

NATIONAL INSTITUTE ON DRUG ABUSE



# Proceedings

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Division of Epidemiology, Services and Prevention Research  
6001 Executive Boulevard  
Bethesda, Maryland 20852



## Foreword

The 10th annual meeting of the Border Epidemiology Work Group (BEWG) was convened in San Diego, California, on September 21, 2006. Sponsored by the National Institute on Drug Abuse (NIDA), United States, and the Ministry of Health of Mexico (MHM), the BEWG represents the collaborative efforts of researchers from both sides of the U.S.-Mexico border. Through annual meetings and ongoing communication, BEWG members identify drug abuse patterns and trends within and across border cities and areas. Of special interest are drug abuse patterns and problems in *sister cities/areas* (i.e., jurisdictions in close geographic proximity to one another).

Over the years, the BEWG has continued to evolve as a surveillance network. The work group has addressed emerging drug abuse issues that have implications for both countries. For the September 2006 meeting, heroin abuse was the focus of the presentations.

Participants discussed the findings and implications of the data on heroin abuse and also stressed the importance of continuing to monitor patterns and trends for methamphetamine and prescription-type drugs on both sides of the border. Together, participants identified topics for collaborative research to assess the relationship between drug abuse patterns and trends within and across border areas.

The BEWG annual meetings provide a forum for researchers to present, exchange, and review drug abuse data and information from existing sources on both sides of the border. Historical and current data/information on drug abuse patterns and trends are reported and disseminated so that local and border organizations will be more informed in developing, targeting, and implementing appropriate drug abuse prevention and treatment interventions.

*Moira P. O'Brien  
Division of Epidemiology, Services and Prevention Research  
National Institute on Drug Abuse  
United States*



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## Highlights of the 2006 BEWG Meeting: Focus on Heroin Abuse

At the 2006 Border Epidemiology Work Group (BEWG) meeting, participants presented updated information and data on heroin abuse patterns and trends, as well as health consequences, including HIV/AIDS risk associated with injection use. Abuse indicators for other drugs (e.g., cocaine, methamphetamine, marijuana) were reported from some geographic areas. Methamphetamine abuse, the focus of the 2004 and 2005 BEWG meetings, and prescription drug abuse were included in the discussions. Participants proposed directions for future research on drug abuse in U.S.-Mexico border areas. Findings are summarized below.

### KEY FINDINGS ON HEROIN ABUSE

In some border areas, heroin abuse indicators have stabilized or decreased in recent years because of the increased availability and use of methamphetamine and cocaine. Changes in indicators presented as proportions, therefore, should be interpreted cautiously. A decrease in the proportion of heroin admissions may reflect an increase in the proportion of methamphetamine treatment admissions, rather than an actual decrease in the number of heroin treatment admissions.

Highlights from the presentations focused on Mexican areas bordering the U.S. included the following:

- Although the proportion of patients treated for heroin abuse in 2005 declined as the proportions for cocaine and methamphetamine abuse increased, the actual number of persons treated for heroin abuse increased. Among patients in non-government treatment centers (NGCs) in 2005, 34 percent of those in border NGCs reported lifetime use of heroin, compared with 16 percent in Mexico overall. The highest proportion of patients reporting heroin as their main current drug of abuse continued to be those in the central border area (41 percent, compared with 28 percent in the western border area and 7 percent in the eastern border area). Approximately 95 percent of heroin patients in border areas injected the drug.
- Among 1,082 “hardcore” heroin addicts in Ciudad Juarez, 93 percent began heroin use by injecting. Approximately 92 percent of these heroin users had also used marijuana in their lifetime, and 82 percent had injected heroin and cocaine together (speedball). Cocaine alone and

speedball were the drugs most frequently used by these heroin abusers in the 6 months prior to interview (72 and 70 percent, respectively) and in the past 30 days (62 and 61 percent, respectively).

- Among injection drug users (IDUs) in Tijuana ( $n=222$ ) and Ciudad Juarez ( $n=202$ ), heroin was the drug most frequently injected. Patterns were different in the two cities. In Tijuana, the most frequently injected drugs in the prior 6 months were heroin alone (37 percent) and heroin and methamphetamine together (53 percent). In Ciudad Juarez, the most frequently injected drugs in the prior 6 months were heroin alone (46 percent) and heroin and cocaine together (47 percent).
- Among male students in grades 8–12 in Baja California, reports of experimenting with heroin (lifetime) increased from 0.7 percent in 1991 to 4.8 percent in 2006; among female students, heroin use increased from 0.4 to 1.0 percent. In Tijuana, experimental use of heroin among male students increased from 0.3 percent in 1991 to 5.5 percent in 2006; among females, heroin use increased from 0.2 to 1.4 percent.
- Household survey data on males age 12–65 in Ciudad Juarez show that lifetime heroin use was 1.2 percent in 2005. Household survey data from Tijuana show that lifetime use of heroin among males was 0.9 percent in 2005. Lifetime heroin use was reported by 0.1 percent of females age 12–65 in Tijuana; no females age 12–65 reported lifetime heroin use in the Ciudad Juarez survey in 2005.

In the U.S. border areas, most heroin abuse indicators decreased or remained stable in 2005 compared with prior years. Findings show that...

- High proportions of heroin abuse treatment admissions in 2005 reported injection as their primary route of heroin administration. For example, in Texas, high percentages of primary heroin admissions to publicly funded treatment programs in El Paso (97 percent), the Valley (86 percent), and Laredo (77 percent) injected the drug. In San Diego, approximately 82 percent of 2005 heroin treatment admissions injected the drug.
- In San Diego from 2001 to 2005, heroin abuse indicators (e.g., treatment admissions, drug testing of arrestees) decreased. In 2005, primary heroin admissions represented about 24 percent

of all illicit drug admissions, compared with 32 percent in 2001.

- In Arizona, heroin treatment admissions remained low and stable in border areas. Rates of hospital discharges for heroin/opioids in Yuma and Pima Counties remained relatively stable from 2001 to 2005. In fiscal year (FY) 2004, 4 percent of the adult probationers in Yuma County cited opiates as their drug of choice, compared with 15 percent in FY 2001.
- In New Mexico in 2005, heroin (used alone or in combination with other substances) accounted for 43 percent of all unintentional drug overdose deaths. The rate of heroin-related deaths reached 6.8 per 100,000 population in 2005.
- In Texas from 2004 to 2005, the proportions of toxicology exhibits containing heroin declined slightly in El Paso and Laredo, while they increased slightly in the Valley. In 2005, the proportions of primary heroin abuse admissions in publicly funded treatment programs reached 17 percent in the Valley, 19 percent in El Paso, and 22 percent in Laredo.

Following the presentations, meeting participants focused attention on what was reported on drugs of abuse in border areas; questions and issues that emerged from the data/information reported; and future research directions based on what was learned.

#### DIRECTIONS FOR FUTURE RESEARCH

During the discussion, a number of recommendations were made by participants, including the following:

- Collaborative two-nation (Mexico and the U.S.) *sister city* studies need to be designed and conducted to assess the relationship between drug abuse patterns and trends in border areas. Drug patterns in *sister cities* may mirror each other, or they might be quite different. If they are different, it is important to know why. For example, similarities and differences in methamphetamine abuse patterns could be assessed in *sister cities*, e.g., in El Paso and in Ciudad Juarez, both areas where methamphetamine is more likely to be injected. There are many advantages of collaborative studies of this type: research methods could be standardized and researchers in both countries

would have an opportunity to share and learn from one another.

- It is important to assess and understand the cultural factors associated with the use of particular drugs. Who is using what drug? Why are particular populations using particular drugs? How are they using? There is also a need for a historical perspective and an assessment of the many different sources of data and information, including infectious disease data and data on the impact of legislation relating to the availability of precursors used to produce methamphetamine.
- It is important to identify the types of methamphetamine available in different areas and determine sources of the drug. It is also important to find out what happens when methamphetamine becomes available in existing crack and powder cocaine markets. Will there be a disincentive for dealers to enter the methamphetamine market because methamphetamine is a longer-acting drug and may not produce the same demand and profit as a short-acting drug like crack?
- It is also important to determine the sources of particular types of prescription drugs available along the border and how they are used by different populations.
- Given what has been learned about the increases in and the spread of methamphetamine abuse in many border areas, it is important to evaluate and determine the effectiveness of different treatment and prevention services directed to methamphetamine abusers.
- Attention needs to be given to the relationship between the abuse of different drugs and infectious diseases so that people on the border can understand drug use as a health problem.
- It is important to assess HIV/AIDS risk behaviors in drug-abusing populations and to conduct collaborative health initiatives, especially in the border areas and drug-abusing populations known to be at high risk. There is increased concern about the risk of HIV/AIDS spreading across both sides of the border, especially given the risky sex behavior associated with methamphetamine use.



**EPIDEMIOLOGY OF DRUG ABUSE:**

**REPORTS ON MEXICO**



## Assessing Heroin Abuse in Mexico: An Ongoing Process

Patricia Cravioto, Ph.D., Fernando Galvan, M.Sc., Mario Cortes, M.Sc., Pablo Kuri, M.Sc., and Roberto Tapia-Conyer, Ph.D.

*Findings from Mexico's qualitative research program include the following:*

- *In Mexico, heroin is known as the 'queen of drugs' because it is highly addictive and its use can lead to serious health consequences, including death, and to serious social consequences, including family disintegration.*
- *Heroin is widely available and inexpensive. It is primarily used by the poor and disenfranchised.*
- *Street-level heroin is almost always adulterated; the pure 'good stuff' is exported by Mexican dealers.*
- *Heroin is most often injected; it is often used sequentially or in combination with other substances, making the effects more unpredictable.*
- *Treatment for heroin abuse is often unsuccessful for a variety of reasons. Services need to be more individualized. Mexico's qualitative data assist in planning and implementing services more attuned to the needs of heroin abusers.*

### MEXICO'S QUALITATIVE RESEARCH PROGRAM

In Mexico, qualitative research is an ongoing process. This research program is based on recognition that researchers must go beyond the numbers generated by the country's drug abuse surveillance system to provide the type of information that will assist in planning and improving the types of drug abuse prevention and treatment programs needed. Given the constantly changing dynamics of heroin abuse, it is important for researchers to learn as much as possible about characteristics, practices, and behaviors of the people who are currently abusing heroin.

The qualitative research methods are used to obtain a better understanding of the people who use specific drugs, why the drugs are used, how they are used, and the consequences of use. Every 6 months, researchers go into the communities where heroin and other drugs are sold and used to observe and talk with drug abusers and people who know the drug scene. As they watch, listen and learn, the researchers are better able to converse with users and build trust. Through trust and understanding, they are able to communicate directly with individuals and to obtain an insider's view on drugs of abuse. This information, combined with data obtained from institutional sources (e.g., police, treat-

ment centers), provides policymakers, practitioners, and researchers with information they need to better understand the problem and improve prevention and research services.

### SELECTED FINDINGS

#### Overview of Heroin Abuse in Border Areas

Heroin is widely available and relatively inexpensive in Mexican border areas. The drug is used primarily by the poor and disenfranchised. It is likely to be highly adulterated, and, thus, of poor quality. Other substances are generally used sequentially or in combination with heroin, making the effects of use more unpredictable.

#### Popular Names for Heroin

Some of the most popular names for heroin recently identified include "chiva," "carga," "la morena," "la tecata," "steed boy," and "stuff." Researchers have found that similar terms for heroin are used on both sides of the U.S.-Mexico border to describe heroin.

#### Identifying Ways and Places Heroin Is Obtained

According to heroin users, the primary current sources of heroin are bicycle salesmen/pushers and contacts via cellular phone transactions. The places where addicts generally go to obtain heroin include small stores, prostitution zones, discothèques, and taxis.

Addicts begin to use heroin for a variety of reasons. For example, a 28-year-old female heroin addict stated: *I started using heroin like four months ago to break my cocaine habit but now I feel worse. I would not want anyone to have this [heroin] problem, even my worst enemy.*

Once the drug is acquired, it is used in a variety of settings, including public restrooms, in street settings, in shooting galleries (picaderos), in vehicles and hotels, and in abandoned houses and fields.

#### Heroin Quality and Cost

On the street, heroin is currently sold for \$20–\$50 pesos per dose and \$50–\$200 pesos per gram. The street heroin in Mexico is of poor quality, since Mexican dealers export "the good stuff." It is very adulterated and of low purity, so addicts need to use a large quantity of the drug to obtain the desired effects.

Many female users resort to prostitution to earn enough money to support their habit. One 25-year-old female user who prostituted herself for money described setting aside her earnings as follows: *I use a portion for utilities, a portion for drugs for myself, and a portion for drugs for my husband.*

## Heroin Injection

For many years, researchers had assumed that the fear of injection would prevent many from using this drug. However, the field researchers found that, to overcome their fear, heroin users often rely on others to inject them. This is especially common during the initial phase of heroin use. One addict described his first experience in using heroin: *We went to this old house ... a tapias. Everything was prepared. They warmed it up and had everything ready. They asked me if I wanted poquito. I was curious and said yes, inject me. It was very good...the first time the drug was injected in me.*

A 25-year-old female addict who had been injecting herself for some time described the difficulties she had trying to inject heroin into a vein: *It took me one hour to find a vein in me. I had to prick myself more than 35 times and became all bloody.* Other heroin addicts, like a man in his forties, experienced no problems injecting the drug: *I inject myself eight times each day; I have never smoked or inhaled it.* However, some heroin addicts reported administering the drug by smoking, inhaling, and drops taken through the nose.

## The Consequences of Using Heroin

The health consequences experienced by heroin addicts are generally severe. Some of the more common problems reported by addicts included panic attacks, anxiety, paranoia, low self-esteem, depression, muscle aches, nausea and vomiting, and abscesses. Long-term effects included loss of weight as a result of poor eating habits and undernourishment.

In addition to these problems, most heroin users had experienced the consequences of heroin withdrawal. Users frequently told researchers about the differences between withdrawing from cocaine and heroin, reporting that heroin withdrawal was far worse. One 25-year-old female, like many others, said: *I no longer use heroin to get a 'high' but rather to prevent the bad withdrawal feelings.*

Social consequences are another problem associated with heroin use. Many heroin addicts reported problems such as family disintegration, dropping out of school, and a general loss of identity. A 35-year-old male described the consequences of heroin use on his life: *We went to the treatment center because my wife and I both used drugs. We were disappointed and we understood we had a lot of problems. Then we divorced, and I fell further and further into using.*

Criminal behavior reported by addicts included delinquency, robbery, and violence. A male addict described his criminal behavior and the consequences experienced: *I was into vice...robbing to get money for heroin ... robbing cars. I was in prison in Houston, Texas, for almost seven years. They deported me and I lost my papers and everything.*

Addicts frequently reported to researchers that when they were tired of living on the street, they would commit crimes so they could be sent to jail for a while. This was particularly common among users who had lived for a time in the United States.

## Treatment for Heroin Abusers

To combat the health and social consequences of heroin addiction, it is important to refer addicts into treatment as soon as possible. Researchers have learned that treatment needs to be tailored to the drug and the drug combinations used, as well as to the individual. In Mexico, there are many treatment alternatives for heroin abuse, including pharmaceutical treatments (methadone, naltrexone, sedatives, buprenorphine), hydration, vitamin therapy, occupational therapy, psychotherapy, and group therapy.

In the field, researchers also gather information about the experiences addicts had in obtaining treatment services and staying "clean" after treatment. One common problem noted is that females are much less likely to enter treatment than males. Often, this is because they have dependent children and do not have anyone with whom to leave their children while they are in treatment.

After treatment, recidivism and relapse are common among heroin addicts because they are most likely to stay in or return to the same environments in which they previously used heroin. If available, it is important to involve families in the reentry process, especially for young heroin abusers. However, family relationships have often disintegrated, and there are generally few support systems available to addicts who leave or complete treatment and are trying to establish a drug-free lifestyle. As reported in many research studies, aftercare programs are needed to provide support during the difficult and challenging reentry period.

## CONCLUSIONS

In conclusion, like other drug problems, heroin addiction is a complex and constantly changing phenomenon. Researchers cannot only rely on quantitative surveillance methods to assess and understand this problem and determine the best prevention and treatment intervention strategies. In Mexico, qualitative research has been and continues to be a useful tool in understanding and determining how to address heroin addiction and related drug problems.

*For inquiries concerning this report, please contact Patricia Cravito, Ph.D., Director, Epidemiological Operative Research, Secretaría de Salud, Prevención & Control de Enfermedades, Mexican Ministry of Health, Cerro de Macuiltepec #83, Col. Campestre Churubusco, C.P. 04200, Coyoacan, D.F. México, Phone: (52) (5) 534-7711, Fax: (52) (5) 534-7711, E-mail: pcravito@dgepi.salud.gob.mx*

## Epidemiology of Heroin Consumption on the Northern Border of Mexico

Mario Cortés, M.Sc., Patricia Cravioto, Ph.D., Fernando Galvan, M.Sc., Pablo Kuri, M.Sc., and Roberto Tapia-Conyer, Ph.D.

*While cocaine and methamphetamine often receive attention as drugs of abuse in Mexico, heroin remains a drug of concern, particularly on the border. In 2005, for instance, approximately one-third of nongovernment treatment center (NGC) treatment patients on the border reported any lifetime heroin use, compared with 16 percent for all of Mexico. Other indicators of heroin's impact in 2005 include...*

- *Heroin was the third most common drug of first use in all of Mexico.*

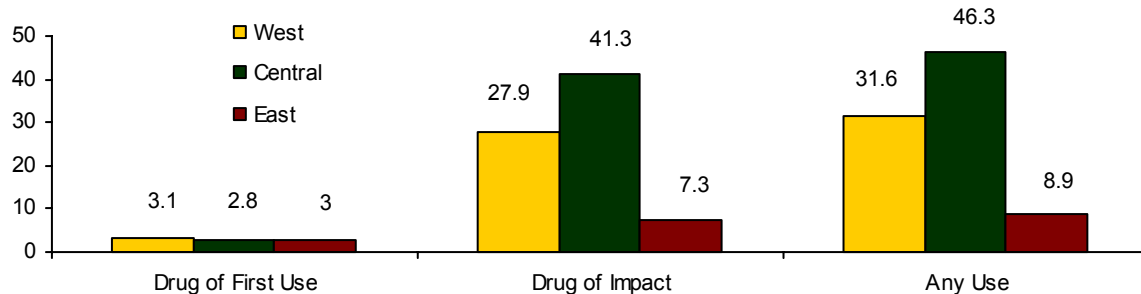
- *Among patients at border NGCs whose drug of onset was heroin, 93.3 percent cited heroin as the drug of impact.*
- *The central border region continues to report the highest proportions of patients with heroin problems: 41.3 percent cited heroin as their drug of impact (i.e., main current drug of abuse).*

### PATTERNS AND TRENDS IN HEROIN ABUSE

#### Nongovernment Treatment Centers

Heroin use along the border differs by region. While methamphetamine tends to be the dominant drug in the western region, heroin's presence is stronger in the central region and, to a lesser extent, in the east (exhibit 1). More than 46 percent of NGC patients in the central border region reported any lifetime heroin use, and 41 percent characterized heroin as their drug of impact.

**Exhibit 1. Heroin Use on the Border, by Region and Type of Use: 2005**

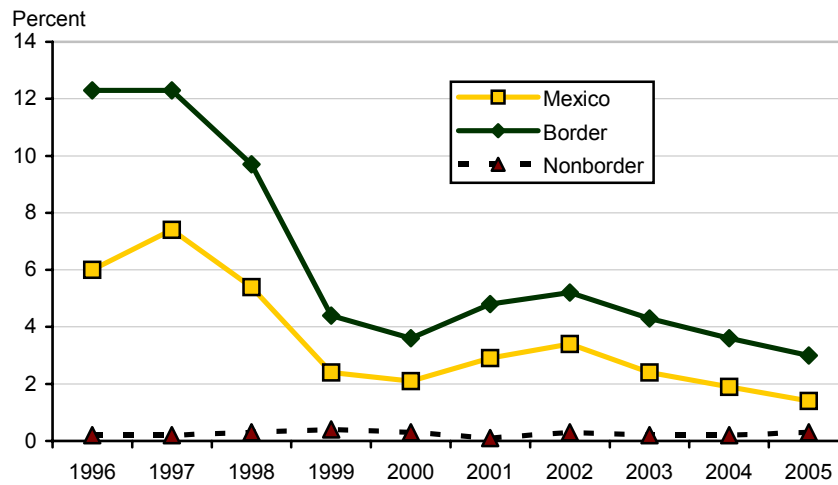


SOURCE: SISVEA—Nongovernment treatment centers

Data from NGCs regarding heroin abuse can be misleading. Although the proportions of NGC patients who report heroin as either the first drug of use or the drug of impact have been declining in recent years (exhibits 2 and 3), the total numbers reporting heroin doubled or tripled during that time. Over the 10-year period shown in exhibits 2 and 3, the proportions of patients reporting heroin as their

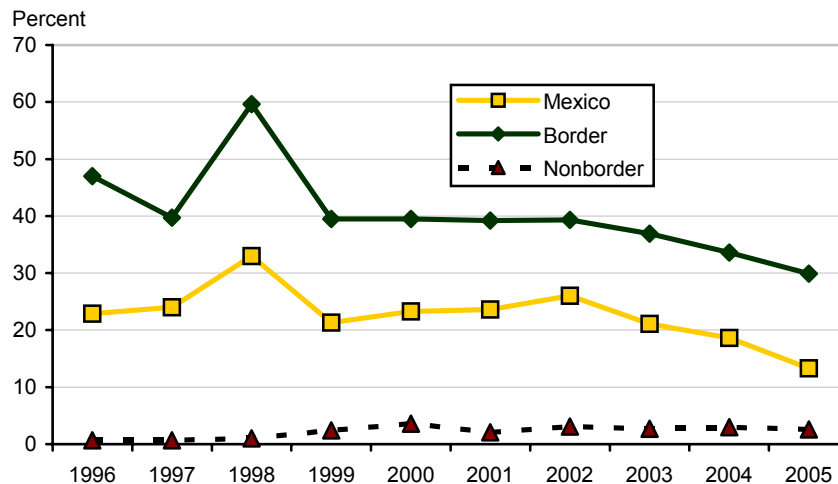
drug of onset or their drug of impact was higher in border areas than in nonborder areas, or in Mexico overall. In 2005, heroin as a drug of impact accounted for nearly 34 percent of border patients, compared with slightly more than 4 percent of nonborder patients and nearly 16 percent of NGC patients in Mexico overall.

**Exhibit 2. Proportions of NGC Admissions Reporting Heroin as the First Drug of Use: 1996–2005**



SOURCE: SISVEA–Nongovernment treatment centers

**Exhibit 3. Proportions of NGC Admissions Reporting Heroin as the Drug of Impact: 1996–2005**



SOURCE: SISVEA–Nongovernment treatment centers

One reason for the proportional decrease is that more drugs are competing for users' attention, primarily amphetamines. Heroin was the leading illicit drug of impact among NGC clients in 1996–1999 and again in 2001–2003. In 2004, however, heroin was surpassed by crystal methamphetamine, and both crystal methamphetamine and cocaine were more common than heroin as a drug of impact in 2005. Despite heroin's declining proportions as both a drug of onset and a drug of impact, it still has important consequences for users. In 2005, of the 660 clients entering NGCs on the border who reported heroin as the drug of onset, 93.3 percent reported heroin as the drug of impact. Only 4 percent had switched to

crystal methamphetamine as the primary drug of abuse, despite the fact that nearly 40 percent of users reporting heroin as a drug of onset move on to use other drugs.

Among the 7,440 NGC border clients in 2005 who reported any lifetime use of heroin, 93.7 percent were male. Of the 6.3 percent who were female ( $n=468$ ), more than one-third (34.7 percent) reported their occupation as housewife, while another 29.8 percent were unemployed. Exhibit 4 displays demographic characteristics of patients in NGCs on the border who reported heroin as the drug of impact ( $n=6,580$ ). As shown, nearly one-half of the male clients were age

10–14 when they used heroin for the first time. Daily use of heroin was reported by 98 percent of both male and female admissions. Three-quarters of both

genders reported using heroin more than three times per day. The overwhelming majority of both male and female heroin users reported injecting the drug.

**Exhibit 4. Usage Patterns Among NGC Clients Reporting Heroin as a Drug of Impact<sup>1</sup>, by Gender and Percent: 2005**

Drug Behaviors	Female (n=394)	Male (n=6,186)
Proportion	6.0	94.0
Age at First Use		
10–14	43.5	49.4
15–19	34.1	33.9
Daily Use		
More than 3 times	77.2	74.6
2–3 times	15.6	16.8
1 time	5.6	6.4
Route of Administration		
Intravenous	93.9	95.7
Intramuscular	1.0	1.0
Smoked	3.6	1.4
Inhaled	1.3	1.3

<sup>1</sup>N=6,580

SOURCE: SISVEA–Nongovernment treatment centers

### Guardian Council of Minors (GCM)

Among the 10,287 minors incarcerated in the GCM centers in 2005, 2,868 (28 percent) were from the border areas. Among those from the border in 2005, nearly 1 percent (n=26) reported heroin use. These users were primarily male (88.5 percent) and age 15–18 (84.6 percent), and 46.2 percent had a primary education. More than one-quarter (26.9 percent) were members of a gang, and 30.8 percent had a tattoo. Some 57.7 percent had dropped out of school because they were “uninterested.” Other reasons for not

continuing their educations included taking drugs (23.1 percent), work (7.7 percent), and limited resources (3.8 percent). Robbery was the most common offense among these minors (38.5 percent), followed by crimes against health (19.2 percent) and property damage (11.5 percent).

*For inquiries concerning this report, please contact Mario Cortés, M.Sc., Department Chief, Epidemiological Analysis Information, Mexican Ministry of Health, Prevención y Control de Enfermedades, Cerro de Macuiltepec #83, Col. Campestre, Churubusco, C.P. 04200, Coyoacan, D.F. México, E-Mail: [Marioc@dgepi.salud.gob.mx](mailto:Marioc@dgepi.salud.gob.mx)*

## A Methodology for Estimating the Number of Heroin Users in Mexico

*Fernando Galvan, M.Sc., Patricia Cravioto, Ph.D., Mario Cortés, M.Sc., Pablo Kuri, M.Sc., and Roberto Tapia-Conyer, Ph.D.*

*To assist in implementing Mexico’s Program for Prevention and Control of Addictions, a mathematical methodology was developed to estimate the number of hardcore heroin addicts in the country. Case registry data from three types of institutions in Ciudad Juarez were used to estimate the number of heroin addict contacts and the length of time between contacts over a 5-year period. Estimates were also based on data from surveys of 1,082 ‘hardcore’ heroin addicts; these survey data showed that...*

- *A majority (58 percent of males and 64 percent of females) were age 21–30.*
- *Polydrug use was the norm, especially use of cocaine, speedball, marijuana, pills, and inhalants.*
- *The average age of first use was 20; 80 percent began use in Juarez; and 93 percent began use by injecting.*
- *Most bought heroin at U.S. \$15 and worked, borrowed, sold, robbed, and prostituted themselves to support their habit*

### DESCRIPTION OF THE MODEL

While treatment demand for heroin abuse has increased in Mexico, especially along the northern border, little is known about the extent of the problem and the context in which heroin abuse occurs. To assist in implementing Mexico’s Program for the Prevention and Control of Addictions, qualitative and quantitative methods were used in

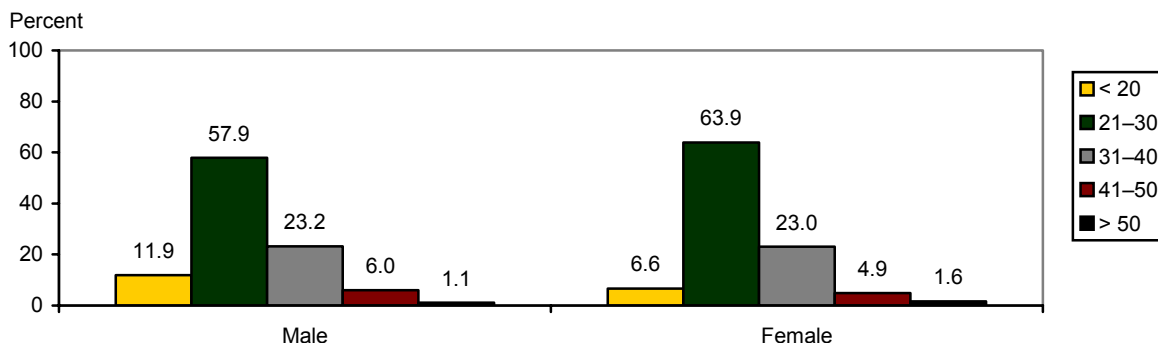
developing a “mathematical model” to estimate the number of heroin abusers who came into contact with institutions during a 5-year period and the length of time between contacts. The model was based on a capture-recapture approach used in Ciudad Juarez. Qualitative data were derived from indepth interviews with heroin addicts through a “Screener” and a “Path Survey.” Persons age 18 and older who were permanent residents of the city and who used heroin 2 or more days a week or 8 or more days in the prior 6 months (“hardcore users”) were targeted for the screening effort; 3,447 persons from selected areas of the city were invited to participate; 99.4 percent accepted; and 1,082 were hardcore heroin users. The screener elicited information on the age, residence, and heroin and other drug use; urine samples were obtained and analyzed. For the 1,082 hardcore heroin users, the Path Survey was used to reconstruct their history of contacts with three types of institutions—treatment centers, the Social Rehabilitation Center (CERESO), and “barandillas” (holding places for persons accused of a crime).

Quantitative data were obtained from case registries at the three types of institutions. Sampling was based on the census at treatment centers and barandillas and on simple random selection procedures at CERESO. Probabilistic methods were used to estimate the number of contacts with each of these institutions (Poisson procedure) and the length of time between contacts (Exponential procedure) over a 5-year period. Information from the exponential mode can be used to try to find the best time to initiate interventions.

### SELECTED FINDINGS FROM THE SURVEYS

The majority of the 1,082 heroin addicts were age 21–30; a higher percentage of this age group was female (57.9 percent) (exhibit 1).

**Exhibit 1. Age Group and Gender of Juarez Heroin Addicts Surveyed, by Percent**



N=1,082.  
SOURCE: SISVEA



Polydrug use was common among this sample of heroin abusers (exhibit 2), with marijuana and cocaine being the most commonly used drugs during

their lifetime, in the 6 months prior to screening, and in the past 30 days.

**Exhibit 2. Use of Other Drugs Among Juarez Heroin Abusers Surveyed, by Percent**

<b>Drug</b>	<b>Lifetime</b>	<b>Past 6 Months</b>	<b>Past 30 Days</b>
Marijuana	92.2	58.1	46.8
Cocaine	91.8	71.8	61.8
Speed ball	82.3	70.0	61.3
Hallucinogens	17.1	2.7	0.7
Inhalants	52.7	7.8	4.0
Pills	61.0	32.9	22.9

N=1,082.  
SOURCE: SISVEA

Results from the Path Survey (last 5 years) show that 81 percent of the heroin abusers mixed heroin with cocaine (“speedball”); 66 percent used heroin with marijuana; 43 percent used heroin with pills and/or alcohol; and 13 percent used heroin with inhalants. More than 84 percent of these heroin abusers reported using heroin daily, and 26 percent used heroin 6–10 times daily. Eighty percent of these heroin abusers started using heroin in Ciudad Juarez; the average age of first use was 20; and 93 percent began use by injecting heroin. Two percent had used

heroin for more than 25 years. They spend about U.S. \$15 daily on heroin, with 96 percent buying the drug. They work, borrow money, sell, rob, and prostitute themselves to obtain money for heroin.

*For inquiries concerning this report, please contact Fernando Galvan, Physicist/Mathematician, Asóciate Director, Epidemiologic Diagnosis and Análisis, Mexican Surveillance System, Mexican Ministry of Health, Prevención & Control de Enfermedades, Mexican Ministry of Health, Cerro de Macuiltepec #83, Col. Campestre Churubusco, C.P. 04200, Coyoacan, D.F. México, E-mail: sfgalvan@dgepi.salud.gob.mx.*

## Drug Use Among 7th–9th Grade Students in Baja California and Sonora and General Population Trends in Drug Use in Tijuana and Ciudad Juarez: 1998–2005

Jorge Villatoro Velazquez, Ma. Elena Medina-Mora, Ma. De Lourdes Gutiérrez-López, Clara Fleiz-Bautista, Nancy Amador-Buenabad, Nieves Quiroz-Del Valle, and Francisco Juárez-García

Data from school surveys of 7th–9th grade students in Baja California and Sonora show the percentages of male and female students who experimented (five times or less) with drugs in 1991 and 2006. Findings from the surveys included...

- In 2006, 8.1 percent of the male students in Baja California and 8.8 percent of those in Sonora reported experimentation with illicit drugs. Also, 6.1 percent of male students in Baja California and 6.9 percent of those in Sonora reported use of prescription drugs. Smaller proportions of females in both areas reported experimenting with illicit or prescription drugs.
- The highest proportions for specific drugs reported by Sonora males in 2006 were marijuana (7.3 percent), cocaine (7.2 percent), and amphetamines and tranquilizers (each 6.2 percent), while experimentation among their female counterparts was highest for marijuana (3.2 percent) and tranquilizers (3.1 percent).
- In both areas, the proportions of male and female students who reported experimenting with

drugs were generally higher in 2006 than in 1991. The exceptions included the higher proportions of males (6.6 percent) and females (5.2 percent) in Baja California who reported inhalant use in 1991.

Household surveys conducted in Tijuana and Ciudad Juarez in 1998 and 2005 (subjects age 12–65) showed that marijuana and cocaine were the most commonly reported drugs. Trend data on marijuana and cocaine use showed...

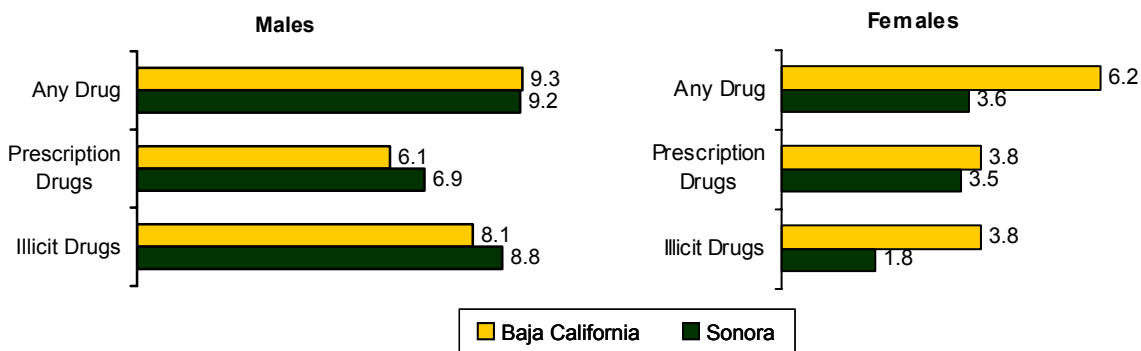
- Lifetime marijuana use by males increased from 15.0 percent in 1998 to 25.1 percent in 2005. Cocaine use increased from 6.0 percent in 1998 to 13.6 percent in 2005.
- For females, lifetime use of marijuana also increased from 1998 to 2005 (2.8 to 6.0 percent) as did lifetime use of cocaine (0.6 to 3.6 percent).

### DRUG ABUSE PATTERNS AND TRENDS

#### Student Drug Use Survey

Approximately 9 percent of male 7th–9th grade students in Baja California and Sonora reported any lifetime experimental (5 times or less) drug use in 2006, with males reporting more illicit drug than prescription drug use (exhibit 1). Among females, more Baja California than Sonora students reported any experimental drug use (6.2 vs. 3.6 percent) as well as illegal drug use (3.8 vs. 1.8 percent). Among both male and female students reporting any drug use in Sonora, nearly 40 percent reported consuming multiple drugs.

Exhibit 1. Proportions of 7th–9th Grade Students in Baja California and Sonora Reporting Experimental<sup>1</sup> Drug Use, by Type of Use and Gender: 2006

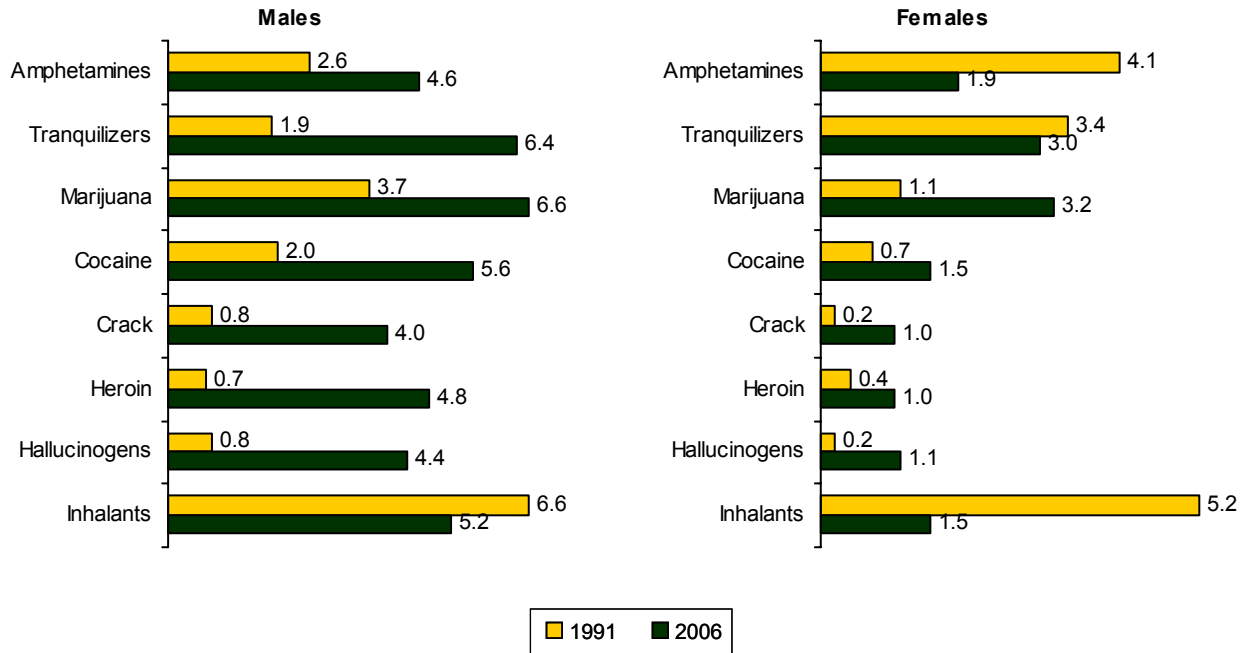


<sup>1</sup>Experimental use is defined as use no more than five times.  
SOURCE: National Institute of Psychiatry

A comparison of 1991 and 2006 data shows an increase in the proportion of male students in Baja California who reported experimental use of amphetamines, tranquilizers, marijuana, cocaine, crack, heroin, and hallucinogens (exhibit 2). The percentage-point increases were largest for tranquilizers (4.5), heroin (4.1), and hallucinogens (3.6); only inhalant use showed a decrease. Among female stu-

dents, there were decreases for amphetamines, tranquilizers, and inhalants, most notably inhalants (3.7 percentage points). The proportions of females reporting experimental use of marijuana, cocaine, crack, heroin, and hallucinogens all increased by at least 100 percent during this period.

**Exhibit 2. Proportions of Baja California Students in Grades 7–9 Reporting Experimental Use of Prescription and Illegal Drugs, by Gender and Year: 1991 vs. 2006**

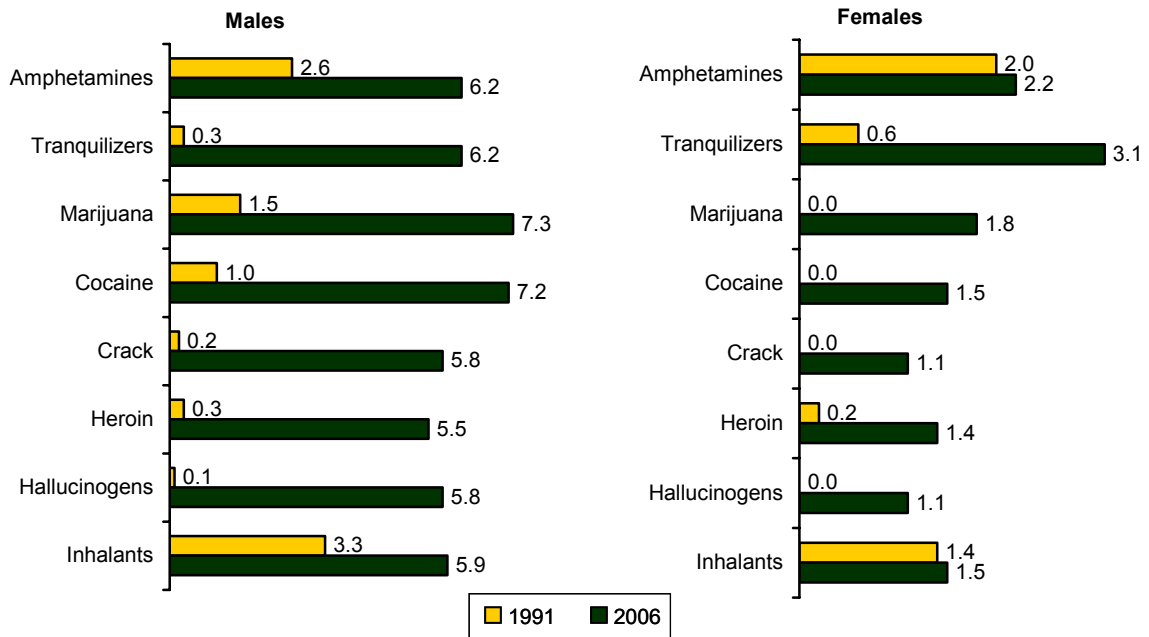


SOURCE: National Institute of Psychiatry

Experimental use of amphetamines, tranquilizers, marijuana, cocaine, crack, heroin, hallucinogens, and inhalants among Sonora male students all increased 5 percentage points or more between 1991 and 2006 (exhibit 3). Marijuana, cocaine, and crack use among males was higher in Sonora than in both Baja Califor-

nia and Mexico City. For females, the proportions for all drugs increased as well, most notably for tranquilizers (from 0.6 to 3.1 percent). Additionally, it is important to note that the consumption of methamphetamine appears to be elevated among high school students in Baja California.

**Exhibit 3. Proportions of Sonora Students in Grades 7–9 Reporting Experimental Use of Prescription and Illegal Drugs, by Gender and Year: 1991 vs. 2006**



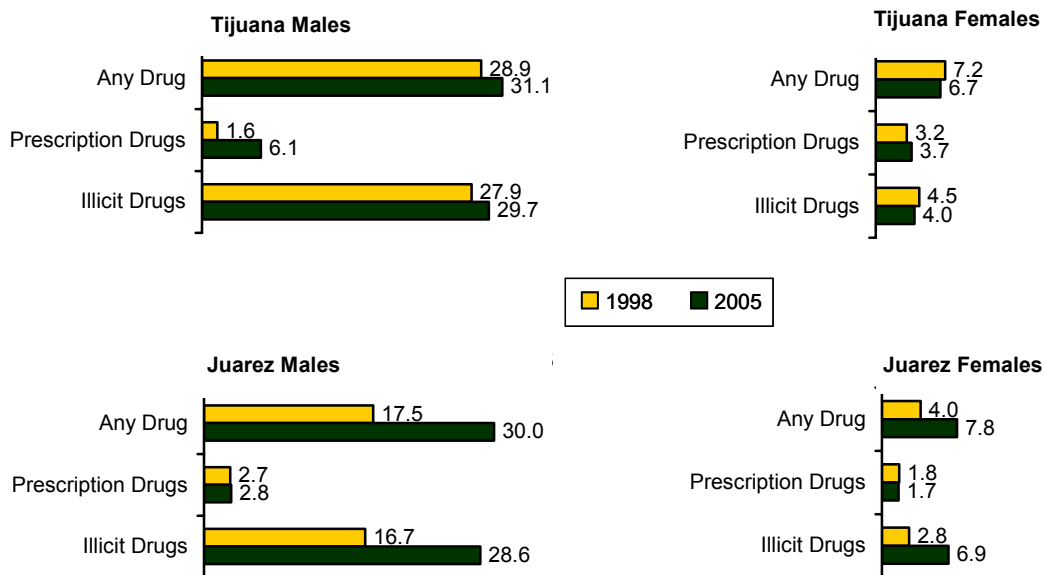
SOURCE: National Institute of Psychiatry

**Surveys in Family Homes**

Surveys on lifetime drug use were conducted in family homes in Tijuana and Ciudad Juarez among those age 12–65 in 1998 and 2005. As shown in exhibit 4, males in Ciudad Juarez showed the greatest increases

in reported use of any drug, prescription drugs, and illegal drugs from 1998 to 2005. Females in Ciudad Juarez reported increased levels of illegal drug use, while such use among females in Tijuana declined during that period.

**Exhibit 4. Proportions of Reported Lifetime Drug Use Among Those Age 12–65 in Tijuana and Ciudad Juarez, by Gender and Year: 1998 vs. 2005**

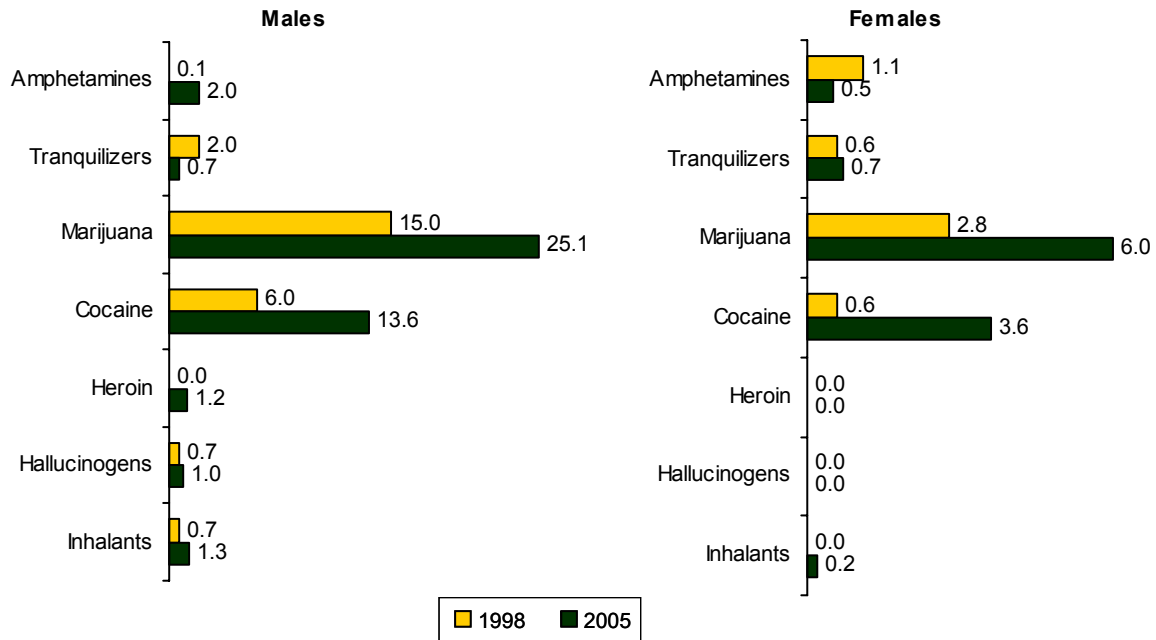


SOURCE: National Institute of Psychiatry

In Ciudad Juarez, marijuana and cocaine were the most commonly reported drugs among both males and females in 2005, and the proportions reporting both drugs were higher that year than in 1998 (exhibit 5). Other increases between 1998 and 2005 included increases among male respondents for lifetime use of amphetamines (from 0.1 to 2.0 percent), heroin (from 0.0 to 1.2 percent), and inhalants (from 0.7 to 1.3 percent). Among females, the proportions reporting tranquilizer use declined during that period (from 2.0 to 0.7 percent). In Tijuana, results were similar to those in Ciudad Juarez, with respondents reporting

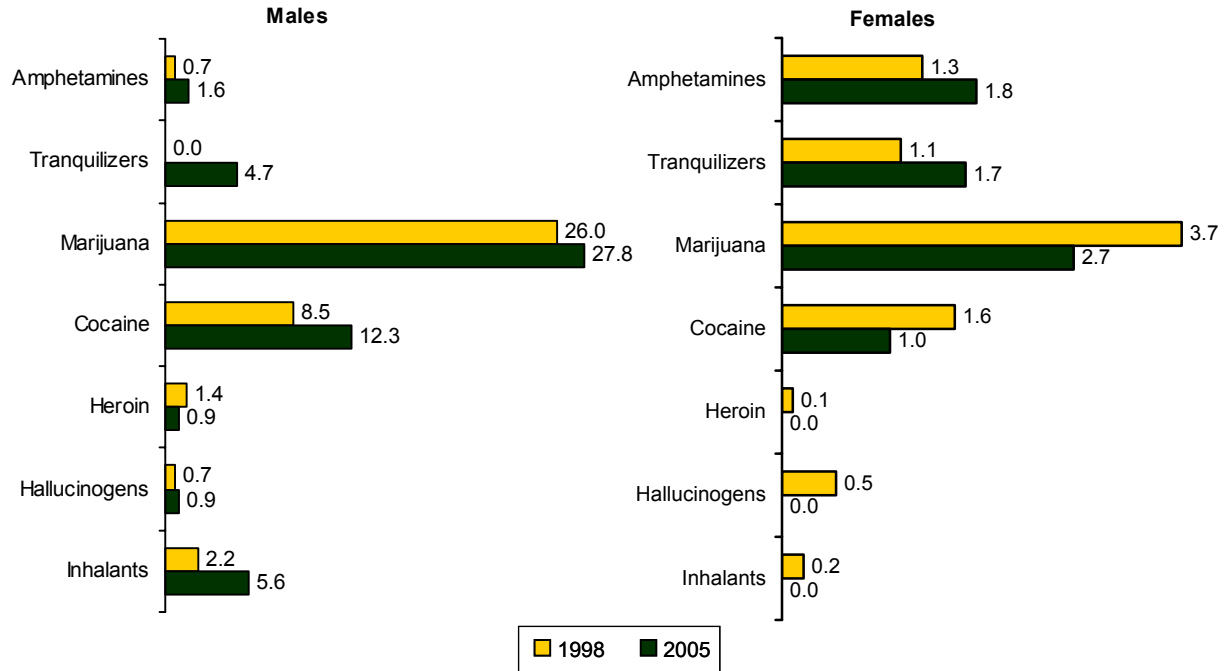
high levels of marijuana and cocaine use (exhibit 6). The proportions for females for these drugs were lower, however, in Tijuana than in Ciudad Juarez. While no male respondents in Tijuana reported lifetime tranquilizer use in 1998, 4.7 percent did so in 2005. The proportions of females reporting lifetime use of amphetamines or tranquilizers increased between 1998 and 2005, while the proportions of females reporting lifetime use of all illegal drugs fell during that period. Lifetime inhalant use among males was much higher in Tijuana (5.6 percent) than in Ciudad Juarez (1.3 percent).

**Exhibit 5. Reported Lifetime Drug Use Among the Population Age 12–65 in Ciudad Juarez, by Gender, Year, and Percent: 1998 and 2005**



SOURCE: National Institute of Psychiatry

**Exhibit 6. Reported Lifetime Drug Use Among the Population Age 12–65 in Tijuana, by Gender, Year, and Percent: 1998 and 2005**



SOURCE: National Institute of Psychiatry

*For inquiries concerning this report, please contact Jorge Villatoro, M.C., Researcher, National Mexican Institute of Psychiatry, Calz. Mexico-Xochimilco 101, Col. San Lorenzo-Huipulco, Mexican Ministry of Health, Ciudad de Mexico, Mexico 14370, Phone: (55) 5655 2811, ext. 401, Fax: (55) 5513 3446, E-mail: ameth@imp.edu.mx.*

## Heroin Use Among Injection Drug Users in Tijuana, Mexico

Kimberly C. Brouwer, Ph.D., and Robin A. Pollini, Ph.D., M.P.H.

*A cross-sectional study undertaken by researchers at the University of California San Diego and at Mexican governmental and nongovernmental organizations documented the following regarding heroin use among injection drug users (IDUs) in Tijuana, Mexico:*

- **Heroin is the primary drug injected by IDUs in Tijuana. Almost all (98 percent) heroin injectors reported injecting the drug by itself in the past 6 months, and 37 percent said they injected heroin alone more frequently than any other drug combination.**
- **Methamphetamine use is common among heroin injectors in Tijuana. More than one-half (53 percent) said they injected heroin and methamphetamine together; this was more common than any other drug or drug combination. A majority (57 percent) also reported injecting methamphetamine by itself, and 48 percent smoked methamphetamine.**
- **IDUs in Tijuana are polydrug users. Only 7 percent reported using only heroin in the past 6 months. Twenty-six percent used two drugs; 29 percent used three drugs; and the remaining 38 percent used four or more drugs.**
- **In contrast to Tijuana, few IDUs in Ciudad Juarez report using methamphetamine. Cocaine is the stimulant of choice in that eastern border city.**

### PROJECT EL CUETE

#### Background and Phase I of the Study

*Proyecto El Cuete* is a three-phase research project being undertaken by the Division of International Health and Cross-Cultural Medicine at the University of California San Diego (UCSD) in collaboration with governmental agencies (Centro Nacional para la Prevención y el Control del VIH/SIDA [CENSIDA], Instituto Nacional de Salud Pública) and nongovernmental organizations (Patronato ProCOMUSIDA, A.C., CIRAD, A.C., Programa Compañeros, A.C.) in Mexico. Institutional review boards of UCSD and Tijuana General Hospital approved the study's protocols. The project was initiated after a study found high prevalence of human immunodeficiency virus

(HIV) infection among women giving birth at Tijuana General Hospital (Viani et al. 2006). The study documented an HIV prevalence of 1.1 percent among women screened during labor (compared with 0.33 percent among those seeking prenatal care). In addition, women who injected drugs or had a spouse/partner who used injection drugs were significantly more likely to be HIV-infected. A subsequent collaborative study conducted by researchers from CENSIDA and UCSD estimated HIV prevalence among Tijuana residents age 15–49 to be between 0.26 percent and 0.80 percent (Brouwer et al. 2006).

Phase I of *Proyecto El Cuete* consisted of indepth qualitative interviews administered to 20 IDUs in Tijuana and 24 IDUs in Ciudad Juarez from April to May 2004 to gather exploratory information on drug use and injection and sexual behaviors. The results indicated that risky injection behaviors are rampant, thus suggesting the need to explore whether these behaviors were associated with high prevalence of blood-borne infections (Strathdee et al. 2005). Conducted from February to April 2005, Phase II consisted of a cross-sectional study using respondent driven sampling (RDS) methods (Heckathorn 1997). RDS is a chain referral method whereby a group of IDU “seeds” were selected based on diversity of gender, location, and drug preferences; they were given three uniquely coded coupons to refer IDUs in their social network. Referral chains continued until approximately 200 IDUs were recruited at each site. Through interviewer-administered questionnaires, quantitative information on HIV risk behaviors was collected among 222 IDUs in Tijuana and 206 in Ciudad Juarez; these IDUs then received antibody testing for HIV, hepatitis C, and syphilis. IDUs who tested positive for any of these infections received counseling and referral to treatment.

#### Phase II

Of the 222 IDUs enrolled in the Phase II study in Tijuana, 91 percent were male. The median age was 34 (interquartile range [IQR]: 29–40), and the median age of first injection was 19 (IQR: 15–24). Almost all IDUs identified heroin as the drug they injected most frequently in the 6 months prior to interview, whether alone (37 percent) or in combination with methamphetamine (53 percent) or cocaine (4 percent). Most were also polydrug users: only 7 percent reported using heroin alone, with the remainder reporting use of two (26 percent), three (29 percent), four (29 percent), or more than four (9 percent) drugs (excluding alcohol). An overview of all drugs used by heroin injectors ( $n=221$ ) during the 6 months prior to interview is provided in exhibit 1.

**Exhibit 1: Drugs Used by Heroin Injectors<sup>1</sup> in 6 Months Prior to Interview in Tijuana, Mexico, by Route of Administration and Percent: February–April 2005**

Drug Used and Route of Administration	Percent
<b>Drugs Administered by Injection</b>	
Heroin alone	98
Heroin and methamphetamine	65
Methamphetamine alone	57
Cocaine alone	14
Heroin and cocaine	5
Methamphetamine and cocaine together	1
Oral tranquilizers	1
<b>Drugs Administered by Noninjection Routes</b>	
Marijuana	52
Smoked methamphetamine	48
Alcohol	32
Oral tranquilizers	31
Sniffed, smoked, or chased heroin	14
Smoked crack	14
Inhalants	5

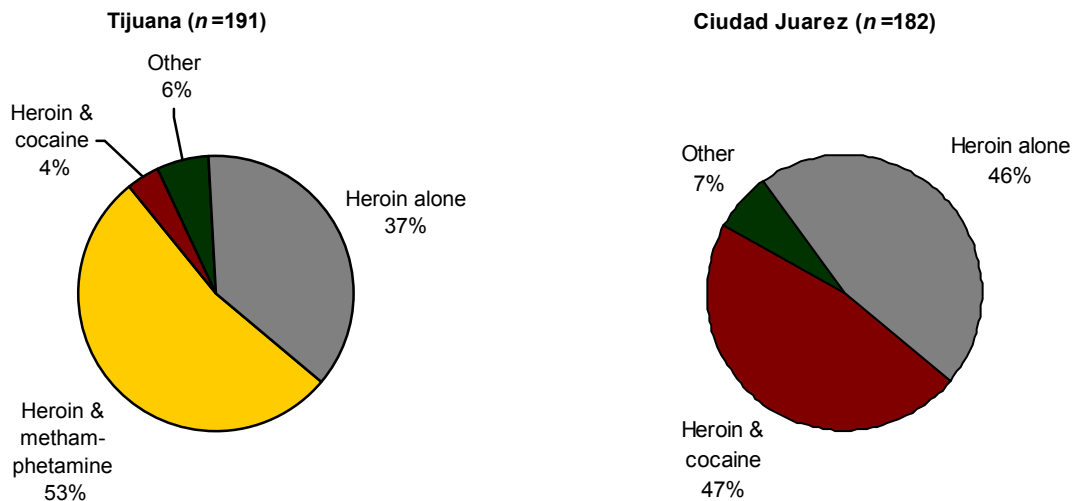
<sup>1</sup>n=221

SOURCE: Unpublished data from Project El Cuete

Heroin use among study participants in Ciudad Juarez (n=205) was similar to use among those in Tijuana, although stimulant use varied markedly in the two cities (exhibit 2). Only six of the IDUs in Ciudad Juarez reported using methamphetamine in the past 6 months; instead, cocaine was the stimulant

of choice. In contrast to IDUs in Tijuana, IDUs in Ciudad Juarez said the drugs they injected most frequently in the past 6 months were heroin and cocaine in combination (47 percent), followed by 46 percent injecting heroin alone.

**Exhibit 2: Most Frequently Injected Drugs Among IDUs in Tijuana and Ciudad Juarez, Mexico, by Percent: February–April 2005**



SOURCE: Unpublished data from Project El Cuete



### Phase III

Phase III of Proyecto El Cuete is currently underway and will enroll 1,000 IDUs in Tijuana using RDS in a longitudinal study to identify risk factors for HIV, syphilis, and tuberculosis. This phase of the study also includes qualitative interviews with key stakeholders (e.g., judges, police, health care providers) to elucidate societal level factors that influence drug use, risk behaviors, and treatment seeking as well as to inform appropriate public health interventions.

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For inquiries concerning this report, please contact Kimberly C. Brouwer, Ph.D., Assistant Professor, Division of International Health and Cross-Cultural Medicine, Department of Family and Preventive Medicine, University of California, San Diego, 9500 Gilman Drive, MC 0622, La Jolla, CA 92093-0622, Phone: (858) 822-6467, Fax: (858) 534-4642, E-mail: kbrouwer@ucsd.edu



**EPIDEMIOLOGY OF DRUG ABUSE:**

**U.S. REPORTS**



## Heroin Use in San Diego County, California

Robin A. Pollini, Ph.D., M.P.H.

*Heroin remains a major drug of abuse in San Diego County despite being overtaken by methamphetamine in all indicator categories. Major findings regarding heroin use in San Diego between 2001 and 2005 are as follows:*

- *The proportion of drug treatment admissions attributed to heroin decreased since 2001 (as did admissions for cocaine and marijuana), while the proportion of methamphetamine admissions increased substantially. Heroin now represents one-quarter of all drug treatment admissions, compared with one-half for methamphetamine abuse.*
- *The demographic characteristics of heroin treatment admissions remain unchanged since 2001.*

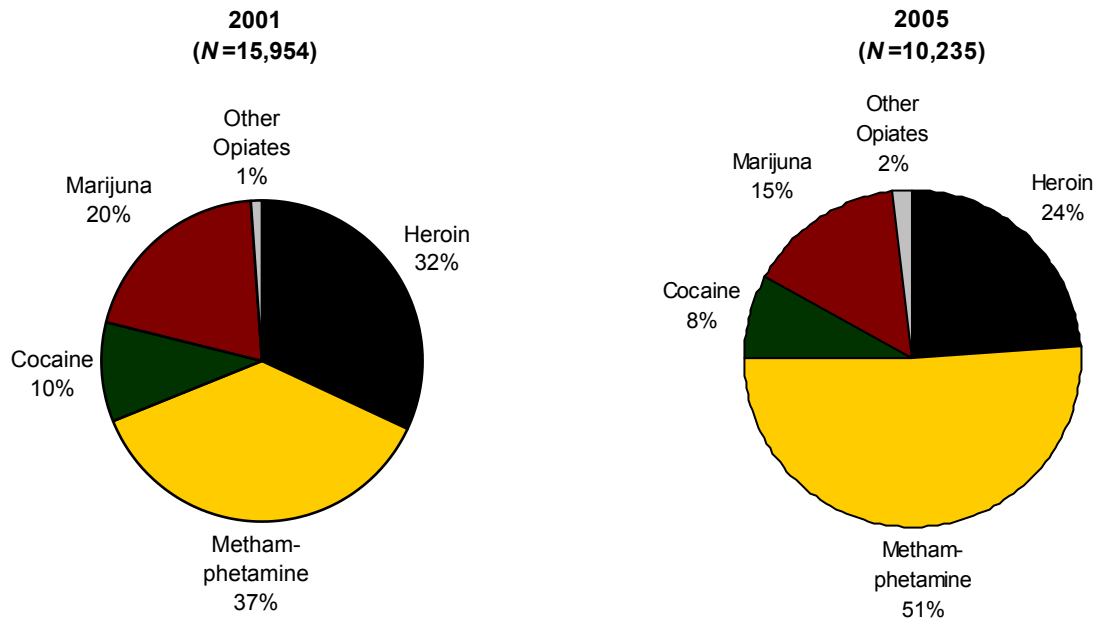
- *Data from arrestee monitoring indicate slight decreases in heroin use, while methamphetamine use has increased substantially.*
- *In contrast, abuse of nonheroin opiates has risen since 2001. Increasingly, those admitted for treatment are female and young (age 25 or younger).*

### HEROIN ABUSE PATTERNS AND TRENDS

#### Treatment Data

Data from the California Alcohol and Drug Data System (CADDs) indicate that primary heroin and methamphetamine abuse were each responsible for approximately one-third of all drug treatment admissions in San Diego County in 2001. By 2005, methamphetamine was responsible for more than one-half (51 percent) of all treatment admissions, with concurrent reductions in heroin, cocaine, and marijuana admissions (exhibit 1). Nonetheless, heroin use continues to account for one-quarter of treatment admissions in San Diego County.

Exhibit 1. Proportion of Drug Treatment Admissions in San Diego County, by Primary Drug: 2001 and 2005



SOURCE: California Alcohol and Drug Data System (CADDs)

While the proportion of admissions for heroin decreased between 2001 and 2005, the demographic characteristics of heroin users in treatment remained

largely unchanged. Almost three-quarters (72 percent) of admissions were male; 51 percent were non-Hispanic Whites; 41 percent were Hispanic; and 5

percent were African-American. The majority (59 percent) were age 35 or older; 22 percent were 26–34; and 18 percent were 18–25. The proportion of admissions citing heroin as a secondary drug of abuse remained steady at 5 percent. Admissions data do indicate a slight shift away from injection as the primary mode of heroin administration; this route of administration fell from 88 percent of heroin admissions in 2001 to 82 percent in 2005. During the same period, admissions for smoking heroin increased from 4 to 12 percent. Nonetheless, heroin still accounts for 72 percent of all primary injection admissions in San Diego County.

### Arrestee Urinalysis Data

Other indicators suggest that heroin use is occurring at constant or slightly declining levels, while methamphetamine use continues to rise. Data from the San Diego Substance Abuse Monitoring Program, which includes urine testing for illicit drugs among adult and juvenile arrestees, documents largely unchanged percentages of heroin use from 2003 to 2005 (exhibit 2). During the same period, methamphetamine-positive tests increased 38 percent among both males and females and 91 percent among juveniles.

**Exhibit 2. Arrestees Testing Positive for Selected Drugs, by Percent: 2003–2005**

Drug	2003	2004	2005
Heroin	18	17	14
Methamphetamine	25	27	33
Cocaine	16	19	15
Marijuana	20	21	22

SOURCE: SANDAG Substance Abuse Monitoring Program

### Emergency Department Data

The 2005 unweighted data from the Drug Abuse Warning Network (DAWN) *Live!* system show that heroin ranked fourth in the number of emergency department reports for major substances of abuse, excluding alcohol. These unweighted data from the Office of Applied Studies, Substance Abuse and Mental Health Services Administration, cannot be compared with previous time periods, but the 2005 data show that heroin accounted for 14 percent of the illicit drug reports, compared with 33 percent for methamphetamine, 22 percent for marijuana, and 15 percent for cocaine.

### Other Opiates Data

Notably, a very different pattern is emerging in San Diego County regarding abuse of “other opiates.” This drug category includes nonheroin opiates such

as hydrocodone, oxycodone, codeine, morphine, and methadone. The proportion of drug treatment admissions attributed to primary use of other opiates increased from 1 percent ( $n=180$ ) in 2001 to 2 percent ( $n=230$ ) in 2005. The demographics of this treatment group have also changed. The proportion of females among these admissions increased from 45 percent in 2001 to 63 percent in 2005, and they have become younger as well (from 9 percent age 25 or younger in 2001 to 19 percent in 2005). There has been little change, however, in the ethnic and racial makeup of these admissions; 86 percent were White non-Hispanic in both 2001 and 2005.

*For inquiries concerning this report, please contact Robin Pollini, Ph.D., University of California San Diego, School of Medicine, 9500 Gilman Drive, Mailstop 0622, San Diego, CA 92093, Phone: (858) 534-0710, Fax: (858) 534-7053, E-mail: rpollini@ucsd.edu*

## Heroin Abuse Patterns and Trends in Southern Arizona

Darlene Lopez and Jenny Chong, Ph.D.

The most recent data for heroin abuse indicators in Arizona show the following:

- Heroin treatment admissions remained fairly low and stable in Cochise, Santa Cruz, and Yuma Counties between fiscal year (FY) 1998–99 and FY 2004–05. They peaked in Pima County in FY 2003–04 but declined in FY 2004–05.
- In 2005, the rates per 100,000 population of heroin hospital discharges were second to those for cocaine in Pima County and second to those for methamphetamine in Yuma County. Since 2000, rates of methamphetamine hospital discharges increased dramatically in Yuma County, as did the proportion of adult probationers who cited amphetamines as their drug of choice.
- Heroin seizures at the ports of entry have rebounded in recent years after declining immediately following the September 11, 2001, attacks.

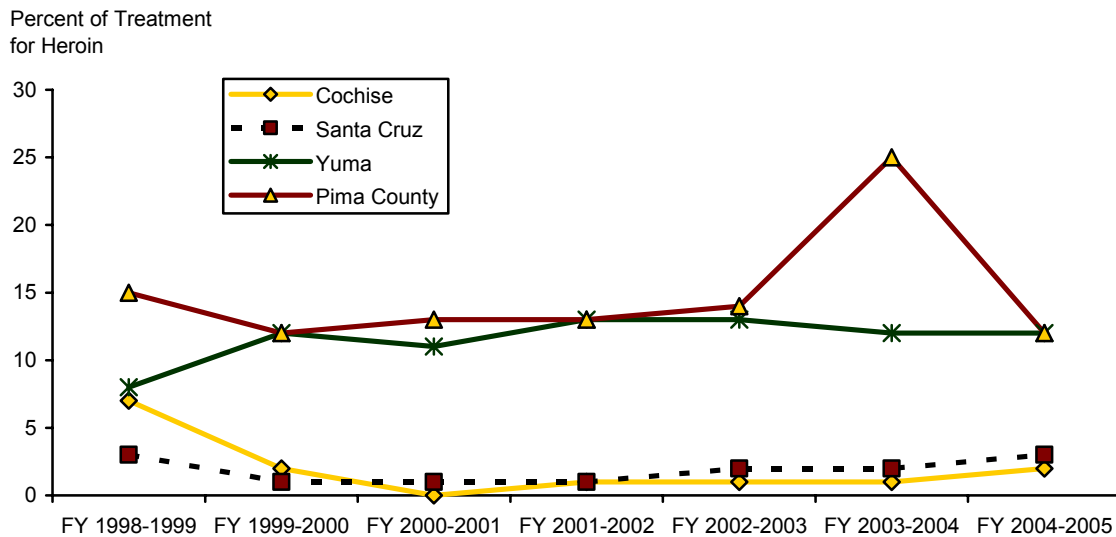
diately following the September 11, 2001, attacks.

### HEROIN ABUSE PATTERNS AND TRENDS

#### Treatment Data

As shown in exhibit 1, the proportion of primary heroin treatment admissions in the four border counties remained fairly steady over the 7-year period ending in FY 2004–05. The one exception occurred in Pima County in FY 2003–04, when the proportion of heroin admissions increased dramatically from 14 percent in FY 2002–03 to 25 percent in FY 2003–04 for no known reason, only to decrease to approximately 12 percent in FY 2004–05. As a proportion of all treatment admissions, those for primary heroin abuse were low (less than 5 percent) in Santa Cruz and Cochise Counties from FY 1999–00 to FY 2004–05. Despite a sharp increase in methamphetamine abuse indicators in Yuma County, heroin admissions remained relatively stable. A core of older heroin users remained in treatment, and some clients in Yuma County used both methamphetamine and heroin.

Exhibit 1. Heroin Treatment Admissions in Arizona’s Four Border Counties, by Percent of Total Admissions: FYs 1998–99 through 2004–05



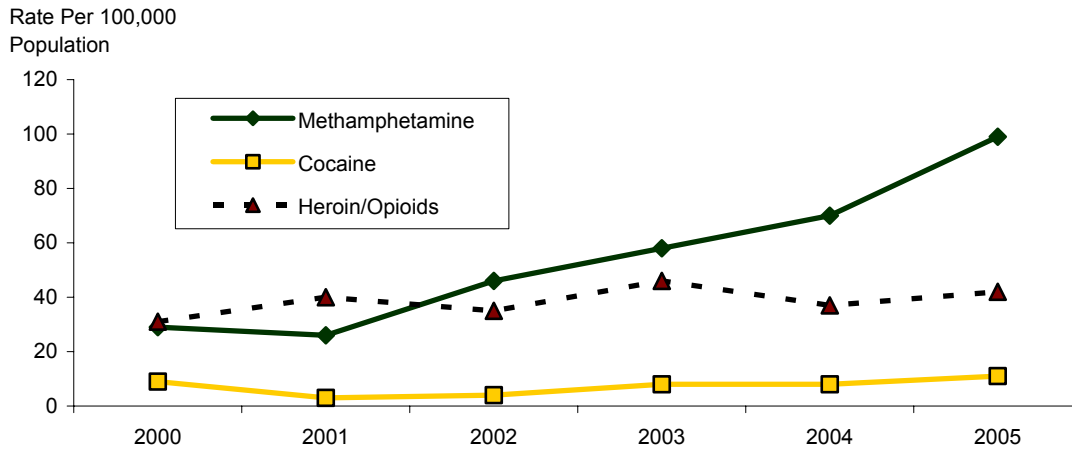
SOURCE: Arizona Behavioral Health Services, Southeastern Behavioral Health Services

#### Hospital Discharge Data

Hospital discharges related to heroin/opioid abuse vary by border county. In Yuma County, the rates of heroin/opioid hospital discharges remained relatively

stable from 2000 to 2005, at between 31 and 46 per 100,000 population (exhibit 2a). Over the same time period, the rates for methamphetamine discharges increased dramatically.

**Exhibit 2a. Rates per 100,000 Population of Hospital Discharges in Yuma County, by Primary Drug Diagnosis: 2000–2005**

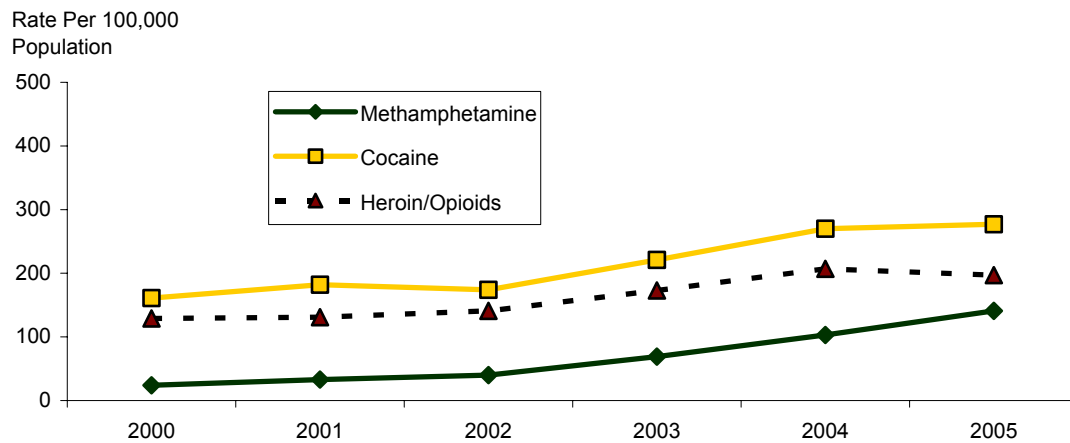


SOURCE: Arizona Substance Abuse Analysis System, James Cunningham, Ph.D.

In contrast, in Pima County, which is east of Yuma County, the rates of hospital discharges for heroin/opioid patients were higher than in Yuma County and tended to increase more over time than was the case in Yuma County (exhibit 2b). Rates for cocaine and methamphetamine also increased from 2000 to 2005, and cocaine continued to be the primary drug

diagnosis among hospital discharges. Although fewer Pima County residents use heroin, the ones who do have more health problems than those who use cocaine. The consequences of heroin use are more expensive for the State: it costs Arizona much more per person to care for heroin addicts than for cocaine or methamphetamine abusers.

**Exhibit 2b. Rates per 100,000 Population of Hospital Discharges In Pima County, by Primary Drug Diagnosis: 2000–2005**



SOURCE: Arizona Substance Abuse Analysis System, analysis by James Cunningham, Ph.D.

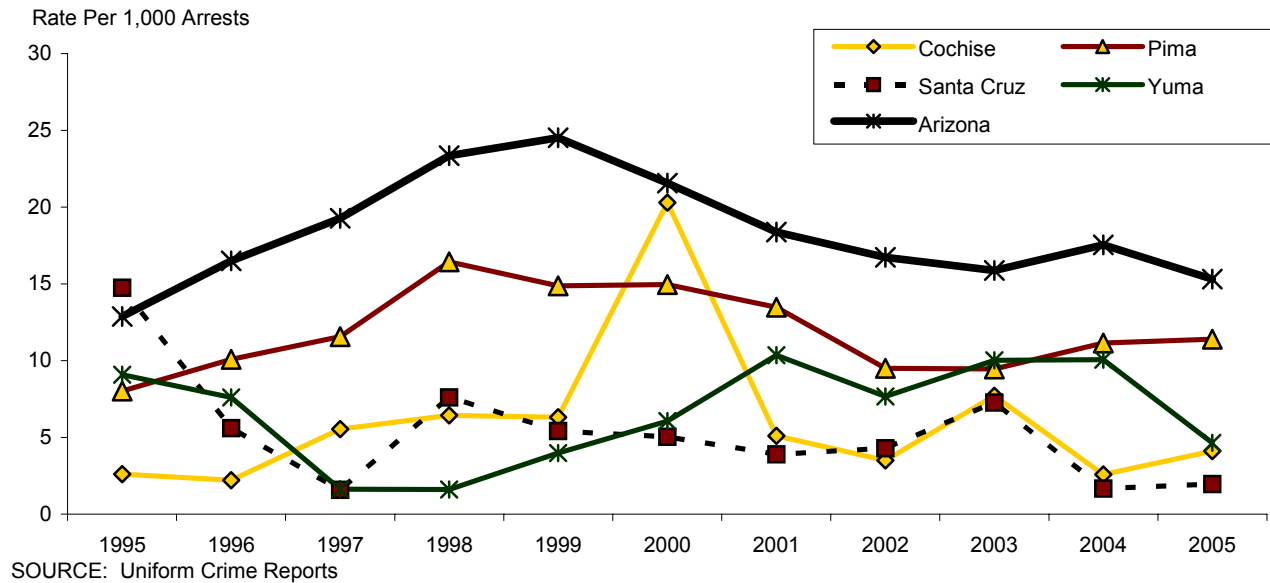
**Arrest Data**

Combined heroin/cocaine arrests fluctuated from 1995 to 2005 (exhibit 3). The arrest rate per 100,000 population was higher in the State as a whole than in

the four border counties, primarily because the largest proportion of heroin users in the State live in the Phoenix area. The spike in arrests in Cochise County in 2000 was related to the dismantling of a drug ring during which more than 20 people were arrested.



**Exhibit 3. Rates of Heroin/Cocaine Arrests per 100,000 Population in Arizona and Four Border Counties: 1995–2005**

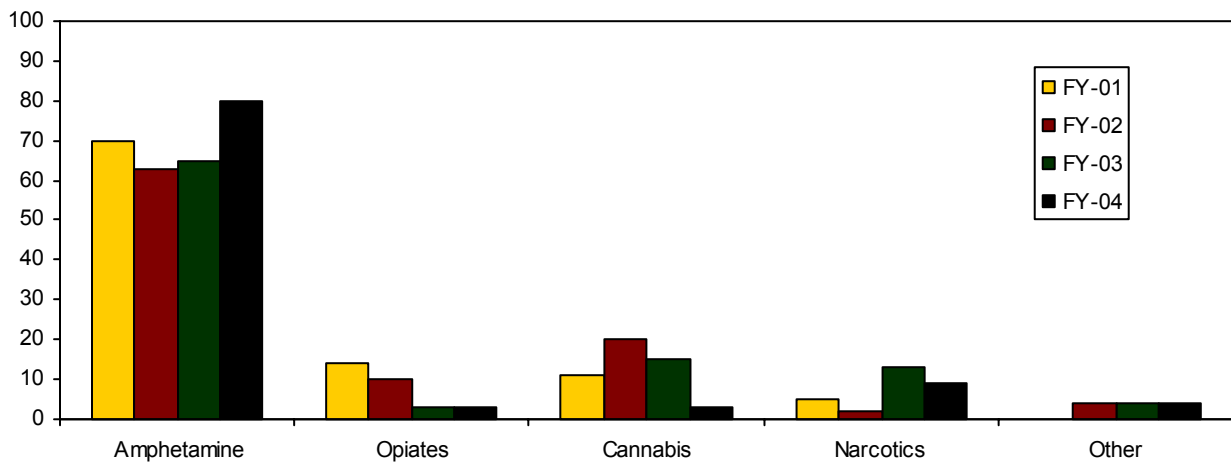


**Probation Data**

In Yuma County, the proportion of the adult probationers who cited opiates as their drug of choice declined from 14 percent in FY 2001 to 3 percent in FY

2004 (exhibit 4); the proportion identifying an amphetamine (primarily methamphetamine) as their drug of choice increased from 70 percent in FY 2001 to 80 percent in FY 2004.

**Exhibit 4. Drugs of Choice Among the Yuma County Adult Probation Population, by Percent: FY 2001–FY 2004**



<sup>1</sup>Narcotics include heroin and cocaine/crack.  
SOURCE: Yuma County Adult Probation

**Heroin Availability, Cost, and Seizure Data**

According to the National Drug Intelligence Center report (2006), Mexican black tar heroin is the predominant type of heroin found in Arizona. Heroin is smuggled into Arizona primarily through Arizona's

Ports of Entry (POEs) by pedestrians or within hidden compartments in vehicles. Availability of heroin continues to be greatest in the Phoenix metropolitan area. In 2004, the price of heroin in the Phoenix metropolitan area decreased by approximately 40 percent, indicating the abundance of available heroin.

Purity levels have increased 7 percent over the past 2 years. Midyear 2006, a gram of black tar heroin cost \$60–80 in Phoenix and \$80–\$150 closer to the border in Tucson.

Exhibit 5 shows the amounts of heroin seized by U.S. Customs and Border Protection agents at major POEs in Arizona. The decrease in heroin crossing the border in 2002–2003 reflects the tightening security after the attacks of September 2001. Prior to 2002, Asian heroin had been smuggled through these POEs, but

this is no longer the case. In 2004–2006, heroin seizures began to increase again. In 2006 (through June), more than 100 pounds were seized, compared with just 5 pounds in 2002. Most of the heroin that crosses into Arizona is destined for Minneapolis, Detroit, Chicago, and other midwestern areas; little spillover of this heroin is noted in the State. According to the Drug Enforcement Administration (DEA), most seizures conducted by High Intensity Drug Trafficking Area (HIDTA) officials (data not shown) occur in passenger cars.

**Exhibit 5. Heroin Seizures at Arizona Ports of Entry, by Pound: 1996–August 2006**



SOURCE: U.S. Customs Management Center, El Paso

*For inquiries concerning this report, please contact Darlene Lopez, M.S., Research Specialist, Senior, University of Arizona, Mel and Enid Zuckerman College of Public Health, 1295 North Martin, Tucson, AZ 85724, Phone: (520) 626-9062, Fax: (520) 326-6429, E-mail: dewlopez@email.arizona.edu.*

## Heroin Abuse Trends on the New Mexico-Mexico Border

Nina Shah, M.S.

*Heroin abuse is a serious problem in New Mexico, as indicated by two data sources—the New Mexico Office of the Medical Examiner and the Syringe Exchange Program (see Appendix A). Data show that...*

- *Heroin, either alone or in combination with other drugs, accounted for 43 percent of all drug overdose deaths in 2005.*
- *Unintentional deaths related to heroin increased 42 percent from 2004 to 2005, when the rate reached 6.8 per 100,000 persons.*
- *The highest heroin overdose death rates from 2003 to 2005 were in the Albuquerque area and the Northeast Region (8.6 and 8.0 per 100,000 population, respectively).*
- *Of the 1,932 clients who exchanged syringes at least once in 2005 at Syringe Exchange Programs (SEPs) statewide, 68 percent reported injecting heroin; this proportion was highest in the Northeast Region (92 percent). In Southeast Region 4 (nearer the border), 49 percent reported injecting heroin, while 61 percent reported injecting methamphetamine.*

### FINDINGS

#### Medical Examiner Data: Unintentional Drug Overdose Deaths

In 2003, New Mexico led the Nation in drug-related deaths: 20.5 deaths per 100,000 persons, compared with the U.S. rate of 9.9 per 100,000. The largest

subset of drug-related deaths is unintentional/undetermined drug overdose, accounting for roughly 75 percent of drug-related deaths in the United States. This proportion is typically larger in New Mexico, however, where unintentional/undetermined drug overdose death accounted for nearly 85 percent of all drug-related deaths in 2003.

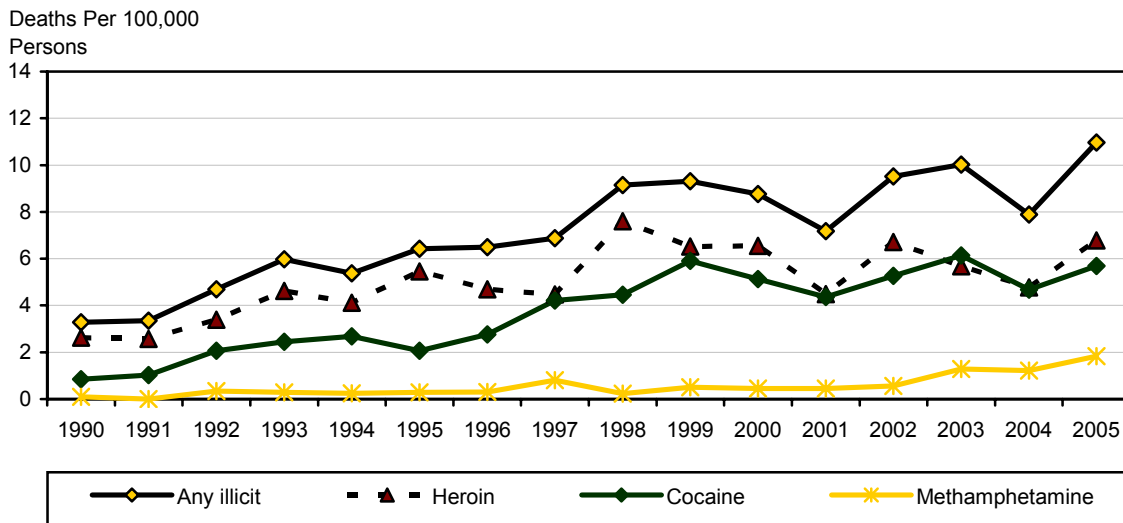
According to medical examiner (ME) data, the drug overdose death rate in New Mexico increased by 13 percent from 2004 to 2005, largely because of an increase in illicit drug overdose deaths. Heroin use remains constant in New Mexico communities and is the primary cause of drug overdose death in the State, followed closely by cocaine.

The age-adjusted unintentional drug overdose death rate in New Mexico increased from 14.5 per 100,000 population in 2004 to 16.1 per 100,000 in 2005, driven largely by a 40-percent increase in illicit drug overdose deaths (from 7.9 per 100,000 in 2004 to 11.0 per 100,000 in 2005).

Of all unintentional drug overdoses in 2005, 96 percent had toxicology data for the drug(s) causing death. The 2005 overdose death rates per 100,000 population were as follows: 8.2 from illicit drugs only, 4.3 from prescription drugs only, 2.8 from the combination of both illicit and prescription drugs, and 0.2 from other drugs and poisons.

Exhibit 1 shows age-adjusted death rates from illicit drugs for 1990–2005. The heroin overdose death rate increased 42 percent, from 4.8 per 100,000 in 2004 to 6.8 in 2005; the cocaine overdose death rate increased 21 percent between 2004 and 2005; and the methamphetamine overdose death rate increased 50 percent (from 1.2 per 100,000 in 2004 to 1.8 per 100,000 in 2005).

**Exhibit 1. Unintentional Overdose Death Rates from Illicit Drugs<sup>1</sup> in New Mexico: 1990–2005**



<sup>1</sup>Specific drugs are not mutually exclusive.

SOURCE: The New Mexico Office of the Medical Investigator; analysis by Substance Abuse Unit, Epidemiology and Response Division, NMDOH

Heroin, either alone or in combination with other substances, accounted for 43 percent of all drug overdose deaths in 2005. The proportion of heroin overdose deaths caused in combination with only prescription drugs increased from 5.6 percent in 2004 to 8.8 percent in 2005, and the proportion of heroin overdose deaths caused also by another illicit drug and prescription drugs increased from 6.7 percent in 2004 to 13.6 percent in 2005. Taken together, the proportion of heroin overdose deaths combined with any prescription drug increased from 12.3 percent in 2004 to 22.4 percent in 2005. It is also noted that the proportion of all heroin overdose deaths caused by only heroin and alcohol increased from 15.7 percent in 2004 to 20.0 percent in 2005.

As depicted in exhibit 2, heroin overdose decedents who had data for the drugs causing death were analyzed to identify any trends over 5 years. From 2001 to 2005, there was an increasing proportion of heroin overdoses caused also by tranquilizers/muscle relaxants, which were largely benzodiazepines. The finding of tranquilizer/muscle relaxant overdose increased from 4.9 percent of heroin overdoses in 2001 to 13.6 percent in 2005 (trend test  $p=0.03$ ). In addition, there was an increasing proportion of heroin overdoses caused also by methamphetamine, though marginally significant (trend test  $p=0.07$ ).

**Exhibit 2. Number of Unintentional Heroin Overdose Deaths and the Percent Caused by Other Substances<sup>1</sup> in New Mexico, by Drug and Percent: 2001–2005**

Deaths	2001	2002	2003	2004	2005
Total Number of Drug Overdoses	(193)	(233)	(283)	(236)	(289)
Heroin Overdose	42.0	51.5	36.4	37.7	43.2
Among heroin overdoses, the percent also caused by...					
Other Substance(s)	67.9	72.5	79.6	73.0	72.8
Any Prescription Drug	17.3	12.5	11.6	12.3	22.4
<i>Illicit Drugs</i>					
Cocaine	45.7	40.8	45.6	47.2	40.8
Methamphetamine <sup>2</sup>	1.2	3.3	3.9	6.7	5.6
<i>Prescription drugs</i>					
Methadone	4.9	5.8	2.9	3.4	6.4
Opioid other than methadone	7.4	5.0	4.8	7.9	4.8
Tranquilizer/muscle relaxant <sup>3</sup>	4.9	5.8	3.9	2.2	13.6
Antidepressant	1.2	0	1.9	1.1	2.4
Alcohol	38.3	40.8	47.6	34.8	39.2

<sup>1</sup>Numbers are based on decedents with toxicology data for the drug(s) causing death; specific drugs are not mutually exclusive.

<sup>2</sup>Trend test p=0.07.

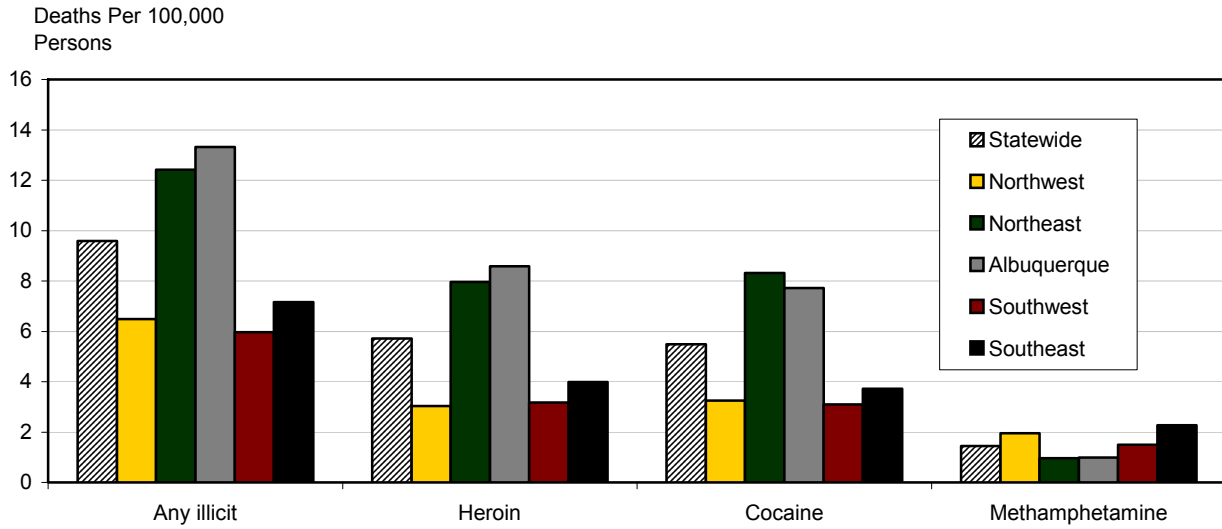
<sup>3</sup>Trend test p=0.03.

SOURCE: The New Mexico Office of the Medical Investigator; analysis by Substance Abuse Unit, Epidemiology and Response Division, NMDOH

Exhibit 3 presents regional age-adjusted overdose death rates from any illicit drug, heroin, cocaine, and methamphetamine. From 2003 to 2005, the highest heroin overdose death rates were found in the Albuquerque area (8.6 per 100,000 population) and Northeast Region 2 (8.0 per 100,000), with a statewide rate of 5.7 per 100,000. The heroin overdose death rate ratio for the Albuquerque area was 2.5 relative to other regions, and the rate ratio for Northeast Region

2 was 1.6 relative to other regions. These same regions also had the highest death rates from cocaine. Interestingly, the regions with the highest death rates from heroin and cocaine had the lowest death rates from methamphetamine. The methamphetamine death rates were highest in Southeast Region 4 (2.3 per 100,000) and Northwest Region 1 (1.95 per 100,000); both exceeded the statewide death rate of 1.4 per 100,000.

**Exhibit 3. Unintentional Overdose Death Rates by Type of Illicit Drug Causing Death<sup>1</sup> in New Mexico and Regions: 2003–2005**



<sup>1</sup>Specific drugs are not mutually exclusive.

SOURCE: The New Mexico Office of the Medical Investigator; analysis by Substance Abuse Unit, Epidemiology and Response Division, NMDOH

### Syringe Exchange Program

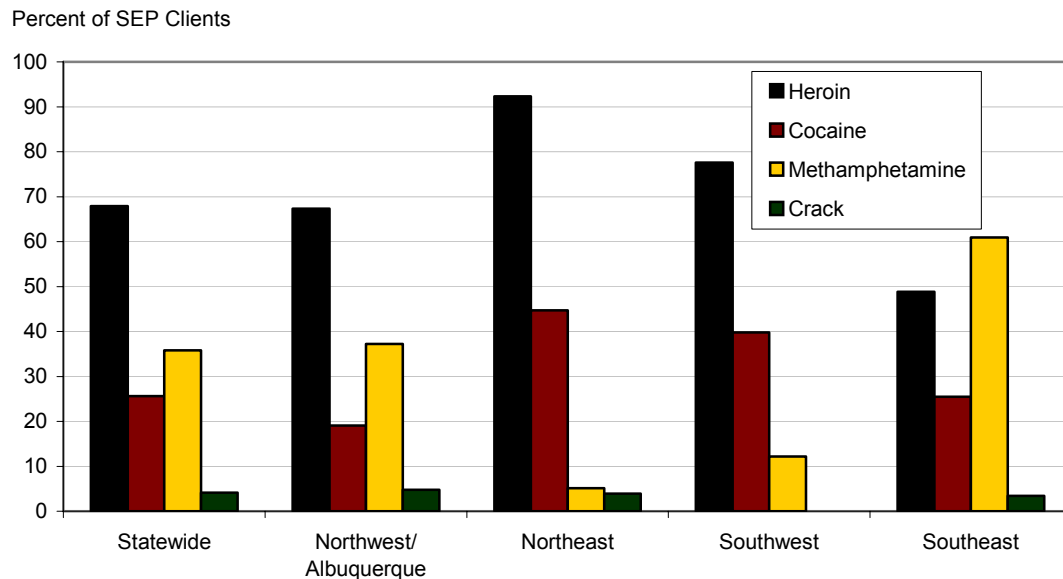
The New Mexico Department of Health (NMDOH) is unique in that it maintains one of two publicly funded SEPs among all U.S. States. There were 1,932 clients who exchanged syringes at least once during 2005. These clients reported their primary and other drugs of choice; these are not mutually exclusive, as a client may report more than one drug for each category. Of these clients, 67.9 percent reported any heroin injection; 91.4 percent of those reporting any heroin injection reported heroin as their primary drug, which correlated with 62.1 percent of all SEP clients. More than one-third (35.8 percent) reported any methamphetamine injection, and 25.6 percent reported any cocaine injection. Roughly 5 percent of all SEP clients reported both primary heroin and primary cocaine injection, though it is unclear whether this indicated simultaneous injection (speedball) and/or separate, sequential injection of both drugs over a typical day or longer period of time.

Of the 1,199 clients who reported primary heroin injection, 65.6 percent reported injecting only heroin and no other drug. Seven percent reported both primary heroin and cocaine injection; 14.4 percent reported primary heroin and secondary cocaine injection; and 5.5 percent reported primary heroin and secondary methamphetamine injection.

Of the 537 clients who reported primary methamphetamine injection, 77.5 percent reported injecting only methamphetamine; 8.7 percent reported primary methamphetamine and secondary heroin injection; 8.2 percent reported primary methamphetamine and secondary cocaine injection; and 3.5 percent reported primary methamphetamine and secondary heroin and cocaine injection.

Compared with primary heroin users, the combinations of drugs used by injection drug users (IDUs) who mainly injected cocaine were different. Of the 212 clients who reported primary cocaine injection, just 25.9 percent reported injecting cocaine and no other drug. Nearly 40.0 percent reported both primary cocaine and heroin injection; 12.7 percent reported primary cocaine and secondary heroin injection; and 9.4 percent reported primary cocaine and secondary methamphetamine injection.

Lastly, there were regional differences for drugs of choice among these IDUs, as seen in exhibit 4. Note that the Albuquerque area was included in the Northwest Region for this exhibit, since data were based on former region definitions. Ninety-two percent of clients in the Northeast Region 2 reported heroin injection, and 4.8 percent reported methamphetamine injection. This contrasts with Southwest Region 4, where 60.9 percent of SEP clients reported methamphetamine injection, and 48.8 percent reported heroin injection.

**Exhibit 4. Drugs of Choice (Primary or Secondary Use)<sup>1</sup> Among Syringe Exchange Participants in New Mexico and Regions, by Percent: 2005**

<sup>1</sup>Specific drugs are not mutually exclusive.

SOURCE: The Harm Reduction Program, Infectious Disease Bureau, NMDOH; analysis by Substance Abuse Unit, Epidemiology and Response Division, NMDOH

## Appendix A: Data Sources

### *The New Mexico Office of the Medical Examiner*

A timely and valuable data source for examining drug overdose death is provided by the New Mexico Office of the Medical Investigator (OMI). The centralized statewide OMI is authorized to investigate all deaths in New Mexico that are sudden, unexplained, suspicious, violent, or unattended; it is contracted to investigate most of those that occur in Federal or tribal jurisdictions as well. All deaths suspected of being due to the effect of drugs or poisons were diagnosed based on full autopsy, the circumstances of death, scene and medical background investigation, and toxicological evaluation showing lethal blood concentration of one or more drugs, as determined by the OMI board-certified forensic pathologists. An unintentional drug poisoning death was an accidental death that the OMI determined was drug-caused, either alone or in combination with other drugs or alcohol. This does not include unnatural deaths in which drugs were “involved” or “present” in toxicology (i.e., motor vehicle crash, gunshot wound). Of these decedents, deaths could be categorized into four mutually exclusive categories according to the type of drug(s) that caused death: illicit drugs only, prescription drugs only, both illicit and prescription

drugs, and other drugs/poisons (i.e., over-the-counter drugs), where alcohol may or may not have been present.

### *Syringe Exchange Program*

Since indicators for adult drug use prevalence in New Mexico are lacking, the SEP data provided by the Harm Reduction Program (Infectious Disease Bureau, New Mexico Department of Health) are a very useful data source. The New Mexico Harm Reduction Act of 1997 mandated the NMDOH to establish and maintain SEPs statewide and to collect data to assist in planning and evaluating efforts to prevent the spread of blood-borne diseases. Since inception of this public health program in February 1998, roughly 10,000 IDUs have been served at a syringe exchange site around the State. These sites also serve as a conduit for IDUs to access other services, such as referral to drug treatment, human immunodeficiency virus (HIV)/hepatitis testing, hepatitis vaccination, and training in Naloxone administration.

*For inquiries concerning this report, please contact Nina G. Shah, M.S., Drug Abuse Epidemiologist, Epidemiology and Response Division, New Mexico Department of Health, 1190 St. Francis Drive, N1310, Santa Fe, NM 87502, Phone: (505) 476-3607, Fax: (505) 827-0013, E-mail: nina.shah@state.nm.us.*

## Outreach Services To and Information Obtained From Heroin Injectors in Albuquerque, New Mexico

*Dominick V. Zurlo, B.A.*

*Through its street outreach program, the Albuquerque Health Care for the Homeless (AHCH) provides a variety of services (e.g., case management, medical information, health education, disease prevention, referral) to heroin injection users. In addition, overdose prevention classes and naloxone distribution (through prescription) are provided to counter life-threatening overdose episodes. Over a 4-year period, AHCH provided overdose prevention services to more than 4,000 heroin injectors; 799 individuals (injectors and family members) were trained through the outreach program, and 191 overdose cases were successfully treated. From July 2004 through June 2005, interviews with 531 heroin injectors provided useful information about risk behaviors associated with heroin injection and the need for and availability of prevention and treatment services; findings from the interviews are presented below.*

### BACKGROUND

As part of its vision to end homelessness and its mission to bring services to people in need, staff at the 21-year-old Albuquerque Health Care for the Homeless come into contact with many injection drug users (IDUs). To better serve the needs of IDUs, AHCH participates in a disease prevention program that includes syringe exchange, counseling and testing, and extensive education on hepatitis C and the human immunodeficiency virus (HIV). Staff engage IDUs (e.g., by offering food and clothing) and provide information and referral to community services (e.g., Department of Health, housing, shelters), short-term case management, medical, educational, and prevention services.

Because New Mexico has only 100 inpatient beds for substance abuse treatment, and waiting time for treatment can range from 6 to 9 months, most IDUs are not able to obtain the treatment services needed. So, an important part of AHCH's outreach program is to assist IDUs who have serious medical problems and are in need of treatment. In addition to providing education, referral, and short-term case management, the outreach program also provides an auricular acupuncture component with DOMs (Doctors of Oriental Medicine) and Certified Auricular Detoxification Specialists to help substance users and former users with relaxation, stress relief, and managing pain.

From August 2001 to September 2005, a total of 1,168 individuals (opiate users and family members) completed the overdose prevention class and were prescribed and given naloxone in the State of New Mexico; 799 of these were trained through AHCH's Harm Reduction Outreach Program,<sup>1</sup> which served more than 4,000 heroin injectors through September 2005.<sup>2</sup>

To learn more about heroin injectors and their families, AHCH staff interviewed 531 heroin injectors from July 1, 2004, to June 30, 2005. Of these interviewees, 326 were new enrollees in the program, and 205 were established participants. Forty-six percent were of Hispanic or mixed ethnic background (including Hispanic)<sup>2</sup>. They were questioned about their use of drugs, frequency of use, mode of drug administration, patterns of drug use, and family/intergenerational relationships. Information was also gathered from AHCH staff on the patterns and impact of heroin use on persons they serve.

### FINDINGS

From information gathered from heroin injectors through the AHCH community outreach programs, it was learned that...

- Heroin is often brought into New Mexico by large family groups, cut, and then further distributed to dealers.
- Black tar heroin is cut with various ingredients (e.g., shoe polish, ashes) and is often contaminated, resulting in a high number of skin abscesses, necrotizing fasciitis, and wound botulism among injectors.
- For families with ties to Mexico, the boundaries of the U.S.-Mexico border are perceived as artificial and as "cutting families in two."
- Individual heroin users may travel many miles to get their heroin fix.
- The temptation to use heroin is increased when heroin is used by other family members, e.g., parents, offspring, siblings, spouses/partners, or cousins. One heroin user noted: *I got my first shot for my 13th birthday from my Dad.* Statements like this are heard regularly by the outreach staff.
- One of the most effective factors in breaking the cycle of heroin use occurs when there is positive support from family members. Breaking the cycle of heroin addiction becomes much more difficult when there is a high level of pressure from other family members who are using.



- Because there are long waiting lists and limited inpatient beds, it may take months for a person to be able to access drug treatment.
- Through education, training, and the use of naloxone, AHCH has been successful in reducing fatal heroin overdoses. As of September 2005, there were 191 reports of successful interventions to counter the life-threatening effects of heroin overdose since the beginning of the overdose prevention program in August 2001.<sup>1</sup>

#### REFERENCE

Burris, S.; Norland, J.; and Edlin, B. (2001) Legal Aspects of Providing Naloxone to Heroin Users in the United States. *International Journal of Drug Policy* 12: 237–248.

*For inquiries concerning this report, please contact Dominick Zurlo, Biological Anthropology, Coordinator, Harm Reduction Outreach, Albuquerque Health Care for the Homeless, Inc., P.O. Box 25445, Albuquerque, NM 87125, Phone: (505) 338-8040, Fax: (505) 266-3199, E-mail: DominickZurlo@abqhch.org.*

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<sup>1</sup>New Mexico Department of Health, HIV/AIDS/Harm Reduction Programs, Fiuty, P., Heye, V., et al., November 2005.

<sup>2</sup>AHCH-HRO Program monthly and quarterly data evaluations, Zurlo, D.V.; with Miranda, D.; Murphy, M.; McCague, D.; Rogers, M.; Santiago, M.; and Tomedi, L. July 2004–December 2005.

## Drug Use on the Border

Jane C. Maxwell, Ph.D.

*Toxicology laboratory data and treatment data are useful tools for examining drug use patterns and trends in El Paso, Laredo, and the Valley—areas on the Texas border. Important findings from these sources include...*

- Cocaine and cannabis are the substances most frequently identified in exhibits submitted to drug toxicology labs in the border areas.
- The proportion of heroin among toxicology lab exhibits declined in El Paso and the Valley between 2000 and 2006.
- Powder cocaine was the leading primary drug of abuse among treatment admissions in all three border areas in 2005, followed by heroin and crack.
- A large majority of heroin treatment admissions in El Paso, Laredo, and the Valley report injecting the drug.

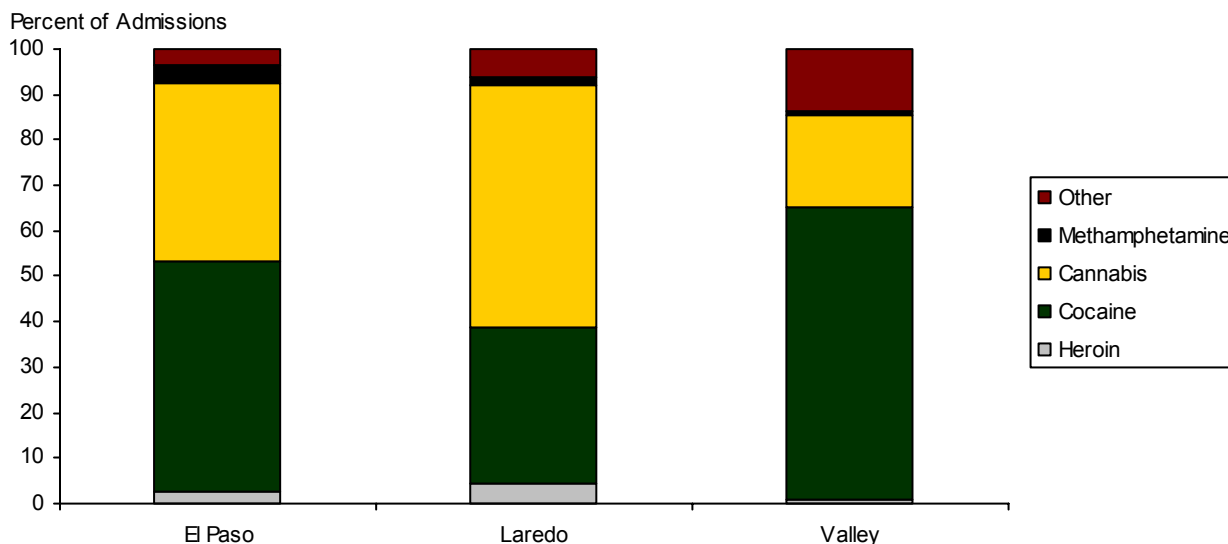
### Toxicology Lab Data

Cocaine is the substance most often identified in exhibits submitted to the Texas Department of Public Safety (DPS) labs in El Paso (50.5 percent) and the

Valley (64.3 percent) in 2005, while cannabis is the substance most often identified in the lab in Laredo (53.4 percent) (exhibit 1). Both heroin and methamphetamine represented 4.2 percent or less of all items identified in the three DPS labs in 2005. Over time, the proportion of laboratory exhibits that were heroin declined in all three border labs (exhibit 2). Between 2000 and 2005, the proportion of cocaine exhibits reported by the DPS labs in El Paso and the Valley to National Forensic Laboratory Information System (NFLIS) increased, as did the proportion of cannabis exhibits in El Paso and Laredo.

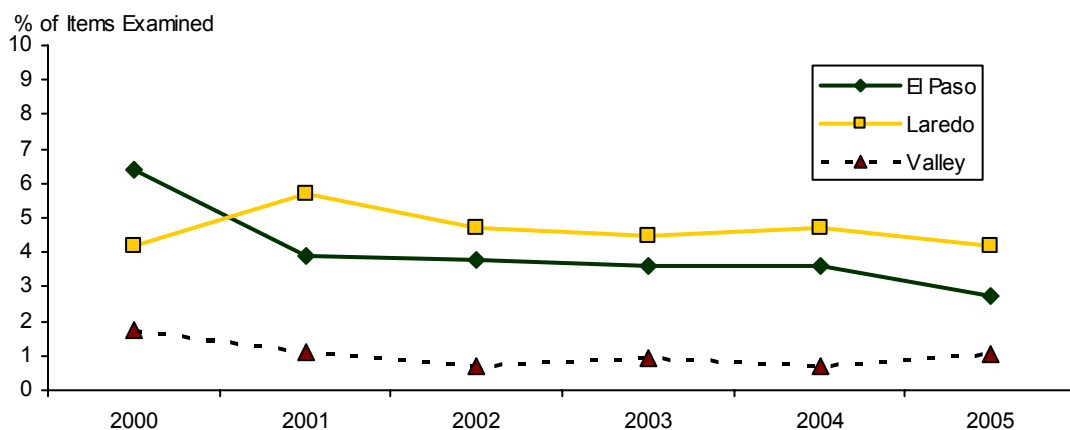
Other drugs identified by DPS labs in 2005 in El Paso included alprazolam (0.47 percent), diazepam and hydrocodone (0.31 percent each), and nandrolone and testosterone (0.23 percent each). In Laredo, clonazepam constituted 2.74 percent of the exhibits, followed by alprazolam (0.46 percent), methylenedioxymethamphetamine (MDMA) and diazepam (0.32 percent each), and diazepam, boldenone, methadone, nandrolone, and testosterone (0.23 percent each). In the Valley, clonazepam was identified in 5.86 percent of exhibits; other drugs identified included alprazolam (1.70 percent), diazepam (0.76 percent), MDMA (0.57 percent), hydrocodone (0.38 percent), and testosterone (0.35 percent). No fentanyl was identified by any of these labs in 2005 or 2006.

**Exhibit 1. Items identified by Toxicology Labs for Texas Border Areas, by Area and Percent: 2005**



SOURCE: National Forensic Laboratory Information System

**Exhibit 2. Proportions of Texas Lab Exhibits Identified as Heroin for Border Areas: 2000–2005**



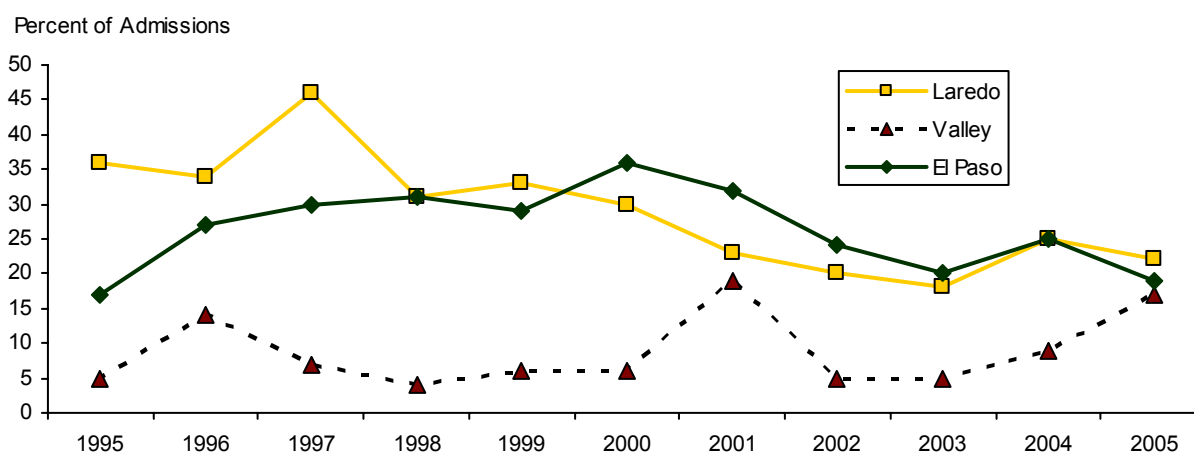
SOURCE: National Forensic Laboratory Information System

**Treatment Data**

Trends in primary heroin treatment admissions between 1995 and 2005 in Laredo, El Paso, and the Valley are shown in exhibit 3. Primary heroin admissions in Laredo represented 36 percent of admissions in 1995 and they peaked at 46 percent in 1997; since 2001, they fluctuated between 18 and 25 percent. In El Paso, primary heroin admissions peaked in 2000 (36 percent), and they totaled 19 percent in 2005. Primary heroin admissions fluctuated dramatically in the Valley between 1995 and 2005: 5 percent in 1995, 19 percent in 2001, 9 percent in 2004, and 17 percent in 2005.

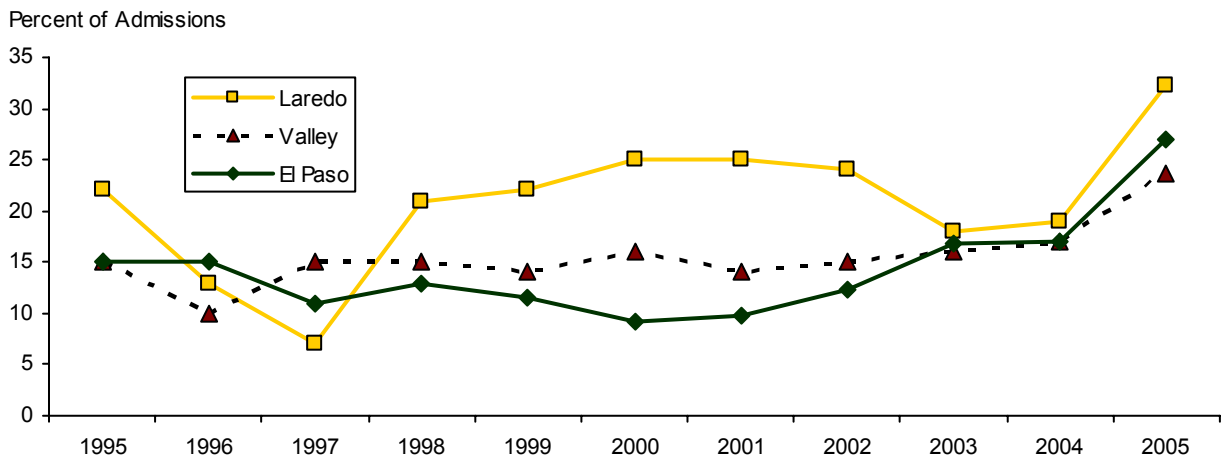
The proportion of powder cocaine admissions in all three cities increased between 1995 and 2005 (exhibit 4), as did the proportion of cocaine exhibits reported by the DPS lab in the Valley. In 2005, primary powder cocaine admissions totaled 32 percent in Laredo, 27 percent in El Paso, and 24 percent in the Valley. Crack cocaine admissions were more varied, but they were higher in the Valley (exhibit 5). Although methamphetamine treatment admissions accounted for less than 3 percent of admissions in the three border areas in 2005, they are increasing in all areas.

**Exhibit 3. Primary Heroin Treatment Admissions in Texas Border Areas, by Percent: 1995–2005**



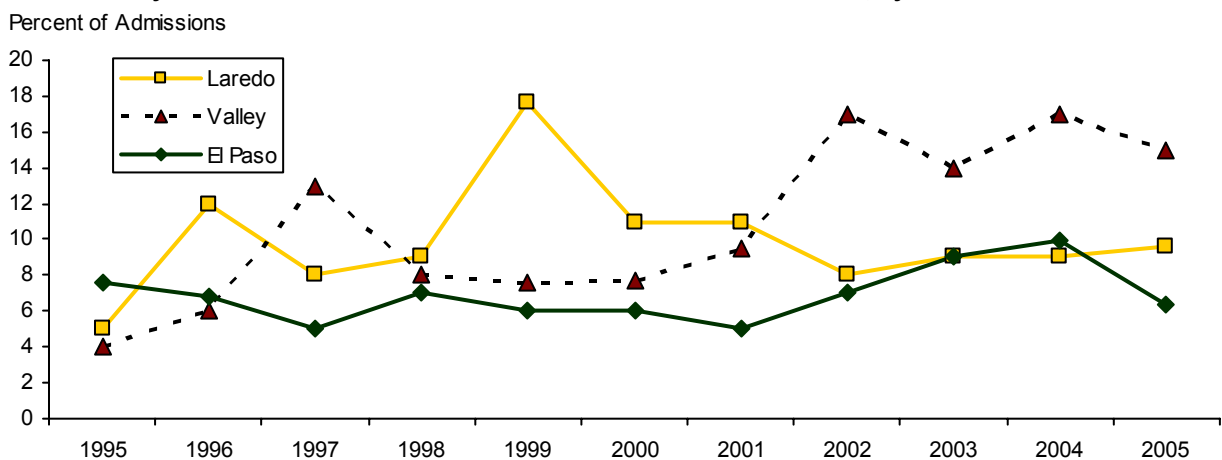
SOURCE: Texas Department of State Health Services

**Exhibit 4. Primary Powder Cocaine Treatment Admissions in Texas Border Areas, by Percent: 1995–2005**



SOURCE: Texas Department of State Health Services

**Exhibit 5. Primary Crack Cocaine Treatment Admissions in Texas Border Areas, by Percent: 1995–2005**



SOURCE: Texas Department of State Health Services

Of the heroin admissions in the border areas, those in El Paso were the oldest, the most impaired in terms of joblessness and homelessness, and the most likely to be injectors (exhibits 6 and 7). They were less likely to report a second problem drug, and if they did, it was most frequently powder cocaine (exhibit 8). Heroin admissions in Laredo were the youngest, and they were more likely to be first admissions, to be in treatment as a result of their involvement with the criminal justice system, and to still be employed. Their shorter heroin career was also marked by the fact that 20 percent were still snorting heroin, rather than injecting it. The heroin users in the Valley were more similar to those in El Paso, but they were not as impaired.

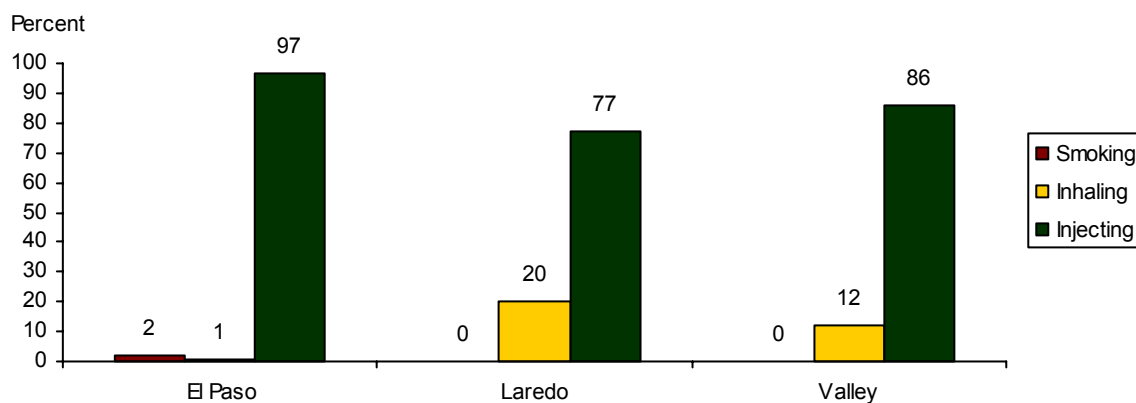
Although powder cocaine was the most commonly used drug among heroin users in Laredo, these users were more likely than their counterparts in El Paso and the Valley to report use of marijuana and crack cocaine. Heroin users in Laredo were also the most likely of the clients in the three border cities to report inhaling cocaine. The high proportion of all heroin users who were inhaling cocaine, rather than injecting it, sheds new light on the use of these drugs in combination (exhibit 9). Furthermore, the assumption that “speedballers” inject both drugs is not necessarily correct.

**Exhibit 6. Characteristics of Clients Admitted to DSHS-Funded Treatment in El Paso, Laredo, and the Valley with a Primary Problem of Heroin: 2005**

Characteristic	El Paso	Laredo	Valley
Number of Heroin Admissions	383	155	143
% of All Admissions	19.2	22.0	17.0
Average Age First Use of Heroin (Years)	(21.7)	(18.3)	(21.1)
Lag—First Use to Treatment (Years)	(19.0)	(8.0)	(18.0)
Average Age (Years)	(40.3)	(26.1)	(38.7)
% First Admissions	16.4	26.5	22.4
% Male	72.8	61.9	73.4
% Black	2.3	0.0	0.0
% White	10.7	3.2	13.3
% Hispanic	84.1	95.5	86.7
% Criminal Justice-Involved	21.9	41.9	24.5
% Employed	12.5	34.2	24.5
% Homeless	13.8	1.3	6.3
% Inject Heroin	96.5	77.3	85.9
% No Second Drug	49.6	23.9	37.1
% Powder Cocaine as Second Drug	30.3	28.4	37.1
% Inject Cocaine	67.3	41.9	58.6
% Alcohol as Second Drug	13.6	9.9	9.1
% Crack Cocaine as Second Drug	2.6	10.3	8.4

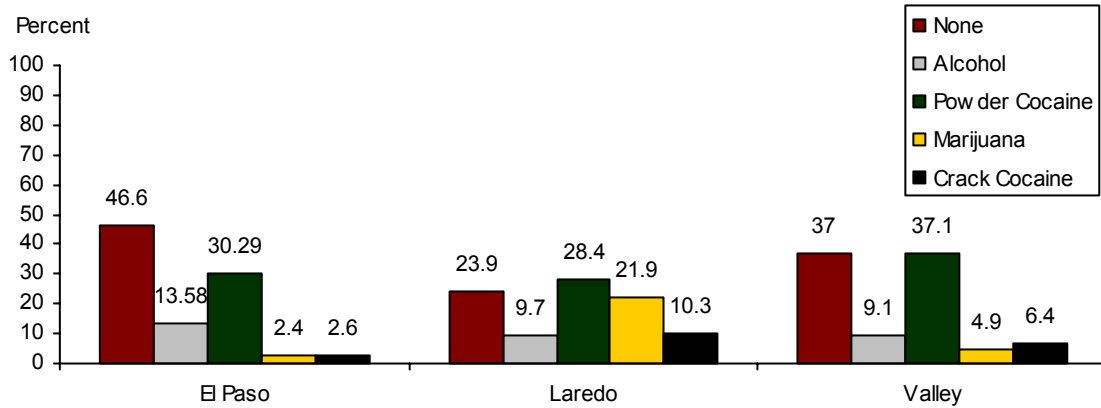
SOURCE: Texas Department of State Health Services

**Exhibit 7. Route of Heroin Administration Among Admissions in El Paso, Laredo, and the Valley, by Percent: 2005**



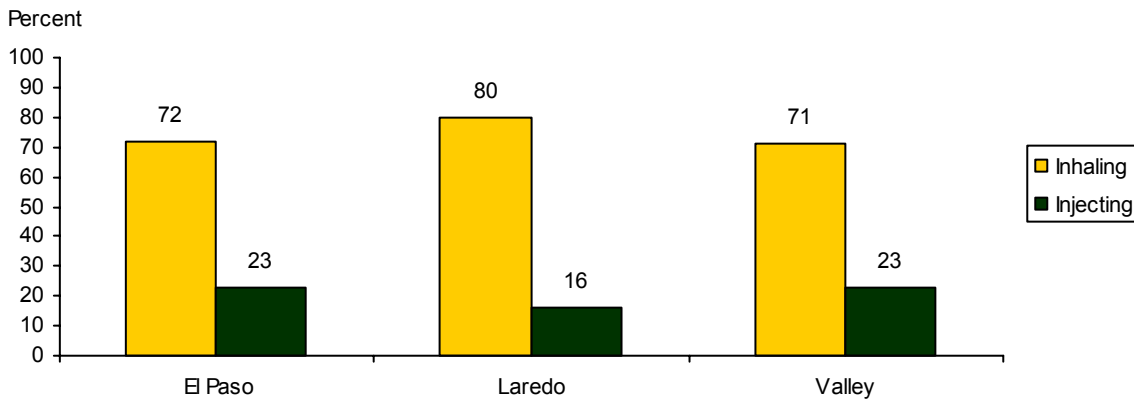
SOURCE: Texas Department of State Health Services

**Exhibit 8. Secondary Drugs Used by Primary Heroin Admissions, by Percent: 2005**



SOURCE: Texas Department of State Health Services

**Exhibit 9. Route of Powder Cocaine Administration When Used in Combination with Heroin, by Percent: 2005**



SOURCE: Texas Department of State Health Services

**Data Sources**

- Texas Department of State Health Services' Client Data System
- Texas Department of Public Safety Toxicology Laboratory Findings, as reported to the Drug Enforcement Administration's (DEA's) National Forensic Laboratory Information System (NFLIS)

*For inquiries concerning this report, please contact Jane C. Maxwell, Ph.D., Research Professor, The Center for Social Work Research, The University of Texas at Austin, 1717 West 6th Street, Suite 335, Austin, TX 78703, Phone: (512) 232-0610, Fax: (512) 232-0613, E-mail: jcmawell@sbcglobal.net.*

## **PARTICIPANTS**





## Participant List

*September 21, 2006  
San Diego, California*

### **Kimberly C. Brouwer, Ph.D.**

Assistant Professor  
Division of International Health  
and Cross-Cultural Medicine  
Department of Family and Preventive Medicine  
University of California, San Diego  
9500 Gilman Drive, MC 0622  
La Jolla, CA 92093-0622  
Phone: (858) 822-6467  
Fax: (858) 534-4642  
E-mail: kbrouwer@ucsd.edu

### **Mario Cortés, M.Sc.**

Department Chief  
Epidemiological Analysis Information  
Mexican Ministry of Health  
Prevención y Control de Enfermedades  
Cerro de Macuiltepec #83  
Col. Campestre Churubusco, C.P. 04200  
Coyoacan, D.F. México  
E-Mail: Marioc@dgepi.salud.gob.mx

### **Patricia Cravioto, Ph.D.**

Director  
Epidemiological Operative Research  
Secretaría de Salud  
Prevención & Control de Enfermedades  
Mexican Ministry of Health  
Cerro de Macuiltepec #83  
Col. Campestre Churubusco, C.P. 04200  
Coyoacan, D.F. México  
Phone: (52) (5) 534-7711  
Fax: (52) (5) 534-7711  
E-mail: pcravioto@dgepi.salud.gob.mx

### **Fernando Galvan**

Physicist/Mathematician  
Asóciate Director  
Epidemiologic Diagnosis and Análisis  
Mexican Surveillance System  
Mexican Ministry of Health  
Prevención & Control de Enfermedades  
Mexican Ministry of Health  
Cerro de Macuiltepec #83  
Col. Campestre Churubusco, C.P. 04200  
Coyoacan, D.F. México  
E-mail: sfgalvan@dgepi.salud.gob.mx

### **Richard Garfein, Ph.D., M.P.H.**

Associate Professor  
Division of International Health and  
Cross-Cultural Medicine  
UCSD School of Medicine  
9500 Gilman Drive, mailcode 0622  
San Diego, CA 92093  
Phone: (858) 822-3018  
Fax: (858) 534-4642  
E-mail: rgarfein@ucsd.edu

### **Darlene Lopez, M.S.**

Research Specialist, Senior  
University of Arizona  
Mel and Enid Zuckerman College of  
Public Health  
1295 North Martin  
Tucson, AZ 85724  
Phone: (520) 626-9062  
Fax: (520) 326-6429  
E-mail: dcwlopez@email.arizona.edu

### **Oralia Loza**

Statistician  
Division of International Health and  
Cross Cultural Medicine  
Department of Family & Preventive Medicine  
University of California at San Diego  
9500 Gilman Drive, MC 0849  
La Jolla, California 92093-0849  
Phone: (619) 920-6426  
E-mail: oralia@ucsd.edu

### **Jane C. Maxwell, Ph.D.**

Research Professor  
The Center for Social Work Research  
The University of Texas at Austin  
1717 West 6th Street, Suite 335  
Austin, TX 78703  
Phone: (512) 232-0610  
Fax: (512) 232-0613  
E-mail: jcmaxwell@sbcglobal.net

### **Moira O'Brien, M. Phil.**

Program Director  
Epidemiology Research Branch  
Division of Epidemiology, Services and  
Prevention Research  
National Institute on Drug Abuse  
National Institutes of Health  
6001 Executive Boulevard  
Room 5153  
Rockville, MD 20852  
Phone: (301) 403-1881  
Fax: (301) 443-2636  
E-mail: mobrien@nida.nih.gov

**Anne Pietromica, M.A.**

(Consultant) MasiMax Resources, Inc.  
1375 Piccard Drive  
Suite 175  
Rockville, MD 20850  
Phone: (216) 212-1895  
E-mail: anne@pietromica.com

**Robin Pollini, Ph.D.**

University of California San Diego  
School of Medicine  
9500 Gilman Drive, Mailstop 0622  
San Diego, CA 92093  
Phone: (858) 534-0710  
Fax: (858) 534-7053  
E-mail: rpollini@ucsd.edu

**Nina G. Shah, M.S.**

Drug Abuse Epidemiologist  
Epidemiology and Response Division  
New Mexico Department of Health  
1190 St. Francis Drive, N1310  
Santa Fe, NM 87502  
Phone: (505) 476-3607  
Fax: (505) 827-0013  
E-mail: nina.shah@state.nm.us

**Jorge Villatoro, M.C.**

Researcher  
National Mexican Institute of Psychiatry  
Calz. Mexico-Xochimilco 101  
Col. San Lorenzo-Huipulco  
Mexican Ministry of Health  
Ciudad de Mexico, Mexico 14370  
Phone: (55) 5655 2811, ext. 401  
Fax: (55) 5513 3446  
E-mail: ameth@imp.edu.mx

**Sandra Woerle, M.A.**

Social Science Analyst  
National Institute of Justice  
810 7th Street, NW  
Washington, DC 20531  
Phone: (202) 616-9030  
E-mail: woerles@ojp.usdoj.gov

**Maria Luisa Zuniga**

Assistant Professor  
Division of International Health  
and Cross-Cultural Medicine  
UCSD School of Medicine  
9500 Gilman Drive, mailcode 0622  
San Diego, CA 92093  
Phone: (858) 822-3992  
Fax: (858) 534-4642  
E-mail: mzuniga@ucsd.edu

**Dominick Zurlo**

Biological Anthropology  
Coordinator  
Harm Reduction Outreach  
Albuquerque Health Care for  
the Homeless, Inc.  
P.O. Box 25445  
Albuquerque, NM 87125  
Phone: (505) 338-8040  
Fax: (505) 266-3199  
E-mail: DominickZurlo@abqhch.org