2001 HIV Consensus Meeting

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Public comment period closes March 23, 2001

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SF DPH AIDS Office

25 Van Ness Avenue, 5th Floor

San Francisco, CA 94102

Attn: HIV Consensus

Population size, HIV prevalence, and HIV incidence among HIV Prevention Planning Council Behavioral Risk Populations (HPPC BRPs):

Men who have sex with women and inject drugs (MSF-IDU)

Women who have sex with men and inject drugs (FSM-IDU)

Men who have sex with women (MSF)

Women who have sex with men (FSM)

Convened by:

AIDS Office, San Francisco Department of Public Health

AIDS Research Institute, University of California, San Francisco

With Cooperation From

Mayor Willie L. Brown Jr. and the Office of AIDS and HIV Policy, San Francisco

A. Executive Summary

The 2001 HIV Consensus Meeting reached the following preliminary conclusions on HIV risk, prevalence, and incidence among non-MSM IDU and heterosexuals in San Francisco (HIV Prevention Planning Council behavioral risk populations MSM-IDU, FSM-IDU, MSF, FSM):

MSF-IDU and FSM-IDU

- There are 13,850 persons who are current non-MSM injection drug users (IDU) residing in San Francisco, including 9,000 heterosexual male IDU (MSF-IDU) and 4,850 female IDU (FSM-IDU).
- An estimated 1,385 non-MSM IDU are currently living with HIV, including 900 MSF-IDU and 485 FSM-IDU.
- A projected 93 new HIV infections are expected among non-MSM IDU in the year 2001; 48 are projected among FSM-IDU, 45 among MSF-IDU.
- Women who have sex with women and inject drugs (FSF-IDU) are considered at high risk for HIV; however, current data on HIV prevalence and incidence among FSF-IDU are insufficient to derive estimates.
- Relative to the general population, African Americans and Native Americans are over-represented among non-MSM IDU living with HIV; Asian/Pacific Islanders are under-represented; Latinos and Whites are near their representation in the population as a whole.
- HIV incidence among non-MSM IDU is highest among persons age 25 to 29 years.
- 2001 projections suggest a slight decrease in new HIV infections among MSF-IDU and FSM-IDU in San Francisco since 1997.

MSF and FSM

- An estimated 2,000 men and 5,000 are at risk for HIV through heterosexual sexual exposure. The population of heterosexual men (MSF) at risk in San Francisco is considered to be principally the sexual partners of HIV-positive FSM-IDU, transgendered females (MTF and MTF-IDU), and heterosexual women (FSM). The population of FSM at risk is considered to be the sexual partners of HIV-positive bisexual MSM and MSM-IDU, MSF-IDU, MTF and MTF-IDU, and MSF.
- An estimated 416 men and women are living with HIV acquired through heterosexual transmission, including 82 MSF and 334 FSM.
- A projected 12 new HIV infections will occur among heterosexual men and women, including 10 among FSM and 2 among MSF.
- Relative to the general population, African Americans and Latinos are over-represented among MSF living with HIV; Asian/Pacific Islanders are under-represented; Whites are near their representation in the population as a whole. Data are not available for Native American MSF.
- For FSM, African Americans and Native Americans are over-represented among HIV cases; Asian/Pacific Islanders are under-represented; Whites and Latinas are near their representation in the population as a whole.
- 2001 estimates suggest a slight decrease in new HIV infections among MSF and FSM in San Francisco since 1997.

Children and mother-to-child HIV transmission

- An estimated 60 children are living with HIV acquired perinatally.
- An estimated 22 infants will be exposed to infection through HIV-positive mothers this year.
- A projected 2 infants will acquire HIV infection in 2001.

Blood and blood products associated HIV transmission

- An estimated 61 persons who acquired infection through transfusion of blood products are currently living with HIV.
- Exposure to HIV through blood products via transfusions or occupational hazard is rare. No new HIV infections are projected through exposure to blood products 2001.

Methods and data reviewed

To arrive at estimates of population size, HIV prevalence, and HIV incidence, the panel reviewed and evaluated multiple studies and data sources (listed below). Direct and indirect methods were used to establish plausible point estimates and upper and lower bounds. Further details of methods and data sources used for specific estimates are provided in the text of the report.

- US Census data and projections.

- Citywide mortality data.

- Drug-related arrests and property crimes.
- Hospital admissions for injection drug-related complications.
- Drug treatment clinics census and waiting lists.
- The price per milligram of pure heroin.
- AIDS surveillance data.
- The 1997 HIV Consensus Meeting.
- The 2000 HIV Epidemiological Update Meeting.
- The Urban Health Study.
- The UFO Study.
- The jail HIV sentinel survey.
- The drug treatment center HIV sentinel survey.
- The municipal STD clinic HIV sentinel survey.
- Counseling and testing records from SF General Hospital, City Clinic, and city-wide anonymous sites.

- Urban Men’s Health Study (GUMS)
- Seropositive Urban Men’s Study (SUMS)
- Seropositive Urban Drug-user’s Study (SUDS)
- HIV Prevention project (needle exchange)

- [To be updated with additional data pending.]

Summary of preliminary estimates of population size, HIV prevalence, and HIV incidence, 2001 HIV Consensus Meeting, San Francisco

Population (HPPC BRP)	Estimated population size (1/01/01)	Estimated number living with HIV (1/01/01)	Projected number acquiring HIV (1/01/01 to 12/31/01)
MSM	46,800	12,786	748
MSM-IDU	5,200	2,080	144
MSF-IDU	9,000	900	45
FSM-IDU	4,850	485	48
MSF	2,000	82	2
FSM	5,000	334	10
MTF	1,980	598	94
MTF-IDU	1,020	452	58
Children	22	60	2
Blood products	Not estimated	61	0
Total	Not estimated	17,838	1,151

Notes on HIV Prevention and Planning Council Behavioral Risk Populations (HPPC BRP):

MSM: Presumptive surveillance risk category for any man who reports ever having sex with another man regardless of sexual identity (gay, bisexual, straight). Does not include MSM-IDU or transgendered females (MTF).

MSM-IDU: Presumptive surveillance risk category for any MSM who also reports ever injecting drugs.

MSF-IDU: Presumptive surveillance risk category for a male who reports a history of ever injecting drugs and no history of male-male sex.

FSM-IDU: Presumptive surveillance risk category for a female who reports a history of ever injecting drugs. Of note, women who have sex with other women and a history of injection drug use (FSF-IDU) are a separate surveillance risk category; however, insufficient data were available to estimate their population size, HIV prevalence, and HIV incidence. In the above table they are included within FSM-IDU; elsewhere in the text they are discussed separately.

MSF: Presumptive surveillance risk category for heterosexual transmission to men who do not report male-male sex or injection drug use.

FSM: Presumptive surveillance risk category for heterosexual transmission to women who do not report

injection drug use.

MTF: Presumptive surveillance risk category for male-to-female transgendered persons regardless of gender of their sex partners.

MTF-IDU: Presumptive surveillance risk category for MTF who ever report injection drug use, not including hormonal injection.

Children: Children infected through perinatal HIV transmission.

Blood Products: Men, women, and children infected with HIV through transfusion of blood products or occupational exposure.

B. Estimates and data reviewed

1. HIV Prevention and Planning Council behavioral risk populations:

MSF-IDU: Men who inject drugs, excluding men who have sex with men

FSM-IDU: Women who inject drugs

a) Population size of MSF-IDU and FSM-IDU: Persons at risk for HIV as of 1 January 2001

Total population at risk (MSF-IDU, FSM-IDU). An estimated 13,850 current non-MSM IDU are living in San Francisco. Current IDU was considered as persons injecting within the last year. The estimate includes heterosexual men and heterosexual, lesbian and bisexual women. The estimate was arrived at using the following data, considerations, and assumptions:

- The 1997 HIV Consensus Meeting estimate and the 2000 Epidemiological Update Meeting estimate were both 13,000 current IDU.
- The panel recognized that increases in the number of IDU may have occurred in the early 1990s, but had leveled off in the late 1990s. An opinion was expressed that the population size of IDU increases and decreases in cyclical fashion and that we may be at the "top" of a recent cycle (i.e., the population of IDU is leveling off and may be decreasing in the near future).
- The panel agreed that the population of IDU is dynamic, with a high level of migration, residence in neighboring areas with injection occurring in the city, in and out of treatment changes, and a high degree of change between use and non-use of drugs.
- The panel considered that the population of San Francisco as a whole has increased since 1997; thus a commensurate increase in the number of IDU may be likely.
- The panel agreed that heroin users form the vast majority of IDU (8.4% are non-heroin injectors in the Urban Health Study).
- The panel agreed that approximately half of heroin users would report being in drug treatment at some point during the preceding 12 months (50.8%, Urban Health Study). Given an approximate citywide estimate of 5,500 unduplicated heroin-using clients of drug treatment centers [CSAS, 2001], the number of heroin users would be 11,000. The panel agreed that 11,000 would be the lower limit for the number of IDU in San Francisco.
- The panel suggested that the number of non-heroin using IDU (e.g., speed and cocaine injectors) was on the order of 2,000 – 3,000. It was felt that speed and cocaine injection is more common among MSM IDU than among non-MSM IDU.
- Deaths due to heroine and cocaine use have increased slightly since 1997. Deaths due to

amphetamine use has slightly decreased since 1997 (SF Morbidity and Mortality Report, 2001).
- The number of syringes exchanged in San Francisco has been relatively stable in recent years [SFAF, 2001].

- Consideration of recent increases in hospital admissions for injection-associated wound treatment point to a slight increase in the number of IDU since 1997; however, some of the increase may be related to changes in drug contamination and injection practices.
- Consideration of market forces on the number of IDU had mixed interpretation by the panel. The price per milligram of pure heroin is near an all-time low. On the one hand, a low price of heroin may lead to increased numbers of new users. On the other hand, the price of pure heroin may not influence who uses, but rather the amount that users have to pay for their supply. Recent decreases in arrests for property-related crimes support the latter hypothesis.
- The increased purity of heroin may result in less injection and more inhalation of heroin, reducing risk of injection-associated HIV transmission. An opinion was expressed, however, that non-injection heroin use very often leads to injection use within several months due to the increasing expense of accelerated tolerance and addiction.
- An upper limit for the number of IDU was set at 15,000 based on agreement of the panel after considering the above factors.
- A lower limit of 11,000 and an upper limit of 15,000 would suggest a central estimate of 13,000 – or no net change since 1997. The panel felt that the data presented and factors considered argue for a slight increase in the number of IDU since 1997. The panel adopted 13,850, a net increase of 850 or 6.5% over the 1997 HIV Consensus Meeting estimate.
- [To be updated with additional data pending.]

Population by sex (MSF-IDU, FSM-IDU). There are an estimated 9,000 MSF-IDU and 4,850 FSM-IDU in San Francisco. Estimates were based on following data, considerations, and assumptions:

- The distribution by sex for living non-MSM AIDS cases is 35.4% female, 64.6% male [AIDS Surveillance, 2001].
- A similar distribution by sex is found among non-MSM men and women in drug treatment (35.4% female) [McFarland, 2000; CSAS, 2001].
- Agreement by the panel familiar with the above data, other studies, and the target population converged on 35.0% female and 65.0% male distribution of non-MSM IDU. The proportions translate to 4,850 FSM-IDU and 9,000 MSF-IDU.
- [To be updated with additional pending data.]

Population by sexual orientation (FSF-IDU). The panel did not estimate the total number of women who have sex with women and inject drugs (FSF-IDU). The panel did recognize that FSF-IDU are a population at potentially high risk for HIV infection. Studies in San Francisco have found that FSF have higher levels of injection drug use than their heterosexual counterparts [Martinez, 1991; Peterson, 2000; Peterson, 2000; Scheer, submitted]. Moreover, bisexual women tend to have more male partners, including MSM partners, than heterosexual women [Martinez, 1991; Peterson, 2000; Peterson, 2000; Scheer, submitted]. The panel felt that more current data on FSF-IDU are needed.

The issue of the number of current MSM-IDU was revisited from the perspective of data from studies focussing on IDU rather than studies focussing on MSM. The opinion was expressed that the preliminary consensus estimate of 5,200 current MSM-IDU may be high considering the proportion of

all IDU that the figure would represent (27.3% of the total 19,050). The panel felt that the classification of MSM-IDU incorporates a longer potential time period than within the last 12 months. In other words, the classification arises from ever having injected or ever having had male-male sex. Further consideration of the issue of MSM-IDU will be address in the final report.

b) HIV prevalence among MSF-IDU and FSM-IDU: Persons living with HIV as of 1 January 2001

Total HIV prevalence (MSF-IDU, FSM-IDU). An estimated total 1,385 non-MSM IDU are currently living with HIV in San Francisco. Of note, the classification for IDU for surveillance and epidemiological purposes usually reflects ever use of injection drugs. The estimate does not necessarily mean the person is a current injector. For the purposes of prevalence and incidence estimation, we will use the population at risk estimate of 13,850. The HIV prevalence estimate for non-MSM IDU was arrived at using the following data, considerations, and assumptions:

- The overall prevalence of HIV among IDU in the Urban Health Study is currently 10% [Kral, 2001]. Using the overall population of IDU (13,850), the corresponding number of IDU living with HIV would be 1,385.
- The 2000 HIV Epidemiological Update Meeting estimated HIV prevalence among IDU to be lower, 8%, a figure the present panel felt to be conservative. The corresponding number of IDU living with HIV would be 1,108. The panel felt that 1,108 would be the lower bound of the number of non-MSM IDU living with HIV.
- The 1997 HIV Consensus Meeting estimated HIV prevalence among non-MSM IDU to be 12%. The corresponding number of IDU living with HIV would be 1,662. The panel felt that 1,662 would be the upper bound of the number of non-MSM living with HIV.
- The panel adopted the mid-point between the upper (12%) and lower (8%) HIV prevalence estimates, 10% - concordant with the Urban Health Study. Again, the corresponding number of IDU living with HIV would be 1,385.
- Improved survival due to antiretroviral therapy would predict an increase in the number of IDU living with HIV since 1997.
- There are currently 875 non-MSM IDU living with AIDS in San Francisco. Based on data from San Francisco General Hospital, Kaiser Permanente, we estimate that 50% of persons living with HIV have an AIDS diagnosis, 30% are in care for HIV but do not have an AIDS diagnosis, and up to 20% are recently infected, not in care, or unaware of there infection status [Schwarcz, 2001]. The above considerations would predict 1,750 non-MSM IDU living with HIV. Of note, the panel adopted a more conservative estimate of HIV prevalence among non-MSM IDU.

HIV prevalence by sex (MSF-IDU, FSM-IDU). An estimated 900 MSF-IDU and 485 FSM-IDU are living with HIV infection in San Francisco. Estimates were based on following data, considerations, and assumptions:

- HIV prevalence data from the Urban Health Study found no significant difference between non-MSM men and women, 10% for each [Kral, 2001]. Applying a 10% prevalence rate to the total non-MSM male and female population yield 900 HIV-positive non-MSM male IDU and 485 HIV-positive female IDU.
- HIV prevalence data from drug treatment centers found no significant difference between non-MSM men and women [HIV Seroepidemiology Report, 1999].
- HIV prevalence data from the blinded jail study found no significant difference between non-MSM men and women [McFarland, 2001].
- There are currently 565 MSF-IDU living with AIDS and 310 FSM-IDU living with AIDS.

Apportioning the total non-MSM IDU HIV cases according to the same ratio yields 894 non-MSM male IDU living with HIV and 491 female IDU living with HIV.
- The panel agreed that estimates converged on 900 non-MSM male IDU and 485 female IDU living with HIV.

- [To be updated with additional pending data.]

HIV prevalence by sexual orientation (FSF-IDU). The panel did not specifically estimate HIV prevalence among FSF-IDU. There are currently 20 FSF-IDU living with AIDS in San Francisco (included among FSM-IDU above). The panel recognized that FSF-IDU may have a higher prevalence of HIV than other non-MSM IDU considering their risk from sexual exposure from bisexual men. The panel felt that more current data on HIV prevalence among FSF-IDU are needed. HIV prevalence among MSM-IDU and transgendered male and female IDU are considered in Part I.

c) HIV incidence among MSF-IDU and FSM-IDU: Projected new HIV infections occurring 1 January 2001 to 31 December 2001

Total HIV incidence (MSF-IDU, FSM-IDU). A projected 93 new HIV infections will occur among non-MSM IDU in the year 2001, an incidence of 0.75% per year. The HIV incidence estimate was arrived at using the following data, considerations, and assumptions:

- The 1997 HIV Consensus estimated HIV incidence among non-MSM IDU to be 1.0% per year. However, few HIV incidence studies among IDU were available for review in 1997. Since 1997, several HIV incidence studies have been conducted among IDU in diverse settings using diverse methodologies.
- Participants of the 2000 Epidemiological Update Meeting proposed that HIV incidence among IDU in 2000 was likely to be lower than in 1997, 0.57% per year. However, further data examined at the 2001 HIV Consensus Meeting suggest HIV incidence slightly higher than 0.57% per year.

- Observed HIV incidence among non-MSM IDU was highest in the blinded jail sentinel survey, 1.9% per year in 1999. Because subjects were inmates being screened for STD on intake, the study population is likely to over-estimate HIV incidence in the overall IDU population due to the heightened risk of sexual transmission. Moreover, sample size was small (N=290, 2 HIV seroconversions) [Kim, 2000].
- HIV incidence was 1.5% per year among IDU repeatedly tested for HIV at San Francisco General Hospital (SFGH) from 1996 to 1998 (N=1,572, 23 HIV seroconversions). The estimate is likely to be high because the patient population includes a large number of IDU seeking medical care for conditions related to HIV infection. Moreover, the hospital study population included many younger IDU, a factor associated with HIV seroconversion in several studies [Kellogg, 2000].
- HIV incidence among IDU in the Urban Health Study was 0.9% per year (0.6 – 1.2). The Urban Health Study is the largest and longest running studies of HIV incidence among IDU in the US. Moreover, the study was conducted among community-recruited IDU. [Kral, 2001].
- HIV incidence among non-MSM IDU in the municipal STD clinic blinded sentinel survey was 0.6% per year since 1996 (N=467, 1 HIV seroconversion) [Schwarcz, in press]. Of note, the estimate is lower than that of the Urban Health Study despite heightened risk of sexual transmission.

- The detuned ELISA detected no recent seroconversions among non-MSM IDU seeking HIV testing at city-wide anonymous test sites since 1996 (N=703).
- The detuned ELISA detected no recent seroconversions among non-MSM IDU seeking HIV testing at the municipal STD clinic since 1996 (N=37).
- No HIV seroconversions were detected among IDU in the blinded drug treatment sentinel survey since 1995 using the detuned ELISA or using a record-based method (N=656) [McFarland, 2000]. IDU in treatment are likely to be a lower risk for HIV than IDU not in treatment.
- The panel agreed that overall HIV incidence was between that observed by the Urban Health study (0.9% per year) and that measured by the blinded STD clinic survey (0.6% per year). The mid-point between the two, 0.75% per year was adopted. Applying the rate to the estimated number of uninfected IDU as of 1/01/01 (12,465) yields a projected 93 seroconversions occurring in 2001.

HIV incidence by sex (MSF-IDU, FSM-IDU). A projected 48 HIV seroconversions will occur among FSM-IDU and 45 among MSF-IDU. Estimates indicate a relative increase among FSM-IDU compared to MSF-IDU. Of note, comparisons of incidence by sex are have low precision due to small sample sizes. Estimates were based on following data, considerations, and assumptions:

- HIV incidence among women IDU in the Urban Health Study (1.3% per year) was higher than among non-MSM male IDU [Kral, 2001].
- The blinded jail survey data also suggest higher incidence of HIV among female IDU compared to non-MSM male IDU; however, the comparison is based on only 2 seroconversions. One HIV seroconversion occurred among 211 MSF-IDU inmates for an incidence of 1.3% per year (detuned ELISA). One seroconversion occurred among 79 FSM-IDU inmates for an incidence of 3.6% per year [Kim, 2000].

- Data from SFGH suggest slightly higher incidence of HIV among FSM-IDU (1.6% per year) compared to MSF-IDU (1.4% per year), based on 23 seroconversions [Kellogg, 2000].
- FSM-IDU may be at higher risk of HIV acquisition compared to non-MSM IDU through MSM partners.
- In contrast, data from the municipal STD clinic suggested lower HIV incidence among female IDU (0% per year) compared to non-MSM male IDU (1.0% per year). Sample size, however, was small (one seroconversion among men only).
- The weight of evidence reviewed pointed to slightly a slightly higher HIV incidence among female IDU compared to non-MSM male IDU. Total HIV incidence among non-MSM IDU (0.75%) was apportioned by sex according to the relative incidence observed in the Urban Health Study, yielding a projected 48 seroconversions among FSM-IDU and 45 seroconversions among MSF-IDU in 2001.

- [To be updated with additional data pending.]

HIV incidence by sexual orientation (FSF-IDU). The panel did not specifically estimate HIV incidence among FSF-IDU. The panel did recognize that FSF-IDU may have a higher incidence of HIV than other non-MSM IDU considering their risk from sexual exposure from bisexual men. The panel felt that more current data on HIV incidence among FSF-IDU are needed. HIV incidence among MSM-IDU and transgendered male and female IDU are considered in Part I.

d) Race/ethnicity, MSF-IDU and FSM-IDU

Population by race/ethnicity (MSF-IDU, FSM-IDU). The panel did not review data on the population size of non-MSM IDU by race/ethnicity. The table below presents the racial/ethnic make up of the entire San Francisco population projected for the year 2000 [Final US 2000 estimates pending]:

Racial/ethnic distribution of the population of San Francisco, 2000 projections

Race/ethnicity	Number (%)
White	317,214 (40.0%)
Asian/Pacific Islander	264,820 (33.4%)
Latino	128,205 (16.2%)
African American	79,095 (10.0%)
Native American	2,715 (0.3%)

HIV prevalence by race/ethnicity (MSF-IDU, FSM-IDU). Relative to the general population, African Americans and Native Americans are over-represented among non-MSM IDU living with HIV; Asian/Pacific Islanders are under-represented; Latinos and Whites are near their representation in the population as a whole.

Non-MSM IDU living with HIV were apportioned by race/ethnicity based on living AIDS cases. Limitations of this approach arise in potential racial/ethnic differences in HIV incidence, AIDS and non-AIDS related mortality, access to care, and use of antiretroviral treatment. The following tables apportion non-MSM IDU cases for men and women:

Non-MSM male IDU living with AIDS and estimated number living with HIV by race/ethnicity (MSF-IDU)

Population	Number living with AIDS (% of total)	Estimated number living with HIV
African American	266 (47.1)	424
White	208 (36.8)	331
Latino	73 (12.9)	116
Asian/Pacific Islander	12 (2.1)	19
Native American	6 (1.1)	10

Female IDU living with AIDS and estimated number living with HIV by race/ethnicity (FSM-IDU, FSF-IDU)

Population	Number living with AIDS (% of total)	Estimated number living with HIV
African American	162 (52.3)	254
White	96 (31.0)	150
Latino	34 (11.0)	53
Asian/Pacific Islander	12 (3.9)	19
Native American	6 (1.9)	9

HIV incidence by race/ethnicity (MSF-IDU, FSM-IDU, FSF-IDU). Apportionment of incident HIV cases among non-MSM IDU by race/ethnicity was not attempted due to the small sample sizes in most studies. Two studies with larger numbers of seroconversions suggest somewhat higher incidence among White and Latino non-MSM IDU, moderate incidence among African Americans, low incidence among Asian/Pacific Islanders, and a lack data on Native Americans. With small samples sizes, however, conclusions remain uncertain.

- HIV incidence among non-MSM IDU in the Urban Health Study by race/ethnicity was 0.6% per year among African Americans, 1.4% per year among Whites, and 0.8% per year among Latinos. No seroconversions were observed among Asian/Pacific Islanders and Native Americans.
- HIV incidence among non-MSM IDU repeatedly testing at San Francisco General Hospital by race/ethnicity was 0.9% per year among African Americans, 2.1% per year among Whites, and 2.8% per year among Latinos. No seroconversions were observed among Asian/Pacific Islanders and Native Americans.

e) Age, MSF-IDU and FSM-IDU

The panel concluded that HIV incidence among non-MSM IDU is highest among persons age 25 to 29 years.

- In the Urban Health Study, HIV incidence was 2.7% per year among non-MSM IDU under 30 years and 0.8% among those 30 years and older.
- In the San Francisco General Hospital study, HIV incidence among IDU age 25 to 29 was 3.7% per year – significantly higher than all other age groups (range 0.4% to 1.6% per year). HIV incidence was lowest among non-MSM IDU 24 years and younger (0.4% per year). Of note, HIV incidence remained moderate among non-MSM age 40 to 45 years (1.6% per year).
- [To be updated with additional data pending.]

f) Additional comments on temporal trends and sub-populations, MSF-IDU and FSM-IDU

The 2001 HIV Consensus Meeting projections suggest a slight decline in the incidence of HIV among non-MSM IDU in San Francisco since 1997. The 2001 projections also point to a relative increase in the rate of new infection among FSM-IDU compared to MSF-IDU.

2. HIV Prevention and Planning Council behavioral risk populations:

MSF: Men who have sex with women

FSM: Women who have sex with men

a) Population size of MSF and FSM: Persons at risk for HIV as of 1 January 2001

Total population at risk (MSF, FSM). An estimated 2,000 men who have sex with women (MSF) and 5,000 women who have sex with men (FSM) in San Francisco are at risk for HIV through heterosexual sex. MSF and FSM HIV cases are persons who would not be classified as MSM, MSM-IDU, non-MSM IDU, transgendered persons, perinatally exposed, or transfusion-associated transmission by surveillance categories. The size of the population of heterosexuals at risk in San Francisco is principally men who are the sexual partners of HIV-positive FSM-IDU, MTF, MTF-IDU, and FSM and women who are the partners of HIV-positive MSF-IDU, MTF, MTF-IDU, MSF, and bisexual MSM and MSM-IDU. The estimate was arrived at using the following data, considerations, and assumptions:

- The projected total population of San Francisco in 2000 is 792,049, an increase from the 1990 US Census and from 1997 projections. There are an estimated 660,094 adults, including 325,643 adult men and 334,451 women. Subtracting 52,000 MSM and MSM-IDU, and 9,000 non-MSM

IDU leaves a maximum of 264,643 MSF. Subtracting 4,850 female IDU and 3,000 transgendered females from 334,451 adult women leaves a maximum of 326,601 FSM. However, the panel agreed that only a small fraction of the adult heterosexual population of San Francisco is likely to be exposed to HIV.

- Given that all persons who acquire HIV infection are exposed by other infected persons, the heterosexual population at risk can be estimated by the number of persons living with HIV who are likely to have sexual partners of the opposite sex. The present estimate for the total number of persons living with HIV in San Francisco is 17,838. However, only a fraction of persons living with HIV are likely to have had unprotected sex with partners of the opposite sex who are not IDU. Therefore we consider 17,838 MSF and FSM too high an estimate of the population at risk for HIV transmission through heterosexual sex.
- Women may be exposed to HIV through infected bisexual MSM and MSM-IDU, non-MSM male IDU, transgendered females, and heterosexual males. A recent survey of 56 newly HIV-infected MSM (SSVRS) found only 25% had a female sexual partner in the past year.
- In a community-based survey of transgendered persons, 26%, of transgendered females identified as bisexual or lesbian (i.e., having sex with women) [Clements, 1999].
- We assumed that all non-MSM male IDU and all MSF and living with HIV could potentially expose FSM.

- Assuming that one partner is exposed per infected person per year, the total pool of FSM potentially exposed can be estimated as the partners of: 25% of 12,786 HIV-positive MSM + 25% of 2080 MSM-IDU + 26% of 598 MTF + 26% of 452 MTF-TG + 900 MSF-IDU + 82 MSF = 4,972. We adopt 5,000 as an estimate the population size of FSM potentially exposed to HIV in 2001.
- A similar construction for MSF potentially exposed would include partners of HIV-positive female IDU, MTF, MTF-IDU, and FSM. Assuming all HIV-persons in these would potentially expose one MSF on average, the total MSF population at risk would be estimated as the partners of: 485 FSM-IDU + 598 MTF + 452 MTF-IDU + 334 FSM = 1,882. We adopt 2,000 as an estimate of the population size of MSF potentially exposed to HIV in 2001.
- [To be updated with additional data pending.]

b) HIV prevalence among MSF and FSM: Persons living with HIV as of 1 January 2001

Total HIV prevalence (MSF, FSM). An estimated 82 MSF and 334 FSM are currently living with HIV in San Francisco. The HIV prevalence estimate for MSF and FSM are based on the following data, considerations, and assumptions:

- AIDS surveillance data indicate a low magnitude of infection among MSF and FSM. By the end of 2000, a cumulative total of 83 MSF and 286 FSM had been diagnosed with AIDS out of a total of 27,271 (1.4%) [AIDS Surveillance Report, 2001].
- The 1997 HIV Consensus Meeting estimated 156 MSF and 282 FSM living with HIV in 1997. The 2000 Epidemiological Update Meeting panel felt the estimates would be slightly high for MSF and slightly low for FSM in 2000.
- Counseling and testing data and serological surveys consistently find low prevalence or only sporadic cases of new HIV infection among MSF and FSM.
- Surveys are likely to over estimate the prevalence of HIV among MSF and FSM at the expense of MSM, MSM-IDU, and non-MSM IDU due to the strong stigma of male-male sex and injection drug use.

- Blinded sentinel surveys are vulnerable to over estimation of heterosexual HIV prevalence due to incomplete information on male-male sex and injection drug use.
- The opinion was also expressed that African American men are less likely to acknowledge male-male sexual behavior than other ethnic groups due to particularly high stigma associated with homosexuality and incarceration in the community. Moreover, self identification as "gay" is likely to vary greatly across diverse ethnic groups. These factors contribute to over-estimation of HIV prevalence among MSF in African American and Latino communities, and conversely under-estimate HIV prevalence and risk among MSM in these communities.
- Preliminary data from the blinded jail survey found HIV prevalence to be 1.0% among men who did not report male-male sex or injection drug use (1999-2000). HIV prevalence among women who did not report injection drug use was 1.8% [Kim, 2000].

- HIV prevalence in the blinded STD clinic sentinel survey ranged from 2.5% to 0.6% among MSF with a downward trend throughout the 1990s. HIV prevalence among women ranged from 2.3% to 0.7% through the 1990s with no overall trend [Schwarcz, in press].
- HIV prevalence among women in a blinded family planning clinic survey remained between 0.1% and 0.2% through the early 1990s with no overall trend [HIV Seroepidemiology Report, 1999].
- HIV prevalence among women in the blinded Survey of Childbearing Women was between 0.08% and 0.36% through the early 1990s with no overall trend [HIV Seroepidemiology Report, 1999].
- No men from San Francisco entering the military tested HIV positive through the late 1990s [HIV Seroepidemiology Report, 1999].
- HIV prevalence among blood donations in San Francisco was 5 per 100,000 in 1998 [HIV Seroepidemiology Report, 1999].
- At present, there are a total of 41 MSF living with AIDS and 167 FSM living with AIDS. In agreement with other risk populations, a ratio of AIDS to HIV non-AIDS of 1:1 is likely at this stage in the epidemic [Schwarcz, 2001]. The ratio yields 82 MSF and 334 FSM living with HIV.
- Of note, 416 MSF and FSM living with HIV represents 2.3% of the total number of persons estimated to be living with HIV in 2001. The proportion is slightly higher than the representation of MSF and FSM among the total cumulative AIDS cases (1.4%) [AIDS Surveillance Report, 2001].

- [To be updated with additional data pending.]

c) HIV incidence among MSF and FSM: Projected new HIV infections occurring 1 January 2001 to 31 December 2001

Total HIV incidence (MSF, FSM). A projected 10 new HIV infections will occur among FSM and 2 among MSF in 2001. The HIV incidence estimate was arrived at using the following data, considerations, and assumptions:

- AIDS surveillance data indicate relatively low incidence of HIV among heterosexual men and women in San Francisco throughout the epidemic. The highest incidence of AIDS among heterosexuals was in 1993, with 40 cases diagnosed in that year. Since 1997, between 15 and 25 cases have been diagnosed with AIDS per year. No temporal trend in new AIDS diagnoses is apparent among heterosexual AIDS cases since 1997 [AIDS Surveillance Report, 2001].

- The 1997 HIV Consensus Meeting panel estimated 16 new infections among MSF and 28 new infections among FSM in 1997. Participants of the 2000 Epidemiological Update Meeting proposed a total of 6 incident HIV infections per year among heterosexuals based on the rarity of observing HIV seroconversions among MSF and FSM in all incidence studies since 1997.

- Five HIV incidence estimates for MSF and FSM since 1996 were identified: the blinded sentinel surveys at the jail and STD clinic and HIV counseling and testing data from the anonymous testing sites, San Francisco General Hospital (SFGH), and the STD clinic. As discussed in HIV prevalence studies above, under ascertainment of male-male sex and injection drug use is likely to result in over estimation of HIV incidence among MSF and FSM particularly in blinded surveys.
- Among MSF from 1996 to 2000, HIV incidence was 0.6% per year in the STD clinic blinded survey (N=4,447, 14 seroconversions), 0.5% at the jail blinded survey (N=3,516, 6 seroconversions), 0.4% at SFGH testing programs (N=473, 2 seroconversions), 0.1% at the STD clinic testing program (N=1,929, 1 seroconversion), and 0% at the anonymous testing sites (N=7,052) [Schwarcz, in press; Kim, 2000; Kellogg, 2000; Schwarcz, 2001; McFarland, 2001]. Using the above incidence rates and an MSF at risk population of approximately 2,000, projected new cases of HIV in 2001 would be 12, 10, 8, 2, and 0, respectively. As suggested above, estimates in these surveys may be biased upward due to incomplete ascertainment of male-male sex and injection drug use. We adopt a projected 2 seroconversions among MSF in 2001, consistent with the STD clinic counseling and testing program.
- Among FSM from 1996 to 2000, HIV incidence was 0.5% at the jail blinded survey (N=1,128, 2 seroconversions), 0.2% per year at the STD clinic blinded survey (N=3,490, 2 seroconversions), 0.2% at SFGH testing programs (N=601, 1 seroconversion), 0% at the STD clinic testing program (N=976), and 0% at the anonymous testing sites (N=5,411) [Schwarcz, in press; Kim, 2000; Kellogg, 2000; Schwarcz, 2001; McFarland, 2001]. Using the above incidence rates and an FSM at risk population of approximately 5,000, projected new cases of HIV in 2001 would be 25, 10, 10, 0 and 0, respectively. We adopt the median and mode of 10 new HIV infections among FSM in 2001.
- The ratio of MSF to FSM AIDS cases is 1:4. The ratio is likely the result of the relative sizes of the populations at risk and the relatively greater likelihood of HIV transmission from male to female than vice versa. Assuming the ratio holds for new HIV infections, we project 2.5 new cases among MSF in 2001. Conservatively, we round the estimate down to 2 projected HIV seroconversions among MSF in 2001 in agreement with observed data presented above.

d) Race/ethnicity, MSF and FSM

Population by race/ethnicity (MSF, FSM). The panel did not review data on the relative sizes of the MSF and FSM populations at risk by race/ethnicity. Information on race/ethnicity of sexual partners of MSM and IDU is generally lacking in research studies. Of particular note, African American MSM were more likely to have female partners than MSM of other races in the SUMS study [Gomez, 2001].

HIV prevalence by race/ethnicity (MSF, FSM). MSF and FSM living with HIV were apportioned by race/ethnicity according to living AIDS cases (see tables above and below).

Relative to the general population, African Americans and Latinos are over-represented among MSF living with HIV; Asian/Pacific Islanders are under-represented; Whites are near their representation in the population as a whole. Data are not available for Native American MSF.

For FSM, African Americans and Native Americans are over-represented among HIV cases; Asian/Pacific Islanders are under-represented; Whites and Latinas are near their representation in the population as a whole.

MSF living with AIDS and estimated number living with HIV by race/ethnicity

Population	Number living with AIDS (% of total)	Estimated number living with HIV
White	15 (36.6%)	30
African American	14 (34.1%)	28
Latino	11 (26.8%)	22
Asian/Pacific Islander	<5	2
Native American	na	na

FSM living with AIDS and estimated number living with HIV by race/ethnicity

Population	Number living with AIDS (% of total)	Estimated number living with HIV
African American	61 (36.5%)	122
White	54 (32.3%)	108
Latina	32 (19.2%)	64
Asian/Pacific Islander	19 (11.4%)	38
Native American	<5	2

HIV incidence by race/ethnicity (MSF-IDU, FSM-IDU, FSF-IDU). Apportionment of incident HIV cases by race/ethnicity was not attempted due to the small sample sizes in all studies. Moreover, apportioning 10 projected cases among FSM and 2 among MSF by race/ethnicity would not produce meaningful estimates across 5 racial/ethnic groups.

e) Age, MSF and FSM

Age-specific data on HIV prevalence and incidence among MSF and FSM were not reviewed. The number of HIV-positive persons as well as HIV seroconversions in studies of heterosexuals generally do

not permit sub-analyses by age groups. Of note, 97.6% of MSF and 92.2% of FSM living with AIDS are 25 years and older.

f) Additional comments on temporal trends and sub-populations, MSF and FSM.

The 2001 HIV Consensus Meeting projections suggest a decline in the incidence of HIV among heterosexuals in San Francisco since 1997.

3. Children and mother-to-child HIV transmission

An estimated 60 children under 13 years old are living with HIV in San Francisco. An estimated 20 to 24 HIV-infected women will deliver in San Francisco in 2001 (median 22). Based on the low prevalence of HIV among childbearing women and the use and effectiveness of antiretroviral treatments, HIV infections among newborns are rare in San Francisco. Over the last several years, 0, 1, or 2 infants have been perinatally infected with HIV each year. We project 2 cases for 2001. Estimates are based on data from the Pediatric Spectrum of Disease project, the Survey of Child-bearing Women, AIDS surveillance, and counseling and testing records from family planning clinics, San Francisco General Hospital, and city-wide testing sites. Of note, there are an estimated 131,955 children under 15 years old (closest available age category for 2000 projections) and approximately 10,000 live births in San Francisco each year. [Updated estimates pending].

4. Blood and blood products associated HIV transmission

No cases of HIV transmission through exposure to blood products are projected for San Francisco in 2001.

HIV transmission through transfusion of blood and blood products is theoretically possible due to "window period" donations, the limits of HIV antibody test performance, and human error. However, universal antibody screening, sterilization techniques, reduction of unnecessary use of blood, and selection of low risk donors have made new HIV transmission through blood products exceedingly unlikely in San Francisco. Only 3 persons exposed through blood products were diagnosed with AIDS in 2000, reflecting persons exposed many years ago.

At present, there are 16 hemophiliacs living with AIDS in San Francisco. All are male and all are over 12 years old. By race/ethnicity, 43.8% are white, 25.0% are Asian/Pacific Islanders, 18.8% are Latino, and 12.5% are African American. An additional 35 persons living with AIDS acquired HIV through a blood transfusion. Of these, 54.3% are male, 45.7% are female. By race/ethnicity, 54.3% are white, 14.3% are Asian/Pacific Islanders, 20.0% are Latino, and 11.4% are African American. Given the low residual risk of HIV contamination after universal screening of donated blood for HIV antibody was implemented and the natural history of the disease, few persons infected by blood products have HIV but do not have an AIDS diagnoses. We estimated an additional 20% with HIV non-AIDS for a total of 61 persons living with HIV acquired through blood products.

HIV transmission through occupational exposure (e.g., needle-stick accident, blood splash to eyes or other mucosa) is also theoretically possible but rare. Currently, there are no known living AIDS cases in San Francisco associated with occupational exposure. Of note, antiretroviral medication taken within 72

hours of occupational exposure is thought to reduce the risk of acquiring HIV infection.

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D. Participants and observers (Meeting Organizers in Italics)

Panelists

Willi McFarland, DPH/UCSF
Sandy Schwarcz, DPH/UCSF

Alex Kral, UCSF

Kim Page-Shafer, UCSF

Gwen Hammer, DPH

John Newmeyer, Haight-Ashbury Free Clinic

Kelly Knight, UCSF

Nina Grossman, HPP

Byron Mason, UCSF

Kristen Clements, DPH

Jennifer Perhlman, SFGH

Dan Ciccarone, UCSF

Mike Shriver, Office of the Mayor

Tim Kellogg, DPH

Alice Gleghorn, DPH

Observers

Ellen Goldstein, UCSF

Rev. Yvette Flunder, HPPC

Elise Riley, UCSF

Leerma Patterson, Office of the Mayor

Laura Thomas, DPH

Delia Garcia, DPH

Tracey Packer, DPH

Media

Cynthia Laird

Bruce Mirken

Facilitator

Steven Tierney, DPH

Note: Owing to illness, Sandy Schwarcz was not in attendance.