

# Estimating the Number of Injection Drug Users in the United States to Calculate National Rates of HIV Infection

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## Background

- In the United States (U.S.), injection drug users (IDUs) accounted for approximately 9% of all new HIV and 16% of persons living with HIV infection in 2009.
- The disparity in disease rates among IDUs compared to their population size has been difficult to quantify, as no census estimates exist for the number of IDUs in the U.S.

## Objectives

- To estimate the number and proportion of persons in the U.S. who are IDUs
- To calculate HIV diagnosis and prevalence rates for IDUs.

## Methods

- Systematic literature search
  - Automated search of electronic databases and manual search of national surveys
  - Identified 4 national probability surveys providing data on lifetime (ever) or past-year injection drug use.
- Meta-analysis to combine data for each recall period to create population proportion estimate
  - By sex, race, and age
  - Within sex, by race and by age
- Applied lifetime population proportion estimates to census data to produce population size estimates
- Lifetime population size estimate used to calculate HIV rates among IDUs
  - HIV diagnoses, 2009
  - Persons living with a diagnosis of HIV (prevalence), 2008

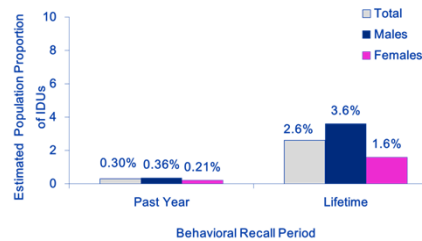
## Results

**Table 1. Data Sources for Meta-Analysis**

Survey (Data Year)	Ever/Lifetime IDU	Past Year IDU	ACASI	Age Range of Eligible Participants	Website
NHANES (1999-2008)	✓	✓	✓	12-69	<a href="http://www.cdc.gov/nchs/nhanes.htm">http://www.cdc.gov/nchs/nhanes.htm</a>
NSFG (2002, 2006-2008)		✓	✓	15-44	<a href="http://www.cdc.gov/nchs/nsfg.htm">http://www.cdc.gov/nchs/nsfg.htm</a>
GSS (2000-2008)	✓		CAPI	≥ 18	<a href="http://www3.norc.og/GSS+Website/">http://www3.norc.og/GSS+Website/</a>
NSDUH (2000-2009)	✓	✓	✓	≥12	<a href="http://oas.samhsa.gov/nhsda.htm">http://oas.samhsa.gov/nhsda.htm</a>

All surveys used complex, multi-stage sampling design to select a household-based sample.  
 NHANES: National Health and Nutrition Examination Survey; NSFG: National Survey of Family Growth; GSS: General Social Survey; NSDUH: National Survey of Drug Use and Health; ACASI: Audio Computer Assisted Self Interview; CAPI: Computer Assisted Personal Interview (interviewer administered)

**Figure 1. Meta-Analysis Results: Estimated Proportion of IDUs, by Sex and Behavioral Time Period**



- Lifetime IDUs comprise 2.6% (95% confidence interval (CI): 1.8% - 3.3%) of the U.S. population age 13 years or older, representing 6,483,280 IDUs (range: 4,482,581-8,458,655) in 2009.
- Past-year IDUs comprise 0.30% (95% CI: 0.19% - 0.41%) of the U.S. population age 13 years or older, representing 759,759 IDUs (range: 481,181-1,038,338) in 2009.

**Table 3a. Estimated number, rate, and rate ratio of diagnoses of HIV infection among injecting drug users (IDUs), 2009**

	Est. No. IDU cases*	Rate†	95% CI	Rate Ratio	95% CI
<b>Race/ethnicity</b>					
Black	2159	330	224 624	14.7	7.6 34.4
White	848	22	18 29	1.0	
Hispanic/Latino	826	213	156 334	9.5	5.3 18.5
Other††	100	62	43 109	2.8	1.5 6.0
<b>Age at diagnosis</b>					
13-24	323	63	50 87	1.0	
25-34	731	94	67 160	1.5	0.8 3.2
35-49	1743	113	89 155	1.8	1.0 3.1
50-64	1135	60	45 88	0.9	0.5 1.8
<b>Total</b>	3,933	77	59 111		

CI=Confidence Interval. \*From National HIV Surveillance System; † Per 100,000 IDUs; †† Other race includes American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander, Unknown race/ethnicity, and multiple races

- The overall HIV diagnosis rate was 77 per 100,000 IDUs.
- Comparing black IDUs to white IDUs, the rate of diagnosis of HIV infection in 2009 was nearly 15 times as high; comparing Hispanic/Latino to white IDUs, the rate was more than 9 times as high
- Overall, rates by age group were similar.

**Table 3b. Estimated number, rate, and rate ratio of injecting drug users (IDUs) living with a diagnosis of HIV infection, 2008**

	Est. No. IDU cases*	Rate†	95% CI	Rate Ratio	95% CI
<b>Race/ethnicity</b>					
Black	67,499	10,425	7,085 19,719	16.0	8.3 37.5
White	24,537	651	525 855	1.0	
Hispanic/Latino	28,042	7,446	5,460 11,704	11.4	6.4 22.3
Other††	2,760	1,762	1,232 3,096	2.7	1.4 5.9
<b>Age at diagnosis</b>					
13-24	1,160	228	180 311	1.0	
25-34	8,484	1,111	789 1,878	4.9	2.5 10.4
35-49	57,377	3,691	2,912 5,039	16.2	9.4 28.0
50-64	55,814	3,011	2,276 4,447	13.2	7.3 24.7
<b>Total</b>	122,838	2,429	1,859 3,505		

- The overall rate of IDUs living with a diagnosis of HIV infection rate was 2,429 per 100,000 IDUs.
- Rates of IDUs living with a diagnosis of HIV infection among blacks and Hispanics were 16 and 11 times as high, respectively, as among whites.
- Rates of IDUs living with a diagnosis of HIV infection were higher in older age groups than IDUs age 13-24 years.

## Limitations

- Small sample sizes of IDUs from the surveys
- Under-reporting of injection drug use due to stigma, illicit nature of behavior; ACASI may help mitigate this
- Coverage bias: may under-estimate population size estimates of IDUs and over-estimate rates

## Conclusions

- We quantified the disproportionate impact of HIV among IDUs nationally, overall and by sex, race, and age.
- The estimated number of IDUs in the U.S. and the burden of disease among IDUs are important for planning and optimizing the allocation of resources to programs serving disproportionately affected populations and addressing health inequities.
- Rates are important additions to cost effectiveness and other data used to make critical decisions about resources for prevention of HIV and other bloodborne infections among IDUs in the U.S.

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