

Subj: **No Subject**
Date: Friday, September 2, 2005 11:31:14 AM
From: willi_mcfarland@hotmail.com
To: jnewmeyer@aol.com
cc: Sheila.Jain@sfdph.org

Hi John,

I hope you are well. I need your help. We are going to redo the "HIV Consensus Meeting" this year. Your method of tracking the epidemic among IDU has been an integral part of the consensus estimates.

We are hoping you can update us on what you are estimating for:

- 
- 1) The number of IDU living in San Francisco as of 1 January 2005.
 - 2) The number of IDU (ie., prevalence or percent) living with HIV as of 1 January 2005.
 - 3) The number of new infection that will occur this year (ie., incidence in 2005).

Any general impressions on:

- 1) Can you make these estimates separately for MSM-IDU and IDU (non-MSM), female vs male IDU (non-MSM), drug type (particularly heroin vs. meth),
- 2) Whether things have increased or decreased since the last consensus estimates in 2000-2001? Population size, prevalence, incidence?
- 3) Any significant risk factors you think are important to consider, with any of your data, to give special mention to.
- 4) If you are aware of other researchers that have data on population sizes, HIV prevalence and HIV incidence for any population in San Francisco (MSM, IDU, transgenders, women, etc), please let me know and we will follow-up with them. Even modeling exercises would be great.
- 5) Finally, any way to reference your work, or publications.

I realize you may not have all of this and much will be uncertain, but such is the case with every study. Whatever you can answer or send us will be very appreciated. Of course, we will be gathering up other estimates of

SP, SF H, SE

44 83 1/2

84 1/4

29 1/2 83 1/2

83.84% FY '00-'01

Change in Dnj Wage?

84.88% in '02 in SF

83.84% in '03 in SF

(by c. 3/4 of 1%)

Try (H)

2000 v. 2004

36

29 1/2

(SF) Heroin

Deaths FY '00 132 FY '03 77

Admins FY '00 4,030 FY '04 3,646

DAWN 2,706 2002 2,672

Arrests 5,981 n. 2,760

Burglaries n. 5,810 n. 6,600

[FY '04 data?]

[Commensurate only thru 2002]

[3 County]

(SF) Speed

Deaths FY '00 15 FY '03 28

Admins FY '00 1,008 FY '04 1,235

DAWN 591 2002 727

DAWN (1H 05) H Inj 95%

Sp Inj 57%

H 83% ♂, 59% wh, 68% ≥ 35

Sp 82% ♂, 65% wh, 49% ≥ 35

SF Med Ex (FY 03)

H 79% ♂

Sp 83% ♂

[3 County]

Gay ♂ used P Year: Sp 21%

H 0.4%

✓ these same things and comparing and contrasting. I will keep you posted as this comes together. No huge rush, we would like much of this to come together in the next month or so.

✓ Let me know if you have any questions. Please CC Sheila Jain on these communications, she is coordinating this.

Thanks!

--Willi

----- Headers -----

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- Decedents
- Admissions
- HIV data

Capture-Recapture

- Fetch out my prevalence paper
- Choose 2-3 methods

682 Amp admin, SF County 1H '05
 32 Sp deaths '01, 38 in '02 3 County
 15 " FY '00, 28 in FY '03 SF County
 1,092 DAWN reports in '04 "3 County"
 v. 1,278 for H
 * 1/6 of Sp used report primary info (source?)

Subj: **HIV Consensus - Introducing Mark Berry**
Date: Friday, September 16, 2005 12:37:49 PM
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cc: cyn9@cdc.gov, willi_mcfarland@hotmail.com

Hello All,

Willi and/or I recently contacted you regarding the data that we are trying to collect for the upcoming HIV consensus report/meeting. I began the process of organizing and consolidating the information we have received so far, and are hoping to receive soon. This email is to let you know that as of today, I will no longer be employed at SFDPH, and am handing all consensus materials over to Mark Berry. He is a CDC Public Health Prevention Service Fellow, and will be working with Willi on various projects, including this one.

I have cc'd him to this email (cyn9@cdc.gov) so that you may also cc him on all future correspondence.

Thank You for your time!
Sheila Jain

website Pringle
c. Nov. 10 Santos

- Re-check DAWN data (~~05 demog.~~, 04/03 compare)
- Inq. FY 04 deaths
- Inq. FY 05 admissions
- Find source on "1/6 of Sp users inject"
- Synthetic est for Sp: ① Pop'n gay ♂ ② Pop'n gay ♂ users ③ Pop'n users gay ♂

21% past yr
New dem



↓ w/ 25% of HARC: Struggles

ATP 65,333
City Clinic 61,566

Say 63,400 gay ♂

Heroin

Indicators

• Deaths Down
↓
FY '00 132
FY '03 77
FY '04 ?

• Adm's Down
↓
FY '00 4,030
FY '04 3,646
FY '05 3,589 ?

• DAWN →
2000 2,756 [3 County]
2002 2,672
NEW 2003
2004

• Arrests ↓
2000 5,981
2004 ~2,760

• Burglaries →
2000 5,810
2004 6,600

What % are Primary IDU?

FY 01	83 1/2 %	• CALADDS, SF
FY 02	84 1/4 %	"
CY 03	83 1/2 %	"
1H 05	95 %	DAWN (3 County)

DEMUG. DAWN 1H 05 63% ♂ SFM-ASx 79% ♂
59% wh
68% ≥ 35

Gay ♂ used, past yr 0.4%



Speed

Indicators

• Deaths ↗

FY '00 15
FY '03 28
FY '04 ?

2001 32 } DAWN
2002 38 } (3 County)

• Admin's ↗

FY '00 1,008
FY '04 1,235
FY '05 1,242 ? (682 in IH)

• DAWN ↗

2000 591 [3 County]
2002 727
2003
2004

→ (1,092 v. 1,278 for H)

What % are Primary IDU?

FY 01 44% CADABCS, SF
2002 36% ..
2003 29 1/2% ..

IH 05 57% DAWN (3 County)

"1/6 of Sp users report IDU Primary" (Source?)

DEMOG.

DAWN IH 05

82% ♂
65% wh
49% ≥ 35

SF Med Ex 83% ♂

Gay ♂ used, past yr. 21%

EXHIBIT 14

HIV Prevalence Estimates by BRP and Race/Ethnicity, San Francisco

BRP	ESTIMATED NUMBER LIVING WITH HIV				
	African American	Asian/ Pacific Islander	Latino	Native American	White
1. MSM, MSM/F	1,101	552	1,794	46	10,118
2. TSM, TSM/F, TSF, TST, TSM/T, TSF/T*	191	91	183	42	149
3. MSM-IDU, MSM/F-IDU	371	38	236	30	1,421
4. FSM-IDU, FSF-IDU, FSF/M-IDU	266	14	55	8	182
5. MSF-IDU	432	20	96	9	341
6. TSM-IDU, TSM/F-IDU, TSF-IDU, TST-IDU, TSM/T-IDU, TSF/T-IDU*	221	52	124	33	150
7. FSM, FSM/F, FSF	118	36	68	8	104
8. MSF	21	8	23	0	24
TOTAL ESTIMATED NUMBER LIVING WITH HIV†	2,746	828	2,599	182	12,527
TOTAL POPULATION‡	58,791-67,076	241,775-259,750	109,504	2,020-8,971	338,909-411,427
TOTAL ESTIMATED PREVALENCE BY RACE/ETHNICITY§	4.1 - 4.7%	.3%	2.4%	2.0 - 9.0%	3.0 - 3.7%

Source: HIV Consensus Meeting (SFDPH 2001a), and HIV/AIDS Statistics and Epidemiology Section, special data request.

Note: The estimated HIV prevalence for San Francisco as a whole is 2.4%.

*Includes MTF transgendered persons only.

†Does not include pediatric or transfusion cases.

‡Source: U.S. Census Bureau, Census 2000. The lowest number in the range represents individuals who identify only as that racial group. The highest number in the range represents individuals who identify only as that racial group plus those who identify as that racial group as well as one or more other racial groups.

§This is the total estimated number of people living with HIV divided by the total population size, for each racial group. A range is given because depending on the denominator, the estimated HIV prevalence is different (see previous footnote).

EXHIBIT 13

Return to Plan

HIV Prevalence and Incidence Estimates by BRP, San Francisco

BRP	TOTAL POPULATION SIZE 2001*	ESTIMATED HIV PREVALENCE, 12/31/00: n (%)	ESTIMATED HIV PREVALENCE, 6/30/03: n (%)	ESTIMATED NUMBER OF NEW INFECTIONS ANNUALLY	ESTIMATED HIV INCIDENCE PER YEAR
1. MSM, MSM/F	46,800	12,786 (27.3%)	13,611 (29.1%)	748	2.2%
2. TSM, TSM/F, TSF, TST, TSM/T, TSF/T†	2,160	513 (23.8%)	656 (30.4%)	102	6.2%
3. MSM-IDU, MSM/F-IDU	3,982	2,080 (52.2%)	2,100 (52.7%)	87	4.6%
4. FSM-IDU, FSF-IDU, FSF/M-IDU	4,850	485 (10.0%)	525 (10.8%)	48	1.1%
5. MSF-IDU	9,000	900 (10.0%)	899 (10.0%)	45	0.6%
6. TSM-IDU, TSM/F-IDU, TSF-IDU, TST-IDU, TSM/T-IDU, TSF/T-IDU†	840	537 (63.9%)	579 (68.9%)	40	13.2%
7. FSM, FSM/F, FSF	5,000§	334 (0.1% of total population)	333 (0.1% of total population)	10	<0.1%
8. MSF	2,000§	82 (<0.1% of total population)	75 (<0.1% of total population)	2	<0.1%
Pediatric‡	-	49	51	-	-
Transfusion/ Blood Products‡	-	51	53	-	-
TOTAL	791,600	17,817 (2.3%)	18,882 (2.4%)	1,082	

Source: HIV Consensus Meeting (SFPD 2001a). HIV/AIDS Statistics and Epidemiology Section, special data request, August 2003.

*Population sizes for BRPs have not been updated since 2001. Preliminary analysis of the data from the 2001 Behavioral Risk Factor Survey suggests that the MSM, MSM/F population (especially HIV-negative) has increased, although actual numbers are not yet available.

†Consensus estimates include only MTF transgendered persons, and not males or females who have sex with transgendered individuals.

‡Consensus estimates were not derived for pediatric or transfusion recipient populations. The pediatric prevalence number given includes children under 12 living with HIV, based on surveillance data. The transfusion prevalence number given includes adults living with AIDS; it is not known how many are living with HIV.

§This is the number considered to be at risk within these BRPs, not the total population size.

Gay hr IDU 3,982

♀ IDU 4,850

Het ♂ IDU 9,000

T IDU 840

	1976		22,000	<u>Permt</u>	<u>Burg</u> 22,000
<u>Point</u>					
	1978	7000-8000	18,100	11,500	18,100
<u>Surges</u>			17,300	9,200	17,300
(1969-71)	1980	4000-5000	16,800	7,000	16,800
(1975-77)	1981	5000-6000	17,700	8,500	17,700
(1982-84)	1982	4000		6,200	14,800
	1983	4000-4500	-33% (11,800)	6,500	11,800
Point = .65 x Permt	1984	5000-6000	+7% (12,600)	8,500	12,600
	1985	6000	(12,100) 11,860	9,200	11,760
<u>Permt</u>	1986		10,080	10,100	10,080
	1987	10,000-12,000	9,650	11,000 (12,000)	9,650
	1988	8,000-10,000	10,150	9,000 (11,000)	10,150
	1989	8,000-10,000	c 10,400	9,000 (11,600)	10,400
	1990	8,000 10,000	c 11,400	10,600 (12,700)	11,400
	1991	11,700	c 11,400	11,200 (12,100)	11,400
	1992		c 12,200	(11,600)	12,200
	1993		c 11,400	(13,500)	11,400
	1994		8,210	14,000*	8,050
	1995			14,000	7,150
	1996			14,000	7,014
	1997				

* Consensus Mtg 1997 : 13,000 heter IDU,
4,100 gay IDU,

Assume 12,500 of het IDU + 1,500 of gay IDU, vis (H)
+ 1,000 (10%) non IDU (H) = 14,000

The Prevalence of Drug Use in San Francisco in 1987

JOHN A. NEWMAYER, PH.D.*

This article is a report on seven different approaches to estimate the extent of heroin or amphetamine (speed) use in San Francisco. These drugs are of central interest at present because they are generally used by injection, and sharing needles is one of the principal means of transmission of the AIDS virus. It is important to get some idea of the size of the intravenous drug user (IVDU) population, so that prevention campaigns can be appropriately scaled and evaluated.

ESTIMATIVE APPROACHES

Synthetic, capture-recapture, upper-bound, and lower-bound approaches will be used in making these estimations. These approaches are described below.

Estimating Total Number of Speed Users Based on Data on Gay Males

The Men's Health Study (Winkelstein et al. 1987) conducted a household survey of 19 "heavily gay" census tracts in the Castro and Haight-Ashbury districts. From this survey, it was estimated that approximately 18,000 gay men ages 25 to 54 resided in those tracts. The author of the present article examined zip-code listings of 1,004 members of the Alice B. Toklas Democratic Club—the overwhelming majority of whom are gay men—who were San Francisco residents. From these, it was estimated that 39 percent of these members resided in the aforementioned 19 census tracts. This led to an estimate of

$18,000 \times 0.39 = 46,000$ gay men aged 25 to 54 in the city as a whole.¹

The Men's Health Study also found that 4.5 percent of gay men aged 25 to 54 in their survey reported using speed on at least a weekly basis during the prior six months (Wiley 1988). Treatment data from the Haight Ashbury Free Medical Clinic (HAFMC) indicate that about 60 percent of all speed users are gay men, and that of these gay men approximately 75 percent are aged 25 to 54. Thus, one can arrive at a rough estimate of $46,000 \times 0.045 = 2,070$ gay males aged 25 to 54, who are regular users of speed; it can then be estimated that there are $2,070 \div (0.60 \times 0.75) = 4,600$ regular users of speed in the city as a whole.

Estimating Total IVDUs from Data on Black IVDUs

Polaris Research and Development (Day, Deslonde & Houston-Hamilton 1987) studied a random sample of Black residents of San Francisco aged 18 to 64. Of those sampled, seven percent admitted to recent injection of drugs by needle. The 1980 Census found that the total population of Blacks aged 18 to 64 in the city was 54,840. Projections of this population for 1987 yielded an estimate of 64,800. From this it can be estimated that $64,800 \times 0.07 = 4,530$ Blacks aged 18 to 64 are recent IVDUs.

An unduplicated roster of persons in treatment for drug abuse in San Francisco programs supported through Community Substance Abuse Services (CSAS) during fiscal year 1986 showed that, of those for whom IV injection was the primary mode of use, 23.3 percent were Black. Virtually all of these were in the 18 to 64 age group. One can then estimate that $4,530 \times 0.233 = 19,400$ Black

*Epidemiologist, Haight Ashbury Free Medical Clinic, 1694 Haight Street, San Francisco, California 94117.

IVDUs are residents of San Francisco. Naturally, this method of estimation depends on the assumption that the CSAS sample of IVDUs is representative of the city's IVDU population as a whole. It has been suggested that Blacks are less likely to enter treatment than IVDUs of other races, and that the true proportion of Blacks among IVDUs is nearer to 30 percent than 23.3 percent (Newmeyer 1982).

Estimating Lifetime IVDUs from Data on Latino IVDUs

A 1987 survey of 315 Latino San Francisco residents aged 18 to 59 (Fairbank, Bregman & Maullin, Inc. 1987) found only 15 (5%) who admitted to any use of illicit drugs by needle by any member of their household. If one assumes from this that five percent of Latinos in that age group have a lifetime history of IV drug use, and if one assumes that a 1987 estimate of 61,500 Latinos aged 18 to 59 is accurate, then one arrives at an estimate of 3,100 Latino lifetime IVDUs. The CSAS data indicate that 14.6 percent of all the persons treated in fiscal year 1986 who were primarily IVDUs were Latino. From this it can be reckoned that the lifetime prevalence of Latino San Francisco IVDUs is $3,100 \times 0.146 = 21,100$. This may be an overestimate, in that an IVDU rate of only two or three percent could still generate the finding that five percent of Latino households have at least one IVDU. On the other hand, there may be a large number of Latino IVDUs who are not members of households and are not likely to be selected by a household survey, a caution which also applies to the survey of Blacks described in the preceding paragraph.

Using Burglary Data to Arrive at Upper-Bound Estimates of Heroin Abuse Prevalence

Heroin is expensive on the retail market, and some users support their habits by burglary. Therefore, it is possible that the rate of loss of assets by the citizenry is in some degree driven by the number of active heroin users. An examination of this relationship can be made for San Francisco in 1986 by making a string of assumptions that connect the reported value lost to burglary to the estimate of the prevalence of heroin use. Furthermore, each of these assumptions may be made as extreme as is credible in the direction of maximizing the resultant estimate of user prevalence. Finally, using the datum from the San Francisco Police Department that a total of \$9,776,000 in burglary losses was reported to them during the whole of 1986, the chain of assumptions then runs as follows:

Assumption 1. According to statistics from the U.S. Department of Justice (1987), 52 percent of all burglaries were reported to the police. If San Francisco's unreported burglaries were similar to the reported ones, then the actual property loss in 1986 was $\$9,776,000 \div 0.52 = \$18,800,000$.

However, Department of Justice studies have shown that the unreported portion of burglaries have a significantly lower average loss.

Assumption 2. An estimate by the San Francisco Police Department (SFPD) indicates that the cash return to the burglar is 30 percent of the value loss reported by the victim. This would mean that burglaries in 1986 yielded $\$18,800,000 \times 0.30 = \$5,640,000$ to the burglars. The SFPD would judge this to be an upper-limit figure, in view of the notoriously poor efficiency of fencing in returning cash value to the burglar.

Assumption 3. Based on observations of arrestees on burglary charges, the SFPD estimated that 90 percent of all burglaries are carried out to produce money to support a heroin habit. This would mean that nearly all of the money raised from fencing burgled goods—about \$5,080,000—was used to purchase heroin.

Assumption 4. Estimates based on observations at the Detoxification Project of HAFMC and corroborated by the work of Hanson and colleagues (1985) indicate that the average number of days per year a burglar-abuser is strung out on heroin is at least 200, and the average cost per day of heroin during periods of use is at least \$20. If the average burglar-abuser spends at least \$4,000 per year on heroin, then the cash return of San Francisco's burglaries could support no more than $\$5,080,000 \div 4,000 = 1,270$ habits.

Assumption 5. Of all the money spent on heroin, only 10 percent is raised by burglary (Newmeyer 1972). This would suggest that there were no more than 12,700 heroin users in San Francisco in 1986.

The above analysis involves many uncertainties. Its only real value is to demonstrate that there are simply not enough burglaries in San Francisco to support more than 1,300 or so heroin habits. And if there are only 1,300 such burglars, can there be more than 13,000 or so heroin users altogether?

Using Treatment Program Data to Arrive at Lower-Bound Estimates of Heroin and Speed Abuse Prevalence

The great majority of drug abuse treatment in San Francisco is administered through the CSAS, which oversees county-funded contracts to the treatment providers and has since early 1984 maintained central record keeping. Part of the record keeping consists of individual client data, linked not with client names but with unique identifiers. By means of these 11-column identifiers, client counts can be unduplicated and simultaneous treatment by two or more programs avoided.

Al Abramowitz and Dr. Wayne Clark of CSAS kindly furnished to the author of the present article an unduplicated count of persons in treatment for various drug problems during the three-year period from July 1984 through June 1987. All of these persons were presumed to be San

Francisco residents (this being a requirement for admission); many reported more than one drug problem. The unduplicated count for individuals claiming heroin or speed as a primary or secondary problem was 8,363 and 1,214, respectively. Approximately 9,350 individuals of the overall total of 13,085 in treatment in the three-year period reported their principal route of administration as IV.

These numbers must be taken as lower-bound estimates of the three-year period prevalence of heroin users, speed users, or other IVDUs. If one is simply interested in a one-year period prevalence (e.g., fiscal year 1987), many of those who were treated in fiscal years 1985 or 1986 would have become abstinent and need not be counted. On the other hand, there were unquestionably a great many persons who used heroin or speed or other IV drugs during fiscal year 1987 who had not been in treatment that year or in the previous two years.

CSAS data show that, of the drug users who were primarily IVDUs enumerated in fiscal year 1986, 93.0 percent were primary users of heroin, 4.3 percent of speed, 2.3 percent of cocaine, and 0.5 percent of other drugs. However, the city's drug abuse treatment programs at that time were much less successful in attracting stimulant users than opiate users into treatment.

Applying a Capture-Recapture Method to Treatment and Death Data

Under the supervision of Joseph Surdyka of the San Francisco Coroner's Office, a list was obtained of the names of decedents found to contain illicit drug metabolites in their systems during fiscal years 1985 through 1987. Data on the decedents' age, sex, race and last known residence were also obtained. This list was checked by Al Abramowitz against the roster of clients treated at CSAS-supported programs during the same period. In the case of heroin, there were 254 decedents showing evidence of that drug, 8,363 persons who had been treated for a primary or secondary problem with that drug, and 72 who were on both rosters.

Correction was necessary for failure to match individuals who actually were on both rosters. The author of the present article estimates that the match list should be inflated by at least 10 percent to account for these missed matches, which occurred largely because of the use of aliases or false dates of birth at treatment programs (the unique identifier depends on accuracy in the date of birth, sex, first and last initials, and number of letters in the last name). Correction was also required because the CSAS roster was growing in size throughout the period in which the decedent data were accumulating. The following mathematical procedure deals with this problem:

Let $p(i)$ =probability of a user dying in period i .

Then $1-p(i)$ =probability of not dying in period i .

And $\prod_{i=1}^M (1-p(i))$ =probability of not dying in period i through M .

So that $1 - \prod_{i=1}^M (1-p(i))$ =probability of dying by the end of $i=1$ period M .

Assume that $p(i)=p$ for all i : assume that the probability of dying remains constant over time.

Then $1-(1-p)^M$ =probability of dying by the end of period M .

And $A(1-(1-p)^M)$ is the expected number of deaths among A abusers observed over M periods.

Now if A_j =the number of abusers added to the observation roster in period j , and if N =the expected total number of deaths among the full roster, then $N=A_1(1-(1-p)^6)+A_2(1-(1-p)^5)+\dots+A_5(1-(1-p)^2)+A_6p$ is the expression for the expected number of deaths after six half-year periods, or three years. This equation can then be solved for the value of p .

In the case of heroin, the predicted number of true matches between the CSAS and Coroner's rosters is $72 \times 1.10 = 79.2$ ($p=0.00255$). The Coroner's Office found 76 decedents with heroin derivatives in their systems during fiscal year 1987; thus the estimate of period prevalence of heroin use during fiscal year 1987 is obtained by $76 + (2 \times 0.00255) = 14,900$.

As for speed, the predicted number of true matches are $14 \times 1.10 = 15.4$. Once again putting the estimated numbers for CSAS roster growth into the equation, $p=0.00400$. However, in fiscal year 1987 there were 43 individuals observed by the Coroner's Office to contain amphetamine metabolites. This yields a period-prevalence estimate for speed of about 5,400. Of course, many of these persons were also users of heroin: Of 852 speed users enumerated in the CSAS roster for fiscal year 1985-1987, 68 (8%) reported heroin as a secondary abuse problem.

The above prevalence estimates will be too high if the proportion of true matches to detected matches is greater than 1.10, and too low if that proportion is less than 1.10. Even more critical to the capture-recapture method is the assumption of independence of the two samples: If having been in treatment increases the likelihood that one will end up on the Coroner's roster, then these prevalence estimates will err in the direction of being too high, and if treatment experience decreases the likelihood of becoming a decedent, then the estimate will be too low.

Decedents with Methadone Metabolites Compared to the Overall Population in Methadone Treatment

The Coroner's Office found that 22 decedents observed during the 18 months from January 1986 through June 1987 contained methadone metabolites. During this same period, 128 decedents were found to contain heroin/morphine metabolites in their systems. CSAS estimated that 1,600 persons were enrolled in methadone maintenance during fiscal year 1987. In addition, about 2,100 persons were clients of methadone detoxification programs during that year. If one assumes (a) that all methadone used in San Francisco was obtained through treatment programs, (b) that methadone maintenance clients had methadone in their systems at all times during a year, (c) that methadone detoxification clients averaged only one month per year of methadone in their systems, and (d) that the proportion of heroin users to methadone users in general was the same as that among decedents, then one can estimate that $1,600 + (2,100 \times 12) \times (128 + 22) = 10,300$ San Franciscans were using heroin during that 18-month period. There may have been methadone users who did not get that drug because they were clients of a program, which would make the 10,300 figure an underestimate. On the other hand, users of methadone may be less likely to die than those heroin users who were not users of methadone, in which case 10,300 is an overestimate.

SUMMARY

To recapitulate the above findings:

Heroin

1. From burglary analysis: upper limit of 12,700 users in 1986.
2. From CSAS roster: lower limit of 8,363 abusers in three-year period (fiscal years 1985-87).
3. From capture-recapture method: 14,900 users in fiscal year 1987.
4. From methadone decedent analysis: 10,300 abusers in 1986 and the first half of 1987.

Speed

1. From data on gay males: 4,600 regular users in 1987.
2. From CSAS roster: lower limit of 1,214 abusers in fiscal years 1985 through 1987.
3. From capture-recapture method: 5,400 users in fiscal year 1987.

IVDUs

1. From data on Black IVDUs: 19,400 in 1987.
2. From data on Latino IVDUs: 21,100 with lifetime histories in 1987.
3. From CSAS roster: lower limit of 9,350 in fiscal years 1985 through 1987.

These estimates can now be assessed, keeping three cautions in mind: (1) different time frames are involved; (2) some estimates are useful only to establish lower or upper bounds; and (3) there is a difference between *users* (the Coroner reports on decedents who may have used a drug but once) and *abusers*. The present author's analysis of recent trends in heroin and speed use in San Francisco (Newmeyer 1987) suggests that the number of abusers of each of these drugs was fairly constant between 1985 and 1987.

With regard to *heroin*, the estimate that best meshes with the findings of the present study is that between 10,000 and 12,000 San Franciscans were abusers during 1987. Of these, more than 90 percent used the drug primarily by the IV route.

With regard to *speed*, the most defensible estimate is that between 4,500 and 5,500 city residents used the drug on a regular basis (i.e., at least weekly) during 1987. About 90 percent of these were primarily IVDUs.

As for the overall number of IVDUs, an estimate of 16,000 for 1987 seems most consistent with the findings of the present study. This includes about 13,000 women and heterosexual men and about 3,000 homosexual men. There could have been as few as 14,000 IVDUs active in 1987, but a figure any lower would run against the explicit count from CSAS and the fact that a substantial proportion of IVDUs did not even show up for treatment in 1987. In addition, there may have been as many as 20,000 IVDUs, but a number any larger than this would seem contrary to the evidence of the low number of burglaries and of decedents who had metabolites in their systems.

It was estimated herein that there are 46,000 gay men aged 25 to 54 in the city. Including those under age 25 or over 54, there are perhaps 60,000 gay men altogether. This of course constitutes the principal risk group for HIV infection in San Francisco. The present study suggests that there are an additional 13,000 women and heterosexual men who constitute the next most important risk group: those who have recently used a needle, on more than an occasional basis, to inject drugs.

NOTES

1. A similar analysis using the membership roster (N=230 men) of the Stonewall Democratic Club indicated that 49 percent of the male members who were San Francisco residents lived in the 19 census tracts. This would lead to an estimate of only 36,700 gay men aged 25 to 54 in the city. This seems very low, particularly in light of the work of Research and Decisions Corporation (1985), the San Francisco Department of Public Health (1988), and others on this matter. The author of the present article has chosen to assume that the Stonewall membership draws disproportionately from the more liberal precincts of the

Castro and Haight districts (i.e., the 19 census tracts) while the Alice B. Toklas membership is representative of the gay male population of the city as a whole.

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