
Part Four
**Drug-Related Patient Discharges: Findings
from Chicago/Cook County Hospitals
1994 through 1997**

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Introduction

Policy development applicable to drug abuse is typically undertaken without adequate knowledge of the dynamic nature of drug abuse or the scope of related problems specific to a local area. Data needed to guide decision-making is frequently lacking. For example, Chicago hospitals play an integral role in the delivery of health care services to substance abusing patients, but data from these hospitals are not usually analyzed or incorporated into the development of local drug strategies or policy.

The Institute for Metropolitan Affairs at Roosevelt University in Chicago undertook a descriptive study that looks at the impact of changing policy on hospitals and profiles Chicago and Cook County hospital discharges for drug-related conditions. This report discusses the findings from this study and proposes greater participation of hospitals in the development of policies and strategies needed to establish a cohesive system of services for this population.

Background

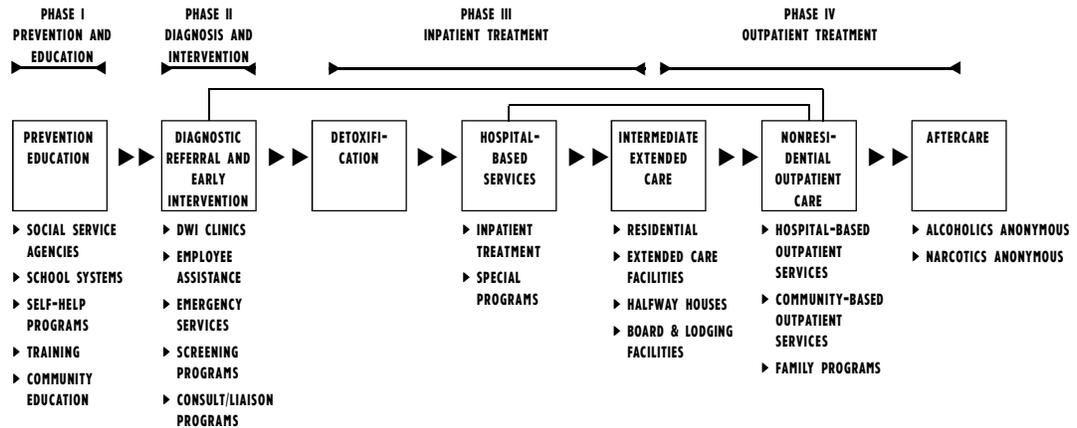
Hospitals have played an increasingly important role in providing treatment for substance abusing patients. Through the 1980s and early 1990s there was an explosion in the availability of addiction treatment in the United States that was mirrored in Chicago. Hospital-based program expansion, development of numerous private programs, and increases in publicly funded initiatives all occurred. Hospital services grew, at least in part, because of generous insurance coverage (Cottler and Lyndly 1992, Bell 1994), and providers recognized that there were financial gains to be realized in treating the addicted patient. Hospitals aggressively developed substance abuse programs (sometimes referred to as service lines or product lines) to attract patients. Hospitals customarily had separate chemical dependency units comprised of dedicated staff providing an array of programs to support patients through the different phases of

their illness. The services reflected a continuum of care (Figure 1) that extended beyond the initial inpatient diagnosis and acute treatment phase, to inpatient recovery, residential care, and outpatient aftercare phases (Westermeyer and Krug 1991). Inpatient hospital stays of 28 days were common, and insurers, both public and private, paid for these services most commonly through the fee-for-service reimbursement model.

Besides the financial benefit to hospitals, these dedicated programs had two additional advantages. They could be adapted to a wide range of patient needs enabling services to be customized to meet the individual client's demands and they provided a cohesive staff that was focused on and knowledgeable about addiction.

But in the late 1980s and early 1990s a number of policy events occurred that significantly altered the role

FIGURE 1 ▶ CONTINUUM OF CARE – STRUCTURE OF DRUG TREATMENT



SOURCE MODIFIED FROM *SUBSTANCE ABUSE SERVICES: A GUIDE TO PLANNING AND MANAGEMENT* (AMERICAN HOSPITAL ASSOCIATION, 1991).

of hospitals and the way addiction services were delivered. Certain of these events also altered who had access to these addiction services.

Changes in Payment Systems

Initially psychiatric and addiction services were not affected by cost control initiatives instituted by the federal government in the 1970s. This changed, however, when costs for these services increased rapidly in the 1980s, growing more quickly than other types of health care and twice as fast as the medical component of the Consumer Price Index (Kushner 1995).

Substance abuse treatment was excluded from The Mental Health Parity Act of 1996, a law requiring health plans to provide the same coverage for mental health as for other health care, thereby allowing for great variation in plan benefits and co-payments.

Insurers both private and public (including managed care) cut back or excluded substance abuse benefits as part of a cost containment effort. Some-

times arbitrary limits were placed on inpatient length of stay, frequency of outpatient visits and total charges (Salkever, Shinogle, and Goldman 1999, Rogowski 1992).

As with other states, Illinois Medicaid became more rigorous in enforcing its medical necessity reimbursement policy for substance abuse services. Providers have suggested that this caused many dedicated chemical dependency units to reduce beds or to close. It also had an effect on the management of addicted patients in the emergency room. In the absence of chemical dependency units more patients stayed in the ER or in a 24-hour observation unit until stabilized. Then they were sent home or to community-based resources.

Development of the Community-Based Treatment Paradigm

The widespread adoption of a community-based approach to drug treatment also contributed to a reduced role for hospitals. After research studies showed equivalent outcomes, treatment

for addiction was moved from the inpatient to the outpatient setting (Miller and Hester 1986, Allen and Phillips 1993). The accompanying paradigm shift gave greater emphasis to a social-intervention treatment model for addiction, de-emphasizing the medical model (Kaskutas 1998). Federal funding for addiction treatment was directed away from hospital-based programs to community-based programs through categorical programs and then block grants.

Welfare Reform

The welfare reforms of the late 1990s put limits on the eligibility of clients for Temporary Assistance for Needy Families (TANF) benefits. Persons convicted of felony offences dealing with controlled substances are ineligible for TANF benefits. Illinois disqualifies those individuals convicted of a Class X or Class 1 felony felonies involving large amounts of drugs for possession, use, or distribution of a controlled substance. Also, those TANF beneficiaries who are found by caseworkers to have substance abuse problems must participate in treatment. Failure to comply can result in reduction or loss of benefits (Holland 1997). Advocates feel that these individuals are especially vulnerable and that the lack of benefits is destabilizing affecting their ability to seek and maintain treatment for their abuse problems and other health problems.

The Contract with America Advancement Act of 1996 (H.R. 3136) ended drug and alcohol addiction as a qualifying disability for Supplemental Security Income (SSI) and Disability Income (DI) benefits. In greater Chicago, 15,000 persons lost benefits. According to the

Social Security Administration, Chicago topped the list of cities affected by this change, followed by Detroit with 5,000 persons. Most of these individuals also lost their eligibility for Medicaid and Medicare insurance (Mason 1998). Again, this is a vulnerable population and loss of insurance is a barrier to needed treatment. Barriers to treatment can result in the escalation of health problems.

Impact on Hospitals

These events had significant intended and unintended outcomes for service providers. Hospitals generally reacted by shortening patients length of stay (in accordance with changes in benefit coverage), shutting down their addiction units, integrating chemically dependent patients into their psychiatric or general medicine units, cutting back or eliminating programs, and reducing staff. There was a general erosion of the quantity and quality of hospital-based addiction services.

At the same time that hospital addiction services decreased, the number of patients needing these services increased. A number of factors contributed to this increase including:

- ▶ Growth in drug use.
- ▶ Introduction of new types of drugs.
- ▶ Increased availability and lower costs of certain drugs.
- ▶ The chronic relapsing nature of addiction and increased severity of accompanying health conditions (i.e., comorbid conditions).

Adding to the problem was the fact that there were increased barriers to services created by the reduction of coverage (i.e., day and visit cost limitations) or

loss of health benefits (i.e., denial of Medicaid/Medicare coverage because of the loss of SSI/DI eligibility).

Metropolitan Chicago Hospital Drug and Alcohol Discharge Study

This study profiles substance abuse patients discharged from Chicago/Cook County area hospitals over a four-year period, analyzing trends and examining the implications of these trends from a policy perspective.

Numerous studies have looked at the prevalence of substance abuse in special populations such as pregnant women, infants, the mentally ill, Medicaid populations, veteran populations, and emergency room admissions. Studies

clearly illustrate the burden hospitals carry in treating this population, especially hospitals in urban settings. However, descriptive information profiling drug- and alcohol-related problems in the general hospital population, across all disciplines, is not well known. Information specific to Chicago and Cook County hospitals has been limited at best; to date in-depth information on trends does not exist.

Study Methods

Data for this study were obtained from the state of Illinois Hospital Discharge Data Set as provided through collaboration with the University of Illinois at Chicago's Office of the Vice Chancellor for Health Services. The bulk of data reflects discharges from 60 general acute care hospitals located within Chicago and Cook County for the calendar years 1994 through 1997. Specialty hospitals (i.e., psychiatric, rehabilitation, children's) and Veterans Administration hospitals were not included because available data were limited.

The study included patients with primary, secondary, and tertiary discharge

diagnoses related to drug and alcohol use. It was important to look at secondary and tertiary drug-related diagnoses in addition to primary diagnoses. Limiting discharge data to primary diagnoses would have failed to identify approximately 58 percent of drug and alcohol-related cases.

The data represent nonduplicative cases. This means that a case was only counted once even if, for instance, there was a primary and a secondary diagnosis related to drug use and/or alcohol use. Although this study emphasizes drug discharge findings, it compares these with alcohol discharges. One hundred and twenty ICD9 (International

Classification of Diseases) codes were used to define the drug use/abuse group and 44 ICD9 codes were used to define the alcohol group.

The numbers reported here most likely undercount the true numbers of drug-related discharges. As has been attempted with some studies (Fox, Merrill, Chang, and Califano 1995), no assumptions were made about discharges causally linked to substance abuse (i.e., attributable risk conditions such as liver disease and TB). AIDS/HIV patients were not included. Though it is understood that a significant portion of these patients have contracted this disease as a result of intravenous drug use, specific data identifying AIDS/HIV with

substance abuse were not available. Patients who were readmitted for substance abuse treatment could not be identified in these data. Because of the variability of emergency room data for the years studied, drug-related ER visits were not evaluated.

The following data elements were analyzed across all four years reviewed: patient origin by zip code, age, gender, length of stay, charges (not including physician service charges), payer, volume by hospital and hospital type (academic, public, community), volume by ICD9 code, and co-morbid conditions. Current Procedural Terminology (CPT) codes were used in looking at the number of detoxification procedures done.

Drug and Alcohol Discharges Increased Moderately from 1994 to 1997

Drug-related discharges tended to increase (except for a slight dip in 1997) while alcohol admissions remained relatively flat from 1994 through 1997. Table 1 shows that in 1994, of the 740,141 total discharges from the 60

Chicago/Cook County acute care hospitals, 3.6 percent had drug related diagnoses and 3.3 percent had alcohol related diagnoses. In 1997 there were 739,655 total discharges and 4.7 percent were drug-related diagnoses and 3

	1994	1995	1996	1997
Drugs				
Primary Dx	10,068	13,623	18,406	16,744
Secondary Dx	11,898	12,123	12,393	12,744
Tertiary Dx	4,932	5,189	5,022	5,074
Total Drug	26,898	30,935	35,821	34,562
Total Discharges	740,141	731,466	710,862	739,655
Drug Discharges as Percentage of Total	3.6%	4.3%	4.9%	4.7%
Primary Dx	9,092	8,973	9,274	7,124
Secondary Dx	10,610	10,827	11,006	10,593
Tertiary Dx	4,854	4,851	4,963	5,024
Total Alcohol	24,556	24,651	25,243	22,741
Total Discharges	740,141	731,466	710,862	739,655
Alcohol Discharges as Percentage of Total	3.3%	3.4%	3.5%	3.1%

percent had alcohol-related diagnoses. Drug-related discharges increased between 1994 and 1997 by 7,664 or 28.5 percent. In comparison, the total num-

ber of alcohol discharges decreased between 1994 and 1997 by 1,815 or 7.4 percent.

Volume of Discharges by Gender and Age

Table 2 reports drug discharges by gender and age. In 1994 males made up 54.3 percent of all drug discharges and females made up 45.7 percent. In 1997 56.3 percent of all drug discharges were males, a slight increase, and 43.7 percent were females, a slight decrease. While more males were treated in the hospital for drug-related illness than females, there was less of a gender difference for drug-related discharges than for alcohol-related discharges. With alcohol-related discharges males outnumbered females three to one. Males were 76 percent of all alcohol discharges in 1994 and females were 24 percent. Findings were similar in 1997; 75.6 percent of all alcohol discharges were male, and 24.4 percent were female.

For both genders, the highest volume of drug discharges occurred between the ages of 20 and 39. Between the ages of 20 to 29 there were more women discharged from the hospital with conditions related to drug abuse than men. Between the ages of 30 to 39 the opposite was true.

A large number of children age 0 to 9 years had diagnoses related to drug abuse. In 1994 children in the 0 to 9 age group made up 8.4 percent of the total number of drug-related discharges; in 1997 this decreased by one-third to 4.3 percent of the total.

The number of total patients (men and women combined) in age group 30 to 39 grew 27 percent, 40 to 49 grew 82 percent, 50 to 59 grew by 110 percent, and the over-60 group grew 40 percent.

	▶ D		D		D		D	
g								
0-9	1,118	1,154	974	1,031	879	895	756	735
10-19	309	386	408	449	343	395	354	404
20-29	3,749	2,536	4,057	3,113	3,932	3,098	3,351	2,716
30-39	4,930	5,792	5,588	7,010	6,785	7,928	6,412	7,201
40-49	1,615	3,594	1,960	4,359	2,934	5,934	3,408	6,087
50-59	259	804	323	1,028	452	1,385	486	1,742
60+	310	342	279	356	346	515	339	571
Total	12,290	14,608	13,589	17,346	15,671	20,150	15,106	19,456

Medicaid Is the Most Common Payer of Drug Treatment Services for the Years Studied

As Table 3 shows, across all years studied Medicaid was the dominant payer of hospital services for the drug discharges. From 1994 to 1997, the

percentage of payment by Medicaid, managed care/HMO, Fee-For-Services and Blue Cross decreased while the number of self-pay discharges increased.

	1994	1995	1996	1997
Self-Pay	10.7%	10.5%	14.0%	15.4%
Other	2.4	3.6	3.8	3.9
Medicare	10.5	11.2	12.6	11.7
Medicaid	55.1	55.9	53.9	52.7
Managed Care/HMO	2.8	2.7	2.4	1.9
Fee-For-Service	15.8	14.3	12.0	13.0
Blue Cross	2.8	1.9	1.4	1.5

Certain Hospitals Treat a Disproportionate Number of Drug Discharges

Certain hospitals had a disproportionately large number of drug discharges (Table 4). In 1994 of the 60 hospitals evaluated, 10 hospitals accounted for half of all drug-related discharges; in 1997, seven accounted for half of all drug discharges. The top two hospitals in volume went from 10 percent and 7 percent of all drug discharges in 1994 to 15 percent and 13 percent in 1997.

While the names of the hospitals are not shown (in accordance with disclosure policy) it is known that one of the hospitals is the primary public hospital in Cook County that historically has cared for the uninsured. All the others are community-based hospitals located in areas of the city considered to be at high risk for drug use and abuse.

Hospital	Drug Discharges	Percentage	Percentage
Hospital A	5,063	14.7%	14.7%
Hospital B	4,567	13.2	27.9
Hospital C	1,918	5.6	33.4
Hospital D	1,829	5.3	38.7
Hospital E	1,635	4.7	43.4
Hospital F	1,331	3.9	47.3
Hospital G	1,252	3.6	50.9
Total	17,595		

Patient Origin

Table 5 lists the top volume zip codes for drug discharges for 1994 and 1997 (ranked by 1997 volumes) and the corresponding community name. Zip codes having the greatest increases in drug discharges between 1994 and 1997 were 60637, Woodlawn, with a 70.1 percent increase, and 60653, Hyde Park, with a 54.3 percent increase. The

top volume communities, as measured by health and socioeconomic indices, were considered high risk for substance abuse. Those communities with the highest incidence of drug-related hospitalizations were, according to health and socioeconomic indices, considered at high risk for substance abuse.

		1994		1997		Change	
Zip Code	Community	Discharges	% Change	Discharges	% Change	Discharges	% Change
60644	Austin	1,432	5.3%	1,911	5.5%	33.5%	
60637	Woodlawn	1,050	3.9%	1,786	5.2%	70.1%	
60624	Garfield Park	1,252	4.7%	1,458	4.2%	16.5%	
60628	Roseland	1,068	4.0%	1,432	4.1%	34.1%	
60651	Humbolt Park	1,165	4.3%	1,314	3.8%	12.8%	
60653	Hyde Park	851	3.2%	1,313	3.8%	54.3%	
60620	Auburn Park	1,031	3.8%	1,311	3.8%	27.2%	
60621	Englewood	938	3.5%	1,294	3.7%	37.9%	
60649	South Shore	863	3.2%	1,248	3.6%	44.6%	
60623	Lawndale	1,036	3.9%	1,198	3.5%	15.6%	

Cocaine Discharges Remain the Highest over Time

Some explanation is needed for the drug categories shown in Figure 2. Not all categories relate to a specific drug. The mental health category, for instance, includes drug withdrawal, drug paranoid state, drug induced dementia, drug depressive syndrome, drug hallucinosis, etc.; a specific drug was not determined. Another example, other, includes the use and abuse of amphetamines, antidepressants, and barbiturates.

The most dominant drug categories are those where specific addictive agents are indicated. The data show

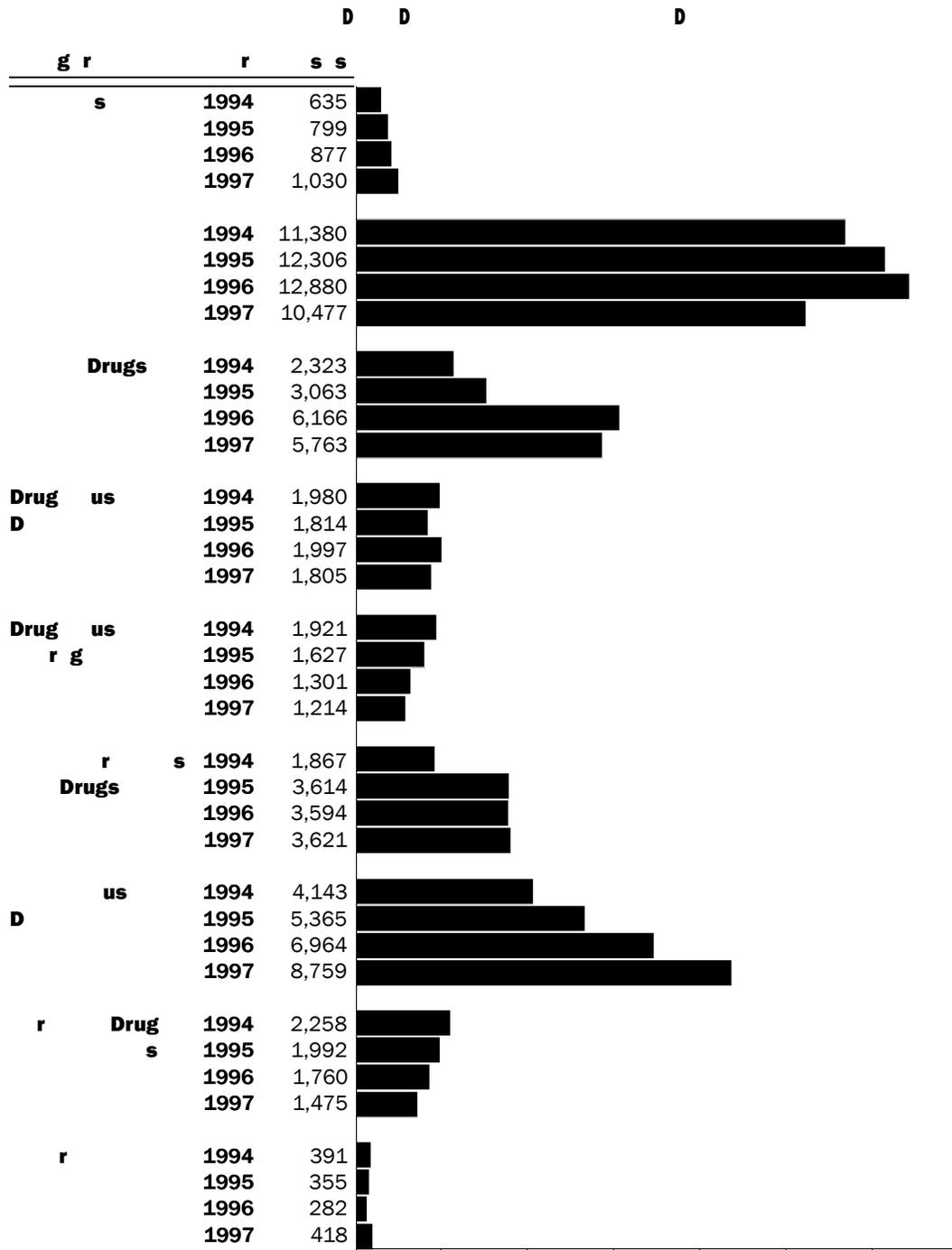
that among drug-related discharges, cocaine discharges were highest over time followed by opioid (heroin) abuse/dependence, and combination drugs. Though there was some fluctuation, the greatest areas of growth in drug discharges by category were combination drug use, which grew 148 percent; opioid abuse/dependence, which grew 111.42 percent; and mental health problems combined with drug usage, which grew 94 percent.

While cannabis (marijuana) use has increased in Chicago (Wiebel and Thorpe 1998), and cannabis-related

hospitalizations grew by 62 percent from 1994 to 1997, its overall contribution to drug hospitalizations is relatively small. In 1994 it represented 2.4 percent of all drug-related discharges, and in 1997 only 3 percent of drug hospitalizations were associated

with cannabis use.

Hospitalizations categorized as drug abuse with pregnancy decreased from 1994 to 1997 by 36.8 percent. This appears to correspond with perinatal drug complications, which decreased 34.7 percent in the same period.



Total Hospital Drug Charges Increased by 22 Percent

Charges and length of stay were analyzed in aggregate and by hospital type, i.e., academic, teaching, and general community hospitals. It should be noted that charges do not directly correlate to the costs of providing services and that the amount of charges realized in revenue varies by type of insurance. The total charges for drug-related services

across all Cook County hospitals are shown in Table 6. Total drug charges for primary, secondary, and tertiary diagnoses combined increased by 22 percent from 1994 to 1997. In comparison, alcohol-related charges increased only 7 percent over this period. This is comparable to non-drug or alcohol charges, which grew 6 percent.

	D	D	D	D
Primary Dx	\$51,070,218	\$63,330,105	\$73,728,359	\$66,700,612
Secondary Dx	85,298,922	90,835,306	94,335,546	102,651,268
Tertiary Dx	46,455,377	49,346,035	50,665,615	53,175,596
Total	182,824,478	203,511,447	218,729,521	222,527,477

Average Charges Decreased for Community Hospitals; Average Length of Stay Decreased for All Hospital Types

Table 7 shows that academic hospitals had higher average charges per discharge than community hospitals or teaching hospitals for drug cases. In 1997 academic hospitals charges were twice that of community hospitals, which in part reflects the additional costs academic centers incur as part of their teaching/training mission. Average charge per discharge for both academic and teaching hospitals increased

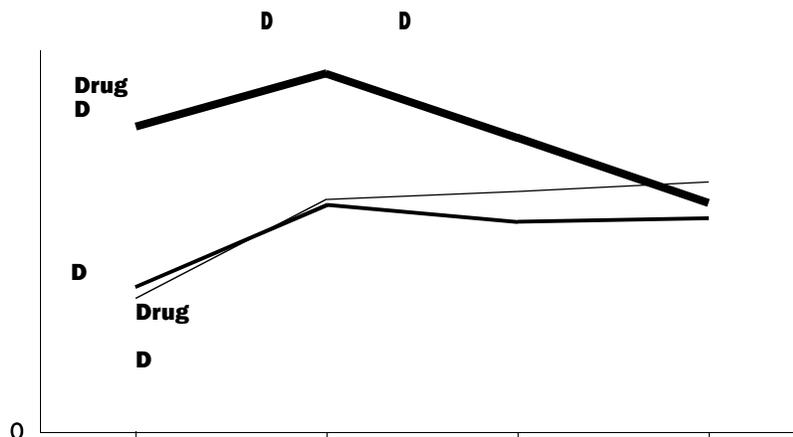
while the community hospitals average charge per discharge decreased. There was a reduction in average length of stay for drug patients across all hospital types with community hospitals showing the greatest decrease. It was noted that the two community hospitals with the largest volume of drug discharges had the shortest length of stay 3 and 4 days, respectively.

	D	D	D	D
Academic Hospitals (n = 5)				
Drug Discharges	2,871	2,683	2,464	2,385
Average Length of Stay (Days)	5.99	5.43	5.03	4.98
Average Charge Per Discharge	\$9,613	\$9,604	\$10,000	\$10,168
Teaching Hospitals (n = 7)				
Drug Discharges	4,128	3,825	4,491	4,301
Average Length of Stay (Days)	5.29	5.24	4.69	4.75
Average Charge Per Discharge	\$6,994	\$7,348	\$7,285	\$8,620
Community Hospitals (n = 48)				
Drug Discharges	19,899	24,329	28,767	27,876
Average Length of Stay (Days)	6.05	5.53	4.89	4.41
Average Charge Per Discharge	\$6,818	\$6,846	\$6,837	\$5,782

Detoxification Procedures

The category designations for detox procedures allow some insights about the incidence of patients who had combined alcohol and substance abuse problems. Figure 3 shows the number of patients receiving detox procedures for drug abuse alone, for alcohol abuse alone, and drug and alcohol abuse combined. While hospital drug detox procedures were highest for 1994, 1995, and 1996 they decreased from peak year 1995 to 1997 by 36 percent. Alcohol detox showed a 53 percent growth from 1994 to 1995 and then remained rela-

tively the same. Combined drug and alcohol detox procedures increased. From 1994 to 1997 combined drug and alcohol procedures grew 44 percent. The decreasing number of drug detox procedures may be linked to the fact that these services have been increasingly provided in outpatient, community-based, and residential treatment facilities. The increase in combined drug and alcohol detox procedures indicated that, for the years studied, hospitals were seeing more patients with multiple abuse problems.



Mental Illness Was the Most Common Primary Diagnosis Related to Drug Use

The study looked at what the primary diagnoses were for patients with secondary diagnoses related to drug use. The findings are summarized in Table 8. Forty-three percent of the patients had a primary diagnosis related to mental ill-

ness, 17 percent had diagnoses related to pregnancy and birth, and the remainder spread across a variety of diagnostic categories. These included respiratory, circulatory, and digestive problems.

D g s r r u s	D D	D	D
D g s r r u s	g r s s	r	r
Mental	5,520	43.31%	
Preg/Birth/Labor/Delivery	2,135	16.75%	
Injury/Poison	1,097	8.61%	
Respiratory	997	7.82%	
Symptoms	662	5.19%	
Circulatory	585	4.59%	
Digestive	366	2.87%	
Nervous	295	2.31%	
Metabolism	251	1.97%	
Skin	249	1.95%	
Infection	152	1.19%	
All Others	435	3.41%	
Total	12,744	100.00%	

Conclusions and Recommendations

The findings from the study emphasize the magnitude and complexity of substance abuse problems in Chicago and Cook County and stress the fact that hospitals play a critical role in the delivery of services to this population. A number of issues are highlighted that should be considered by those in the policy arena. These issues deal with substance abuse coverage, financing, system design, and services.

Consideration should be given to:

Coverage. The scope and availability of health benefits for treatment of the substance abusing population has decreased over recent years. Benefits need to be consistent with principles of best practice in managing substance abuse as a chronic relapsing disease; and they need to be available to those in the population who are most vulnerable.

Financial resources. Changes in reimbursement policies have affected

revenues for all hospitals but especially public hospitals and those located in high-risk areas. The data show that facilities servicing high-risk populations have taken on a greater portion of the financial risk in providing health care to this population. Reimbursement policies need to be evaluated and brought into line with the demands placed on these hospitals.

System design. Changes in reimbursement and benefits have led to fragmentation of substance abuse services in the current system. Development of provider affiliations (hospitals and community-based treatment providers) into local ser-

vice systems could help create a true coordinated continuum of care.

Services. The current system needs to develop programs focused on special needs. There are opportunities for hospitals and community-based providers to design treatment programs for patients needing a greater intensity of services, including the mentally ill, adolescents, pregnant women, infants, and aging adult abusers.

Understanding hospital data gives important insights into the impact of policy changes and can help in establishing new policies that guide and strengthen the treatment system.

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