Expanding the Frame of Health Services Research in the Drug Abuse Field

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Objective. This article examines the distribution of heavy drug users across health and social service agencies in a community, and ways in which organizational and social policy factors influence pathways to services.

Data Sources/Study Setting. Data are from the Community Epidemiology Laboratory, a project that includes comparable surveys of a wide variety of client, service provider, and general population groups in a single northern California county.

Study Design. The design is a cross-sectional analysis of patterns of service use and referral by heavy drug users distributed across a variety of service settings and in the general population.

Data Collection. In-person, structured interviews by trained interviewers were conducted using comparable instruments, measures, sampling strategies, and fieldwork procedures.

Principal Findings. The specialty drug treatment system serves only a small proportion of heavy drug users in the community. Large proportions of drug users are found in criminal justice, primary health, and welfare agencies. Patterns of service encounter and referral suggest that drug treatment clients typically have been in jail or on welfare prior to attending treatment, and are far less likely to have been referred to or from treatment by health providers.

Conclusions. Health services research on drug abuse should expand its frame of reference to include services outside the specialty treatment sector. Drug treatment facilities are somewhat remote from other agencies in community service networks and are organizationally dependent on criminal justice and welfare systems. Further research should investigate both the costs and benefits of screening and providing services at earlier points of institutional involvement with drug abusers and the implications of interorganizational dependencies among criminal justice, welfare, and drug agencies for providers and clients.

Key Words. Drug treatment, treatment entry, criminal justice, drug users

This article raises some important empirical considerations for the emerging field of drug abuse services research, an area of growing salience as the health policy establishment increasingly turns its attention to the issues of chronic illness, lifestyle risk factors, and HIV prevention. Research on drug treatment services has focused, so far, on agencies in the specialty drug treatment sector, such as methadone maintenance programs, outpatient counseling agencies, and therapeutic communities (Gerstein and Harwood 1990; Price and D'Aunno 1992; Wheeler, Fadel, and D'Aunno 1992). Individual studies have often concentrated on the effectiveness and clinical outcomes associated with singular drug treatment modalities (Hubbard, Marsden, Rachal, et al. 1989; Simpson and Sells 1990; Tims 1981). We examine whether the specialty drug treatment sector is the empirically relevant focal point for drug services research, or if instead it is more appropriate to consider drug services as situated within broader networks of health and human services in which they interact and establish organizational dependencies. We ground this investigation in an empirical analysis of places where drug users go for services and of ways in which a community's health and social service systems collectively manage the drug-using population.

Prior studies show that only a fraction of the chemically dependent population seeking treatment in any given community actually receives services in the specialty drug treatment sector, and that large proportions of drug users may be found on the caseloads of other types of health and human services. As is the case with mental health (Regier et al. 1993) and alcohol problems (Weisner and Schmidt 1992)—and perhaps with any health problem that is complex and somewhat ill-defined—a "de facto" system of assorted health and social services has evolved in response to drug abuse. Community surveys of the prevalence of drug-related disorders have found that substantial numbers of drug-dependent individuals are served by nursing homes, long-term mental hospitals, and prisons (Narrow, Regier, Rae, et al. 1993). Indeed, there is evidence that some segments of the substance-abusing population are more

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likely to seek help from nonspecialty services than from settings designed specifically for their needs. For example, studies have found that women with alcohol problems are likely to seek help from general medical health care providers, mental health programs, and welfare agencies before they will approach specialty alcohol treatment programs (Beckman and Amaro 1986; Weisner and Schmidt 1992).

Clearly, there are intrinsic relationships between drug addiction and other health and social problems that may account for the presence of drug users in a broad range of service system caseloads. The associations between drug abuse and problems such as AIDS, criminal behavior, tuberculosis, and neonatal defects are obvious examples. Indeed, epidemiologic evidence of high comorbidity rates among drug, alcohol, and mental health diagnoses has been used to argue for the appropriateness of maintaining a broad institutional response to drug problems (McLellan, Luborsky, Woody, et al. 1983; Norton and Noble 1987). In a similar vein, several studies have shown intrinsic associations between drug use and criminal behavior (Anglin 1992; Gerstein and Harwood 1990).

However, we suspect that the presence of drug users on various agency caseloads may sometimes have more to do with the vagaries of social policy and with the organization of health and human service systems, than with individual factors related to treatment need. For instance, tightening legal sanctions for drug-related offenses during the 1980s led to a disproportionate increase of heavy drug users in some types of criminal justice settings (Mauer 1992; U.S. Bureau of Justice Statistics 1991). Indirectly, this has resulted in a growing role for criminal justice as a "feeder system" that delivers referrals to therapeutic agencies in drug and alcohol treatment systems (Gerstein and Harwood 1990). As epidemiologic research on the interrelationships between drug abuse and other health problems progresses, health services researchers need to consider how organizational and social policy factors influence pathways to services. Are there patterns in the sorting of drug users across different types of agencies in terms of sociodemographic and symptom characteristics? How do health and human service agencies work together as a functionally differentiated network of organizations providing a range of responses to drug problems in the community? To what extent do nonspecialty service settings operate as "feeder systems" or pathways to specialty drug services, as opposed to final referral destinations? These are critical background research questions for sustaining improvements in the quality, access, and efficiency with which drug user populations are served. In the forthcoming analysis we consider such issues by empirically examining the sorting of drug user populations

across human service systems in a single community, and by studying patterns of utilization and referral to the specialty drug treatment sector.

METHODS

This study is based on the Alcohol Research Group's Community Epidemiology Laboratory (CEL), a project funded by the National Institute on Alcohol Abuse and Alcoholism involving comparable cross-sectional surveys of a wide variety of client, general population, and provider groups in a single northern California county. The CEL is a multistudy project, designed for coordinated analysis. All nine samples in the CEL (overviewed in Table 1) were collected in a coordinated manner to facilitate the type of comparative analysis described in this article. For logistical reasons, however, the studies had to be conducted over a three-year time period; this limitation of the project is discussed in greater detail later on. Shown in detail in Table 1, the CEL includes samples of new admissions to six agency systems, including those for alcohol, mental health and drug treatment, primary health care, criminal justice, and social welfare. In addition to these client surveys, the CEL includes an area probability sample of the study county's general population and a representative sample of health and human service providers working in organization-based and solo practices in the community. The surveys are comparable in regard to sampling, fieldwork, instrumentation, and measures. The client samples are unduplicated since all subjects were screened for prior participation in the CEL studies. Our analysis examines movement across systems through use of detailed service utilization histories collected from clients. The CEL's methodology is described here in brief, and detailed descriptions have been published elsewhere (Weisner and Schmidt 1995).

SAMPLES

The CEL's client surveys are representative of new intakes in countywide systems of care. With the exception of the HMO primary care sample, they focus on agencies operated or contracted by the public sector. Each client survey includes all agencies within the public sector system except those targeted to individuals under age 18 or over 65, and those that carried no caseloads (e.g., information and referral agencies). In two cases (the drug and mental health samples), one or more eligible agencies in the county had caseloads too small to feasibly cover or did not consent to participate in the

Table 1: Description of Samples in Community Epidemiology Laboratory

Sample	Year Collected	Sample Description	Number of Programs	Sample Size	Response Rate*
Client Surveys					
Alcohol treatment	1987	County residential and detoxification programs	9	381	69%
Mental health treatment	1986	County outpatient and inpatient programs	8	406	66%
Drug treatment	1987	County residential and outpatient methadone programs (detox and maintenance)	7	307	88%
Primary health care	1988	County primary care clinics	5	394	72%
	1992	Health maintenance organization primary care clinics†	5	314	79%
Criminal justice	1988	County jail	1	1147	72%
Welfare	1989	Aid to Families with Dependent Children and General Assistance programs	7	621	86%
General Population Survey	1988/1989	Two-stage area probability sample	–	3069	68%
Survey of Health and Human Service Providers	1992/1993	Two-stage probability sample of organizations and solo practitioners	100	435	73%

*Response rates were calculated as completed cases over a base of all eligible respondents within a given sample.

†Clients were sampled from the county's largest HMO, which represents over 50 percent of the market share of private insurance.

project. CEL researchers obtained access from each agency in the study, as well as from boards of directors and relevant county administrations.

Each client survey involved collecting a probability sample or census of consecutive intakes to agencies. We used the official intake logs of each participating agency to select an interval sample of every "nth" new adult (18 years or older) admission. This reflects an "incidence," as opposed to "prevalence," approach to studying agency-based populations. The latter technique–of sampling from entire caseloads–is more common in substance abuse research and in national databases such as the National Drug and Alcohol Treatment Utilization Survey (National Institute on Alcohol Abuse and Alcoholism 1993).

Our use of an incidence approach –of sampling new admissions–offered several advantages for this analysis: we were able to maximize respondents'

recall of the events leading up to the current service encounter, and to ensure that their responses to questions remained unaffected by their experiences within service settings (which often included interventions designed to get substance abusers to reflect on how they came to need treatment). Conceptually, an incidence approach yielded samples representative of what each service system had to "work with" in its client population.

The general population survey involved a two-stage area probability sample with census blocks and households as selection strata. Within each household, one adult was randomly selected and then interviewed using a structured survey instrument that included items identical to those used in the caseload survey interviews. The provider survey also used a two-stage probability sampling approach, where a stratified sample of a very diverse range of organizations was randomly selected from the universe of human service agencies in the county (of 1,006 eligible organizations); a subsample of solo practitioners working in the county was selected from a separate listing. In this analysis we focus only on that portion of the provider survey selected from the staffs of substance abuse agencies.

Since response rates vary across CEL samples (see Table 1), we conducted nonresponse analyses of respondent characteristics associated with drug use, using data collected from the agency records of nonrespondents. Though nowhere extreme, the potential for nonresponse bias was compensated for through the use of statistical weights that adjusted for nonresponse (detailed further on).

PROCEDURES

Fieldwork procedures and questionnaires were consistent across the client surveys and afforded comparability with the general population survey. CEL researchers went to great lengths to obtain access to client populations and worked with providers to develop comparable fieldwork procedures that could be carried out independent of agency staff and would cause minimal disruption in day-to-day work routines. Clients were interviewed within three days of entering residential programs or before the third visit to outpatient settings. General population respondents participated in face-to-face interviews within their homes. Health and human service providers were interviewed in their offices or other private locations at the sites where they worked. Informed consent was obtained from all respondents, and all aspects of the research were monitored by an institutional review board for the protection of human subjects. The CEL studies used fieldwork techniques designed to decrease the likelihood of bias stemming from self-report. For instance,

in the client surveys interviewers were not hired from agency staffs, and interviews took place in private locations at agency sites or in respondents' homes. Respondents were reassured that participation was voluntary and confidential, and completely independent of agency involvement. In addition, each study included at least one opportunity for assessing the validity of self-report. For example, blood alcohol levels were collected in the primary health and emergency room studies, and court records were compared with self-report of alcohol and drug impairment in the jail sample. In each case, correlations across indexes were in the acceptable range (for example, see Cherpitel 1989).

MEASUREMENT

Analysis incorporates measures of sociodemographic characteristics, patterns of unprescribed drug use, drug-related social consequences, and service utilization. A 12-month period is employed for all measures that call for specification of a time frame. Our emphasis is on *unprescribed drug use* as reported by respondents, covering the following types of drugs: methamphetamine, other types of stimulants or amphetamines, crack or cocaine in other forms, sedatives and minor tranquilizers (e.g., barbiturates, quaaludes, Librium, and Valium), methadone, heroin, codeine, opiates (e.g., opium, morphine, Demerol, Fentanyl, and Percodan), hallucinogenic drugs (e.g., PCP, LSD, Mescaline, and psyilocybin), and marijuana (including hashish). To qualify as "unprescribed drug use," at least some of the drug use must not have been physician-prescribed. We regard *weekly drug use*–drug use of a regular enough frequency to produce problematic consequences–to involve unprescribed use of any type of drug on a weekly basis or more often during the year prior to the interview.

   Drug-related problematic events include a list of ten items designed to measure the range of drug-related social consequences likely to bring individuals into contact with drug treatment facilities. New clients in specialty drug treatment programs were asked whether each of ten drug-related events (listed in Table 5 futher on) had occurred during the previous 12 months, and which community agencies the respondent had come in contact with as a result of each event.

   Measurement of *service utilization* is based on a series of items covering client reports of service encounters with six types of health and welfare systems represented in the CEL client surveys. To create an *index of multiple service utilization*, each subject was assigned a score between 1 and 5 that

represents the total number of different types of service systems he or she reported having used during the previous year.

STATISTICAL WEIGHTING

Case weights are used in analysis of the client surveys to adjust for differential selection probabilities and nonresponse, and for variation in the duration of fieldwork. In other words, depending on the flow of new intakes through agencies, each agency-based study used one or more selection probabilities, conducted fieldwork for a unique period of time, and had a unique response rate (see Table 1). "Within-" and "across-study weights" were calculated to adjust for these design effects in different ways. To calculate these weights, we drew on information gathered by monitoring official agency intake logs on all admissions to agencies. For exact formulas and case weight values for each sample, see Tam (1993).

The within-study weights are applied when research questions call for examining each of the caseload samples separately. These weights adjust for differential selection probabilities and nonresponse by inversely weighting samples by their corresponding sampling fractions and response rates. They also adjust for variation in fieldwork duration by equalizing the time of field-work to a standard of 24 weeks. Across-study weights (used only in the Figure 1 analysis further on) were calculated to adjust the six public sector client samples to represent their true population proportions in the context of the whole community's public caseload of new admissions. Weighting procedures follow the same algorithm used in the derivation of the within-study weights. However, the response sampling fraction in each sample is adjusted by the overall response sampling fraction across all of the client surveys to represent the actual proportionate size of each system's caseload.

The general population sample is weighted for varying selection probabilities due to the number of adults within households. As analyzed here, the provider survey is self-weighting.

RESULTS

THE DISTRIBUTION OF DRUG USERS ACROSS
COMMUNITY SERVICE SYSTEMS

Table 2 demonstrates that there are clear patterns in the frequency of unprescribed drug use across the client and general population surveys. While clients of the alcohol and drug treatment systems are the most likely to report

high-frequency drug use, nearly all of the client samples show disproportionately high rates of weekly drug use, relative to rates found in the general population. Indeed, rates in the alcohol treatment and jail samples approach the magnitude of those in the drug treatment sample. Meanwhile, the two primary care system caseloads have the lowest drug use prevalences, while the welfare and mental health caseloads are at an intermediate level, with nearly one-third of clients reporting weekly drug use.

Table 2 also compares samples in terms of specific drug types used on a monthly basis or more often. Using the general population as a reference point, disproportionate numbers of clients in most of the client surveys are monthly heroin users, although the prevalence of heroin use is notably higher in the drug treatment sample than elsewhere in the community's agency systems. While greater proportions of clients using "harder" drugs (e.g., amphetamines, opiates) are found in the drug treatment system, the gaps in rates of milder drug use (e.g., marijuana) across samples are considerably narrower.

Figure 1 provides a broad-brushed picture of how the drug-user population newly admitted to human services is distributed across six different public sector agency systems in the county. Note that this represents incidence rather than prevalence rates. Here we have applied the across-study case weights so that each client sample is adjusted to be representative of its true population proportion in the context of the whole county's population of new admissions to public sector services. Figure 1 shows that most weekly drug users admitted to services in the county can be found in primary health agencies (42.9 percent) and in jail (38.5 percent), while the welfare system assumes the burden for the next largest proportion of these clients (10.3 percent). The remaining heavy drug users are distributed roughly evenly across the alcohol, drug, and mental health treatment caseloads; each of these systems serves less than 3 percent of drug users in the county's public sector services population.

THE DRUG TREATMENT SYSTEM IN CONTEXT

Table 3 confirms our earlier impression that specialty drug agencies serve only a small fraction of the drug-user population. Small proportions of weekly drug users in the general population and client surveys (other than drug treatment) report at least one drug treatment encounter during the year prior to interview, with proportions ranging from 7 percent to 32 percent across samples. In Table 3 we also begin to consider the extent to which the various service systems in the community function as an inter-dependent network in the

Table 2: Drug Use in General Population and Client Surveys (in Percents)

	General Population (N = 3069)	HMO Primary Health (N = 314)	Public Primary Health (N = 394)	Welfare (N = 621)	Jail (N = 1147)	Mental Health (N = 406)	Alcohol Treatment (N = 381)	Drug Treatment (N = 307)
Unprescribed Drug Use								
Weekly or more	6	3	13†	27†	44†	27*	53†	83†
More than once a week to monthly	5	5	7	11	14	14	14	6
Less than once a month	5	3	6	8	9	12	9	4
Not in past year	85	89	75	54	33	47	24	7
At Least Monthly Use of								
Marijuana	7.9	6.9	11.9	25.0‡	42.6‡	25.6‡	37.1‡	48.6‡
Cocaine	1.7	1.0	5.1	16.6‡	22.5‡	15.2‡	43.7‡	58.4‡
Methamphetamine	2.4	0.8	4.8	10.5‡	19.0‡	– §	24.5‡	29.5‡
Stimulants	0.7	0.2	1.5	2.0	2.2	– §	5.4‡	4.7‡
Sedatives	0.5	1.4	1.1	2.5‡	2.9‡	1.5	11.4‡	18.6‡
Methadone	0.0	0.0	0.0	0.0	0.2	1.5‡	1.2	3.4‡
Heroin	0.1	0.0	1.5	3.5‡	7.4‡	– §	11.8‡	53.7‡
Opiates	0.4	0.0	0.5	2.4‡	1.8	3.5‡	10.2‡	27.2‡
Hallucinogens	0.3	0.2	0.7	0.5	1.7	1.8	2.8	3.7‡

Note: Data weighted for within-sample effects, unweighted *N*s in parentheses. *p*-Values adjusted for multiple comparisons.

*Due to variation in the way questions were asked, mental health sample frequencies are modified so that: 1/wk+ = weekly; 2–3 wks *and* 1–2 mos = monthly; > 1/yr = yearly; None = never.

†Pairwise comparison of agency caseload samples with the general population significant at *p* < .007 (.05/7).

‡Pairwise comparison of agency caseload samples with the general population significant at *p* < .0009 (.05/63).

§In the mental health sample, methamphetamine, stimulants, and cocaine were combined; heroin and opium were combined; and methadone and codeine were combined.

Figure 1:   Distribution of Newly Admitted Weekly Drug Users across Agency Systems
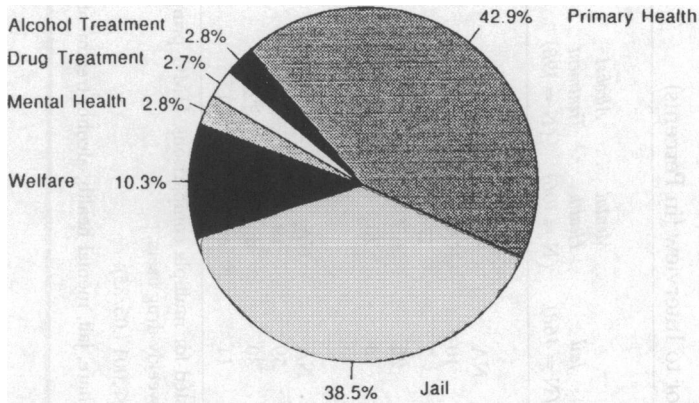
Note: Data weighted for design effects and nonresponse, and to a common fieldwork duration, so that each agency system caseload is proportionate to its size in the community.

handling of drug users by examining the extent to which drug-user caseloads overlap during a 12-month time frame. Across samples, criminal justice and welfare are the predominant systems with which weekly drug users report contacts during the previous year. The one exception to this pattern is the public sector primary health sample, in which weekly drug users are about as likely to report prior encounters with the mental health system as they are with the jail system.

It is notable that, as compared with weekly drug users in other agency systems, those in the specialty drug treatment system are disproportionately more likely to report contacts with the criminal justice system during the year prior to interview. While both criminal justice and welfare referrals seem to play an important role in pathways to drug treatment, the converse (movement from the drug treatment to criminal justice and welfare systems) is a less common pattern. While 78 percent of weekly drug users in the specialty drug treatment system report a criminal justice encounter in the year prior to treatment, only 13 percent of those in the jail sample report a prior contact with the drug treatment system. Similarly, while 51 percent of drug treatment clients report a contact with the welfare system before drug treatment entry, only 26 percent of weekly drug users on the welfare caseload report a drug treatment encounter. These patterns are in contrast to the more balanced overlap among drug-user caseloads in the drug and mental health treatment

Table 3: Patterns of Service Encounters by Weekly Drug Users in Year Prior to Interview (in Percents)

	General Population (N = 168)	Public Primary Health (N = 50)	Welfare (N = 166)	Jail (N = 468)	Mental Health (N = 106)	Alcohol Treatment (N = 198)	Drug Treatment (N = 250)
At Least One Service Encounter during Past Year							
Jail encounter†	26	28	46	NA	47	65*	78*
Mental Health encounter†	13	27	18	10	NA	31	22
Alcohol Treatment encounter	12	7	6	7	17	NA	8
Welfare encounter†	17	77*	NA‡	25	65*	59*	51*
Drug Treatment encounter†	7	13	26	13	20	32*	NA
Index of Multiple Service Encounters during Past Year							
0 service encounters	49	12	NA	. NA	NA	NA	NA
1 service encounter	33	40	38	59	19	7	8
2 service encounters	13	36	33	30	40	32	39
3+ service encounters†	5	12	29	11	42	61	53

Note: Data weighted for within-sample effects, unweighted Ns in parentheses. p-Values adjusted for multiple comparisons. HMO primary health comparisons with the general population sample are excluded because of small sample size of weekly drug users.

*Pairwise comparisons of agency caseload samples with the general population significant at $p < .001$ (.05/35).

†χ^2 comparison of service encounters and of 3+ encounters across public primary health, welfare, jail, mental health, alcohol treatment, and drug treatment significant at $p < .008$ ($p < .05/6$).

‡Not applicable.

systems. Finally, the lower half of Table 3 shows the overall extent of service utilization across the client samples being considered. Recall that the index of multiple service utilization reflects the number of service systems overall that respondents report having used during the year before the interview. Weekly drug users in the alcohol and drug treatment samples are the most likely to report extensive contacts with other service systems in the community.

Next we take the perspective of clients within the specialty drug treatment system only. Table 4 shows different types of drug-related events reportedly experienced by clients in the drug treatment sample during the year before entering treatment, and considers whether each event resulted in contact with various community service providers (shown in the column headings). Institutional contacts with the police, courts, and probation were the most frequently reported involvements during drug-related events. In contrast, contacts made during drug-related events with drug treatment providers and health professionals were more seldom reported. It is notable that the police were often involved even in events that were not intrinsically crime-related; for example, 28 percent of non-traffic accidents and 9 percent of drug-involved family arguments led to contact with the police.

Last we examine referral patterns reported by substance abuse practitioners in the county as a further indicator of the degree to which service systems are engaged and interdependent with one another. Table 5 shows results from the survey of health and human service providers, focusing on data collected from staff members in specialty substance abuse programs only. Here we find further evidence of the prominence of criminal justice and welfare services in pathways to substance abuse treatment agencies, and evidence of a relatively minor role played by health agencies. Very few substance abuse providers report general medical or health services as a major referral source or destination for substance abusers. Rather, when asked to report their main source of referral, they most commonly report that they rely on the police and courts, and then on schools (e.g., referrals from school guidance counselors regarding parents' substance abuse problems) and child protective services. Table 5 also reveals that staff of substance abuse programs use quite different services when they refer-out clients who need further help. The most common referral destinations for substance abuse treatment clients are organizations in the voluntary sector, including Alcoholics Anonymous, Narcotics Anonymous, and other mutual help organizations. After that, substance abuse providers are likely to refer clients to destinations similar to their own settings, particularly other drug and alcohol programs, and mental health clinics.

Table 4: Drug Treatment Clients' Contacts with Health and Human Service Providers Due to Drug-Related Events during the Year Prior to Interview (in Percents)

Drug-Related Event		Event during Past Year Led to Contact with						Unweighted N
	Police	Courts or Probation	Health Professional	Social Services	Mental Health	Drug Treatment	Alcohol Treatment	
Arrest for driving under the influence of drugs	100	71	0	0	0	0	0	(11)
Other drug-related arrest	99	92	8	3	6	23	3	(64)
Probation or parole violation	70	90	5	0	0	30	5	(20)
Traffic accident while using drugs	57	19	13	0	0	0	0	(16)
Other serious accident while using drugs	28	7	47	0	0	14	7	(15)
Family argument about drug use	9	8	2	5	3	29	1	(181)
Job confrontation about drug use	2	5	2	0	4	22	0	(65)
Health confrontation about drug use	7	10	39	4	10	41	0	(62)
Drug relapse	7	8	5	3	5	41	1	(159)
Drug overdose	8	8	15	1	6	36	2	(112)

Note: Data weighted for within-sample design effects, Ns unweighted. Percentages calculated over base of cases reporting each event during the year prior to interview.

Table 5:   Main Referral Source and Destination as Reported by Substance Abuse Providers (in Percents); ($N = 93$)

	Main Referral Source	Main Referral Destination
Family	11	†
Friend	4	†
Other drug program	6	3
Child protective services or welfare	4	6
Neighbor	0	†
Courts	26	0
Other alcohol program	4	14
Mental health center	2	8
School	16	3
A.A., N.A., or other 12-step group	7	45
Hospital or emergency room	4	7
Doctor or other health worker	2	5
Police department	7	0
Religious organization	3	0
Domestic violence program	0	1

Note: Data came from the Survey of Health and Human Service Providers.
†Not listed.

DISCUSSION

When one looks at the specialty drug treatment system in the context of the community service network as a whole, two key points become apparent: drug treatment agencies serve but a small fraction of the heavy drug users in the community, and these agencies are themselves somewhat remote destinations in the typical referral pathways navigated by drug-user populations. In this study, the specialty drug treatment sector appeared to bear only a small part of the burden for responding to drug users in the community. Among the six types of agency systems we studied, specialty drug facilities served less than 3 percent of the weekly drug-user population newly admitted to public sector services, while 43 percent could be found in primary health care agencies, 39 percent in jail, and 10 percent in the welfare system. This distribution not only affirms the importance of public health clinics and the criminal justice system in responding to drug use in the community, but raises important questions for further research: Precisely what is the nature of services provided to drug users in these settings? and what do these systems contribute to the treatment of drug abuse beyond serving as key avenues of referral to drug programs? Recent

policy measures have only begun to address the possibilities for providing drug treatment services in criminal justice settings, and many unresolved issues remain regarding which public sector authorities should assume the cost burden for these services (Gerstein and Harwood 1990; Leukefeld and Tims 1993).

When we compared rates of drug use across the client surveys, we found that caseloads of new admissions could be ranked by the prevalence of heavy drug use and that this rank order was generally stable across different drug use measures. While alcohol and drug treatment facilities, as one would expect, have the highest proportions of drug-using clients, prevalences in the criminal justice system approached comparability. There were, however, some notable differences in the types of drugs regularly used by clients in different human service settings. Results indicate that health services researchers may wish to look to the criminal justice, welfare, and substance abuse treatment systems if they are interested in studying the service patterns of "harder" drug users, such as those involved with cocaine, methamphetamine, and heroin. The primary health care systems do not seem to bear as much of the burden for these harder and IV drug–using populations–that is, populations at high risk for AIDS (Chaisson, Bacchetti, Osmond, et al. 1989). Rather, patients entering general health services are more likely to report the use of "softer" drugs, such as marijuana and minor tranquilizers. This is a notable observation when viewed in the context of current policy debates in the drug field, where the cost burden that IV drug users and AIDS patients place on the general medical sector has been a major topic of concern.

Certainly the differences in drug use rates we observed across client surveys could be partially explained by the overrepresentation of partic-ular sociodemographic groups with an elevated risk of drug use on some agency caseloads and not on others. For example, the higher prevalences of weekly drug use in the jail sample may be partially accounted for by the overrepresentation of young men in the criminal justice population, while lower prevalences in the primary health samples may be accounted for by an overrepresentation of older patients and women. The role of sociodemo-graphic factors in predicting patterns of drug use across groups has been the subject of prior analyses of these data (see Weisner and Schmidt 1992, 1993), as well as a vast body of epidemiologic research in the drug field (e.g., Anglin, et al. 1988; De La Rosa, Khalsa, and Rouse 1990; Harrison 1992). However, while sociodemographic factors may influence and partially "explain" the prevalence of drug use in the statistical sense of accounting for variance, they do not alter the practical context in which providers must respond to drug

problems in the community. A health services research perspective points to the complex factors that influence differences in the sociodemographic distributions of service caseloads and that, in turn, affect the variable prevalence of drug use. Here the goal should be to try to *explain* rather than to *control for* sociodemographic variation. This may include studying the role of gender in treatment-seeking for different types of services, and the effects of socioeconomic status and ethnicity on referral and coercion patterns in human service systems. In accounting for sociodemographic influences on the prevalence of drug use across service populations, health services researchers must also try to account for the contextual factors that ultimately give rise to the disproportionate representation of particular sociodemographic groups in some service populations and not in others.

Our second main conclusion has to do with the position of specialty drug treatment agencies within groupings of community service systems. Taken together, our analyses of service utilization, provider contacts during drug-related events, and referral patterns suggest that drug treatment facilities are somewhat remote from many other services in interorganization networks and, in particular, that they do not appear well integrated with agencies in the broader health system. For example, substance abuse treatment providers in the community were quite unlikely to report medical and health providers as either referral sources or destinations. Rather, they tended to refer their clients to the voluntary sector, to mutual aid societies such as Narcotics Anonymous, or to other programs similar to their own.

Moreover, drug programs appeared to be fairly far "upstream" in the chain of community agencies that drug-using clients typically pass through, and appeared to be highly dependent on large public bureaucracies, such as the criminal justice and welfare systems, for a steady stream of case referrals. Because of the particular position of drug treatment services in the larger set of community services, organizational researchers should find it particularly interesting to examine the interorganizational dependencies and constraints imposed on such services by larger public sector bureaucracies in the communities in which they operate. What does it mean, for instance, for drug treatment ideologies, goals, providers, and organizations that they have become so responsive to the criminal justice system? The fact that the most common pathway to drug treatment is through the criminal justice system has important implications for clients as well as for treatment organizations. There remain important policy questions about the relative costs and benefits of using criminal justice agencies, as opposed to specialty drug treatment agencies, as primary sites for handling drug users in communities. For instance,

a growing body of treatment outcome research shows that specialized treatment for substance abuse can be effective in decreasing criminal behavior (Hubbard, Marsden, Rachal, et al. 1989; McLellan, Alterman, Metzger, et al. 1994; Simpson and Sells 1990). There may thus be long-term, indirect benefits associated with providing drug treatment to incarcerated populations.

In closing, it may be valuable to raise two of the main methodological limitations that seem inherent in projects like the CEL and that have the likely potential to limit further health services research in the drug abuse field. First, lack of simultaneity in the collection of cross-sectional samples is one shortcoming of the CEL project. Comparative analysis across surveys must assume that the populations in different settings were generally stable on characteristics relevant to analysis during the three-year time interval of data collection. However, given the breadth and intensiveness of this type of effort, simultaneous fieldwork at all sites would have proved virtually impossible from a logistical standpoint. In particular, we wish to emphasize the burden that participation in intensive fieldwork can place on community agencies as a crucial logistical consideration in this type of research. Second, in order to examine comprehensively an entire network of service systems and to study the client flow across programs, it is necessary to limit observations to a contained geographic region. A single county was chosen as the universe for the CEL because health and social services are organized at the county level in most states. However, the geographic constraint of this project is an important consideration in generalizing findings, since patterns of illicit drug use and drug availability show significant regional variability in the United States (National Institute on Drug Abuse, 1990). While estimates of the absolute prevalence of drug use have more limited generalizability outside of the region studied, relative differences between service populations and sociodemographic groups may be generalized to other communities with greater reliability. Although a shortcoming of the project is its limited generalizability, its strengths lie in the ability to examine one region's health and social service networks in a comprehensive and intensive way–a task that seems virtually impossible at the national level in the United States given its vast and fragmented system of health and human services.

ACKNOWLEDGMENTS

preparation. Study directors participating in the Community Epidemiology Laboratory were Raul Caetano, M.D., Ph.D.; Cheryl Cherpitel, Dr.P.H.; Denise Herd, Ph.D.; Ron Roizen, Ph.D.; Laura Schmidt, M.S.W., M.P.H.; Karen Trocki, Ph.D.; and Constance Weisner, Dr.P.H.

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