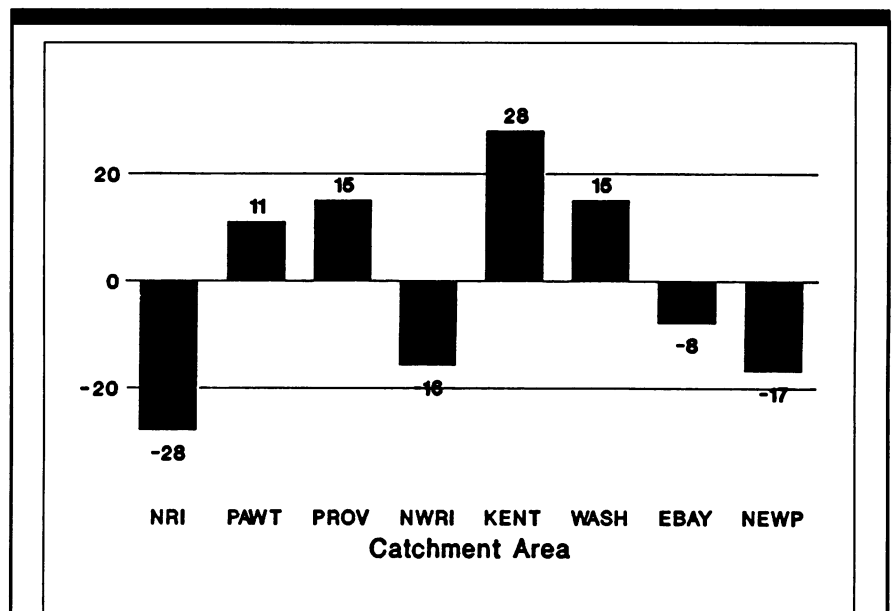


FIGURE 1—Adequacy of treatment allocation: Actual minus expected number of OPDF slots,* by catchment area.

*Estimated by statistically regressing OPDF slots on an index made up of: 1) current abuse rate of any drug; 2) number of drug-related hospital discharges; and 3) number of complaints reported to the RI Division of Drug Control (OPDF Slots = $.67 + .07$ (Drug Problem Index)).

Reaction to Recommendations

The initial reaction to our report was mixed. In a series of hearings and written statements, most state officials praised it.¹⁹ Third-party payors supported the report's recommendations for reduced lengths of stay and a higher ratio of outpatient to inpatient treatment, while objecting to its endorsement of mandatory drug treatment benefits (several months before we submitted our final report, the Rhode Island legislature had mandated third-party coverage for drug abuse treatment). Providers were "particularly impressed with the depth of the household survey and the methodology used to determine effective demand for treatment,"¹⁹ but felt that we had paid too much attention to cost containment and quality regulation.

The Division of Substance Abuse, its parent organization, the Department of Mental Health, Retardation and Hospitals, and the Department of Health endorsed our recommendation that the drug treatment system be doubled in the next few years. In the year following submission of our report (1988), the State provided \$700,000 for new methadone maintenance slots and another \$3,900,000 for the construction and operation of a 60-bed adolescent treatment facility which our report had recommended. Private agencies added 300 methadone slots, 600 outpatient drug-free slots, and 60 28-day

residential treatment slots. With the exception of the \$700,000 for methadone maintenance and the projected adolescent facility, all of the expansion was funded by the private sector. By July 1989, the State's drug treatment network had expanded to levels close to those recommended for phase I of the expansion.²³ Methadone slots had reached 75 percent of the phase I target with a concomitant decrease in waiting lists. Outpatient drug-free slots had exceeded the phase I target and were already approaching the level we had recommended for phase II. The number of inpatient 28-day slots had already surpassed the phase II target.

The only major drug treatment modality to lag behind in the expansion was long-term residential care (therapeutic communities), the primary form of treatment excluded from the 1987 bill making third-party insurance coverage of drug abuse treatment mandatory throughout Rhode Island. In our follow-up report integrating findings from the Brown (alcohol) and Harvard (drugs) reports, we made a special plea for legislation to correct this omission.*

*McAuliffe WE, Lewis D, Breer P, Williams C: *Rhode Island integrated alcohol and drug treatment program matrix*. Cranston, Rhode Island: Division of Substance Abuse, Rhode Island Department of Mental Health, Retardation and Hospitals, unpublished report.

Throughout the expansion of the treatment network, the State exerted a continuing influence through its control over the certificate of need (CON) process. Once the Department of Health and related departments approved our recommendations, the State Health Planning Committee formally adopted the report's treatment slot recommendations as a guide in evaluating applications for new treatment facilities (both private and state funded).

Discussion

The percent (25) of Rhode Island residents age 12 or older who reported using illegal drugs at some point in their lives agrees with the results of national studies^{24,25} and studies of nearby states.⁶ Estimating the effective demand for drug treatment from survey results produced a figure almost three times as large as the total estimated by the fixed percentage method which assumes that only 20 percent of all abusers will seek treatment, the major difference stemming from our discovery of past abusers who want treatment and former clients who are currently abusing. The validity of the larger estimate is supported by the fact that Rhode Island doubled its treatment slots in the two years following submission of our report²³ and has thus far reported no difficulty filling those new slots.

The validity of estimating drug use and abuse by interview surveys has been studied since the 1960s. Measures of drug-use frequency have shown high internal and test-retest consistency among both addicts and non-addicts.^{26,27} Surveys of special populations (addicts in treatment,^{26,28-32} psychoactive prescription drug users,³³ Vietnam military returnees,³⁴ and addicts once known to the police³⁵) have successfully corroborated interview statements of drug use with official records, family members, treatment personnel, and urinalysis results. Arrestees awaiting trial³⁶ are one group known to underreport substantially their use of illicit drugs.

There is both direct and indirect evidence that drug use survey responses in general populations are also reasonably valid.³⁷ The most direct evidence comes from use of the "randomized response" technique.³⁸ Respondents who are given a chance to conceal their true answers from the interviewer have generally reported levels of drug use equal to or only slightly higher than those of respondents asked to state their answers openly.^{15,39} Indirect evidence can be found in the similarity of

drug-use rates reported by different investigators studying independent but demographically comparable segments of the population.³⁷ Further support for the validity of drug-use questionnaires comes from the finding that, when respondents are asked about fictitious drugs, only a small fraction report any use.⁴⁰⁻⁴²

Studies comparing telephone survey responses with those of face-to-face interviews have generally found the results to be similar.^{43,44} A recent study⁴⁵ found, however, that compared to face-to-face interviewing, telephone interviewing yielded significantly lower estimates of marijuana use among Blacks. The differential persisted after controlling for demographic differences between the two samples and excluding non-telephone households, suggesting that it had something to do with the mode of interviewing itself. However, the difference in rates did not hold for Whites, nor did it hold for cocaine use among either Blacks or Whites. Other controlled drugs were not tested. If there is a biasing effect in telephone interviewing, it is very limited and unlikely to affect overall prevalence rates of drug use and abuse in general surveys, particularly in surveys of states like Rhode Island with small minority populations.

Thus, research on drug surveys in general and telephone interviewing in particular suggests that under ordinary circumstances respondents tell the truth about their drug use. Where systematic bias occurs, it is typically in the direction of underreporting the frequency of drug use.^{37,42} It follows that a treatment needs assessment based on community prevalence estimates of drug use and abuse tells us the *minimum* number of slots needed if the community is to make treatment available to all who need and would seek it. As for our own survey, several indicators discussed earlier suggested that the findings have acceptable reliability and validity.

One of the drawbacks of the household survey is that it yields proportionately few individuals who qualify as drug abusers. In our sample, less than two percent met criteria for drug abuse, and less than three-tenths of 1 percent expressed interest in getting treatment. To enlarge the base of abusers in order to investigate detailed planning issues, we suggest employing a larger total sample or, where cost considerations rule that option out, oversampling geographic areas known by arrests and hospital data to contain many drug addicts.

A drawback specific to the telephone drug abuse survey is that it excludes a sub-

population (households without a telephone) likely to have a high prevalence of drug abuse. This population, however, is quite small. In 1981, 98 percent of Rhode Island households had telephones.⁴⁶ Intravenous drug users (IVDUs) are a subgroup of drug abusers that one might expect to have the lowest telephone rates of all. In nearby Massachusetts, unpublished data from our current multi-city study of IVDUs (N = 577) not in treatment who were recruited through street outreach, indicates that 84 percent either have their own phone (38 percent) or have access to a phone at their current residence (46 percent).

Another limitation of any household survey, whether telephone or face-to-face, is that it excludes both the homeless and the institutionalized (prisoners, psychiatric patients, college dorm residents). The prevalence of drug abuse is known to be higher in these populations than in the general household population.⁴⁷ New York State's Division of Substance Abuse has recently developed a strategy for surveying the homeless, utilizing prearranged telephone interviews with randomly chosen residents of urban shelters.⁴⁷ In many states, drug treatment services for prisoners and psychiatric patients are provided by agencies other than the drug treatment agency and therefore may not be included in a needs assessment.

A recent US Senate report recommended improving upon survey estimates of cocaine abuse prevalence by adding nonsurvey data on nonhousehold populations (arrestees, drug patients, and the homeless).⁴⁸ Although we believe that the report's methodology may over-correct survey estimates, the report actually estimated *fewer* cocaine addicts in Rhode Island (3,900) than we estimated from our telephone survey (4,300).¹⁹

The orderly expansion of treatment services in Rhode Island testifies to the effectiveness of the needs estimation methods used in the present study. With improvements in survey methodology, statistical techniques, and the development of standardized diagnostic instruments suitable for testing large populations, substance abuse planning technology has entered a new era. It is reasonable to expect further progress in years to come. □

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