

Estimating The Level of HIV Prevention Coverage, Knowledge and Protective Behavior Among Injecting Drug Users: What Does The 2008 UNGASS Reporting Round Tell Us?

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Objectives: The 2001 Declaration of Commitment from the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) set the prevention of HIV infection among injecting drug users (IDUs) as an important priority in the global fight against HIV/AIDS. This article examines data gathered to monitor the fulfillment of this commitment in low-income and middle-income countries (LMICs) where resources to develop an effective response to HIV are limited and where injecting drug use is reported to occur in 99 (of 147) countries, home to 75% of the estimated 15.9 million global IDU population.

Methods: Data relating to injecting drug use submitted by LMICs to the Joint United Nations Programme on HIV/AIDS (UNAIDS) in the 2008 reporting round for monitoring the Declaration of Commitment on HIV/AIDS were reviewed. The quality of the data reported was assessed and country data were aggregated and compared to determine progress in HIV prevention efforts. For each indicator, the mean value weighted for the size of each country's IDU population was determined; regional estimates were also made.

Results: Reporting was inconsistent between countries. Forty percent of LMIC (40/99), where injecting occurs, reported data for 1 or more of the 5 indicators pertinent to HIV prevention among IDUs. Many of the data reported were excluded from this analysis because the indicators used by countries were not consistent with those defined by UNAIDS Monitoring and Evaluation Reference Group and could not be compared. Data from 32 of 99 countries met our inclusion criteria. These 32 countries account for approximately two-thirds (68%) of the total estimated IDU population in all LMICs.

The IDU population weighted means are as follows: 36% of IDUs tested for HIV in the last year; 26% of IDUs reached with HIV prevention programs in the last year; 45% of IDUs with correct HIV prevention

knowledge; 37% of IDUs used a condom at last sexual intercourse; and 63% of IDUs used a clean syringe at last injection. Marked variance was observed in the data reported between different regions.

Conclusions: Data from the 2008 United Nations General Assembly Special Session reporting round provide a baseline against which future progress might be measured. The data indicate a wide variation in HIV service coverage for IDUs and a wide divergence in HIV knowledge and risk behaviors among IDUs in different countries. Countries should be encouraged and assisted in monitoring and reporting on HIV prevention for IDUs.

Key Words: condom use, HIV/AIDS, HIV prevention, HIV testing and counselling, HIV knowledge, injecting drug use, monitoring and evaluation

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INTRODUCTION

By and large, outside of sub-Saharan Africa, HIV epidemics are concentrated among certain subsets of the general population that are especially vulnerable to HIV infection. In particular, injecting drug use accounts for an increasing number of new HIV infections in several parts of the world.¹ A recent systematic review by the Reference Group to the United Nations (UN) on HIV and Injecting Drug Use found that injecting drug use has been reported to occur in 148 countries around the world. HIV infection was reported to occur among injecting drug user (IDU) populations in 119 of 127 countries where this had been examined. Prevalence of HIV ranged from zero to as high as 90% in some urban samples of IDUs.²

Of the 147 Member States categorized as low-income and middle-income countries (LMICs) in 2007 by the World Bank,³ injecting drug use was reported to occur in 99.² It was estimated that in 2007, there were a total of 11.8 million IDUs (range from 8 to 16 million) in LMICs.²

The size of this at-risk population is therefore substantial. It is crucial that the national HIV response in countries where injecting drug use occurs includes strategies that address HIV among injectors.

People who inject drugs are at risk of HIV infection both through unsafe drug injecting and unprotected sex with an

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HIV-infected person. Provision of sterile injecting equipment and condoms to people who inject are recognized as important components of a comprehensive strategy to prevent the transmission of HIV among IDUs and their sexual partners.⁴

Despite this, HIV prevention, in general and especially among most-at-risk groups, has been “marginalized” in the response to HIV,⁵ and behavioral approaches have not been pursued as diligently as antiretroviral therapy programs.^{6,7}

In the Declaration of Commitment made at the 2001 United Nations General Assembly Special Session on HIV/AIDS⁴ (UNGASS), people who inject drugs were recognized to be one of the priority most-at-risk populations for HIV prevention interventions. In that Declaration, Member States made commitments to ensure expanded access to HIV prevention and care services for IDUs and to regularly report on progress.

Monitoring and evaluation of HIV prevention is a challenging but vital element of HIV programming.^{7,8} Most-at-risk populations, such as people who inject drugs, tend to be hidden or hard to reach. This makes data collection difficult and requires the use of specific epidemiological methods. In the 2006 UNGASS reporting round, the number of LMICs reporting on indicators related to IDU was low (n = 31, of 99 LMIC where injecting is reported).

The UNGASS indicators are intended to function as a set of key indices by which countries’ progress can be assessed and compared, and with which a global assessment of progress can be made. The indicators were developed by the Joint United Nations Programme on HIV/AIDS (UNAIDS) Monitoring and Evaluation Reference Group and countries biennially report against them.

These indicators have evolved during the course of the previous 3 UNGASS reporting rounds and efforts have been made to improve their relevance and the quality of reporting.⁹ In addition, the number of countries providing data has increased in later reporting rounds.

After revision in 2007 of the UNGASS indicators related to most-at-risk populations, there is the potential that the data from the 2008 UNGASS reporting round could be used as a baseline against which data from future rounds can be compared. This would allow for improved assessment of progress in efforts to prevent the transmission of HIV among injectors. This article examines the data reported by LMIC in the 2008 UNGASS reporting round and estimates coverage of key HIV services across countries and estimated IDU populations.

METHODS

We reviewed data submitted by LMICs to UNAIDS in January 2008 as part of the process established to monitor progress toward the targets outlined in the Declaration of Commitment made at the 2001 UNGASS⁴. Countries were classified as LMIC using the World Bank classification for 2007³; a list of the categorized countries is presented in Appendix 1.

In the 2008 UNGASS reporting round, countries were requested to report on 5 core indicators measuring the provision and impact of HIV services for people who inject drugs; these indicators are detailed in Table 1.

Each indicator reported by a country was assessed to determine whether or not it was consistent with the indicator as defined by the UNAIDS guidelines.⁹ Indicators were judged to be inconsistent if the data provided were gathered from program monitoring rather than the required survey methodology as outlined in the UNAIDS guidelines⁹ (behavioral surveillance survey or an equivalent method). Data were also excluded if questions posed to survey participants differed substantially from those in the indicator guidelines.⁹ For example, in the case of the indicator assessing HIV testing, a question asking “have you *ever* been tested for HIV?” rather than the required question “have you been tested for HIV *in*

TABLE 1. UNGASS Indicators Related to People Who Inject Drugs

Indicator	Description
HIV testing (indicator 8)	Percentage of IDUs who received an HIV test in the last 12 months and who know the result.
Prevention programs (indicator 9)	Percentage of IDUs reached with HIV prevention programs Defined as the percentage of respondents replying ‘yes’ to “all” 3 of the following: Do you know where you can go if you wish to receive and HIV test? In the last 12 months have you been given condoms? (e.g. through an outreach service, drop-in centre or sexual health clinic) In the last twelve months, have you been given sterile needles and syringes? (e.g. by an outreach worker, a peer educator or from a needle exchange program)
Knowledge about HIV prevention (Indicator 14)	Percentage of most-at-risk populations who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission Defined as the percentage of respondents giving correct answers to <u>all</u> of the following 5 questions: Can having sex with only one faithful, uninfected partner reduce that risk of HIV transmission?—(Yes) Can using condoms reduce the risk of HIV transmission?—(Yes) Can a healthy-looking person have HIV?—(Yes) Can a person get HIV from mosquito bites—(No) Can a person get HIV by sharing a meal with someone who is infected?—(No) The last 2 questions can be replaced by the most common misconceptions in the country
Condom use (indicator 20)	Percentage of IDUs reporting the use of a condom the last time they had sex
Safe injecting practices (indicator 21)	Percentage of IDUs reporting the use of sterile injecting equipment the last time they injected

the last 12 months?” was considered as being inconsistent—and those data were excluded. Similarly, the indicators on prevention programs and HIV prevention knowledge comprised a number of subcomponent questions (Table 1). If any subcomponent questions were inconsistent then the overall indicator was determined to be inconsistent. Inconsistent data were excluded from our analysis. Data were also excluded if samples contained fewer than 100 participants.

SPSS version 15.0¹⁰ was used to produce descriptive statistics on these data. To provide some measure of the uncertainty around each indicator value, we calculated 95% confidence intervals based on the standard error of the percentage. For each indicator, the mean of the harmonized indicator data was determined and the mean weighted by the estimated size of the IDU population in each country was also calculated.

Estimates of the size of IDU populations in each country were drawn from the Reference Group to the UN on HIV and Injecting Drug Use.² We used the country-level 2007 mid-point estimates of the numbers of people, aged between 15 and 64 years, who were estimated to have injected in the last 12 months. Where no direct estimate was available for a particular country, the population-weighted regional prevalence reported by the Reference Group was applied, using UN Population Division estimate of the country’s population aged 15–64 years,¹¹ to derive an estimate of the number of people who inject drugs in that country. It should be noted that such derived estimates of IDU population size have been used here for the purpose of “weighting” the estimated levels of various indicator data only. They should be regarded as approximate estimates of IDU population size and should not be used in preference to national level estimates derived from country-level studies.

Using the statistical software program Stata version 9.2,¹² random effects meta-analyses were performed to determine 95% confidence intervals around the unweighted mean for each indicator. This allowed us to generate uncertainty bounds around the unweighted mean, accounting for the size of the different sample populations.

In addition to global weighted estimates, regional estimates for each indicator were weighted by estimated IDU population size in cases where reports from 2 or more countries were available for a region.

RESULTS

Forty LMIC reported on at least 1 of the 5 indicators examined here. There are an additional 59 LMIC that did not report on any of the IDU-related indicators in this reporting round but where injecting drug use has been reported to occur.²

Only 32 countries reported data on any of the 5 indicators that met the inclusion criteria for this current analysis—that is to say, data reported for indicators that are consistent with the UNAIDS indicator guidelines and that are drawn from samples of more than 100 participants. Those 32 countries account for 68% (8.07 million) of the estimated 11.86 million injectors in LMICs.²

Tables 2–6 present the data that were reported by countries and summary data for each indicator.

Eleven countries (Armenia, Bangladesh, Belarus, Bulgaria, China, Georgia, Latvia, Republic of Moldova, Nepal, Russian Federation and the Ukraine) reported data that met the inclusion criteria for all 5 indicators. Countries were more likely to report on some indicators than others: 38 reported on HIV testing (27 met the inclusion criteria); 26 reported on HIV prevention programs (15 met inclusion criteria); 32 reported on HIV prevention knowledge (19 met inclusion criteria); 34 reported on condom use (29 met inclusion criteria); and 34 reported on injecting practices (29 met inclusion criteria).

The size of samples from which countries drew data varied considerably across different indicators—from 159 to 21,490.

HIV Testing

Twenty-seven countries (accounting for 59% of the estimated number of IDUs in LMICs) reported on HIV testing among injectors. In 6 of those 27 countries, more than 45% of the sampled injectors reported having undergone HIV testing in the previous year. The IDU population-weighted mean rate of testing among injectors in these 27 reporting countries was 36%. Regional IDU population estimates were calculated for the 6 regions, where data were available from 2 or more countries (Table 2). HIV testing among people who inject drugs was found to be lowest in the Middle East and North Africa region (2 countries, weighted mean of 9%) and highest in Latin America (2 countries, mean = 78%). Eastern Europe contained the largest number of reporting countries (10 countries), with a weighted regional mean of 50%.

HIV Prevention Programs

Reported levels of access to HIV prevention programs as measured by the UNGASS indicator varied considerably (5%–89%) across the 15 countries (representing 48% of all IDUs in LMICs) that reported data, which met the inclusion criteria of this review. Weighted by estimated IDU population size, the mean proportion in these 15 reporting countries of sampled injectors who knew where they could receive an HIV test and who had also received both condoms and sterile injecting equipment in the last 12 months was 26%. Only in 3 regions did 2 or more countries report data that met the inclusion criteria for this indicator (Table 3): Eastern Europe (8 countries) and East and South East Asia (3 countries) had similar weighted means (28% and 26%, respectively), whereas South Asia (2 countries) had a much higher mean of 80% for this indicator.

HIV Prevention Knowledge

Nineteen countries (accounting for 53% of IDUs from LMICs) reported data meeting the inclusion criteria for the indicator on HIV prevention knowledge among IDUs (Table 4). In 6 of these 19 countries, more than 50% of sampled injectors were able to correctly answer questions related to HIV prevention. South Asia (3 countries) had the lowest calculated regional IDU population-weighted mean (28%) and Central Asia (2 countries) the highest (63%).

TABLE 2. HIV Testing

	Population Aged 15–64 Years, 2007	Prevalence of IDU (15-Year to 64-Year Olds) ²	Year/s of Data Collection	Sample Size	Value %	Standard Error of %	Lower Bound of 95% CI	Upper Bound of 95% CI
Argentina	25,242,000	0.29	2007	355	46.76	2.65	41.57	51.95
Armenia	2,065,000	0.10	2007	280	22.50	2.50	17.61	27.39
Bangladesh	98,492,000	0.03	2006–07	1159	3.40	0.53	2.36	4.44
Belarus	6,872,000	0.09	2007	733	49.25	1.85	45.63	52.87
Bosnia	2,700,000	1.50*	2007	260	53.46	3.09	47.40	59.52
Bulgaria	5,291,000	0.38	2006	1231	38.35	1.39	35.63	41.07
China	954,910,000	0.25	2007	21490	41.10	0.34	40.44	41.76
Georgia	2,981,000	4.19	2005–2006	469	8.96	1.32	6.38	11.54
Indonesia	154,180,000	0.14	2007	1404	35.90	1.28	33.39	38.41
Iran, Islamic Republic Of	48,889,000	0.40	2007	3060	22.94	0.76	21.45	24.43
Kazakhstan	10,571,000	0.96	2006–2007	4902	42.35	0.71	40.97	43.73
Kyrgyzstan	3,434,000	0.74	2006	500	34.40	2.12	30.24	38.56
Latvia	1,577,000	1.50†	2007	551	61.34	2.07	57.27	65.41
Lithuania	2,324,000	0.22	2006–2007	159	64.15	3.80	56.70	71.60
Macedonia, The FYRO	1,423,000	0.37‡	2007	393	43.73	2.50	38.83	48.63
Mexico	68,399,000	0.59§	2003	624	31.09	1.85	27.46	34.72
Moldova, Republic Of	2,658,000	0.14	2007	630	34.13	1.89	30.43	37.83
Morocco	20,437,000	0.05	2005	496	12.50	1.48	9.59	15.41
Nepal	16,444,000	0.15	2007	300	21.00	2.35	16.39	25.61
Nigeria	78,804,000	0.84¶	2007	690	23.19	1.61	20.04	26.34
Philippines	53,275,000	0.27#	2007	752	4.39	0.75	2.93	5.85
Russian Federation	102,331,000	1.78	2005–2006	2071	46.21	1.10	44.06	48.36
Tajikistan	3,919,000	0.45	2006	600	24.17	1.75	20.74	27.60
Turkey	50,045,000	0.05**	2006–2007	200	7.60	1.87	3.93	11.27
Ukraine	32,288,000	1.16	2007	4140	29.28	0.71	27.89	30.67
Uzbekistan	17,461,000	0.47	2005	3756	18.00	0.63	16.77	19.23
Vietnam	57,919,000	0.25	2005–2006	2032	11.37	0.70	9.99	12.75

Summary statistics

No. countries with data meeting inclusion criteria/no. countries reporting	Minimum	Maximum	25th percentile	75th percentile	SD
27/38	3.4	64.15	18.00	43.73	17.07
Sum of reporting countries' estimated IDU populations:total LMIC IDU populations		Median	Mean	Confidence interval††	Mean weighted by IDU population size
0.59		31.09	30.80	24.39 to 37.00	36.43

Regional statistics

Region	No. countries reporting	IDU population weighted mean
Western Europe	1	—
Eastern Europe	10	41.9
Central Asia	4	31.2
South Asia	3	20.5
East and South East Asia	4	37.5
Middle East and North Africa	2	9.0
Sub-Saharan Africa	1	—
Latin America	2	77.9

*Regional IDU prevalence for Eastern Europe used.
 †Regional IDU prevalence for Eastern Europe used.
 ‡Regional IDU prevalence for Western Europe used.
 §Regional IDU prevalence for Latin America used.
 ||Regional IDU prevalence for the Middle East and North Africa used.
 ¶Regional IDU prevalence for Sub-Saharan Africa used.
 #Regional IDU prevalence for East and South East Asia used.
 **Regional IDU prevalence for the Middle East and North Africa used.
 ††Confidence interval around unweighted mean determined by random effects meta-analysis.
 CI, confidence interval.

TABLE 3. Most-at-Risk Populations: Prevention Programs

	Population Aged 15–64 Years, 2007	Prevalence of IDU (15- Year to 64-Year Olds) ²	Year/s of Data Collection	Sample Size	Value %	Standard Error of %	Lower Bound of 95% CI	Upper Bound of 95% CI
Armenia	2,065,000	0.10	2007	280	54.29	2.98	48.45	60.13
Bangladesh	98,492,000	0.03	2006–2007	1196	81.80	1.12	79.61	83.99
Belarus	6,872,000	0.09	2007	733	56.21	1.83	52.62	59.80
Bulgaria	5,291,000	0.38	2006	1223	46.93	1.43	44.13	49.73
China	954,910,000	0.25	2007	13575	24.80	0.37	24.07	25.53
Georgia	2,981,000	4.19	2005–2006	469	17.48	1.75	14.04	20.92
Indonesia	154,180,000	0.14	2007	1404	44.66	1.33	42.06	47.26
Latvia	1,577,000	1.50*	2007	551	46.80	2.13	42.63	50.97
Mexico	68,399,000	0.59†	2006–2007	1060	5.09	0.68	3.77	6.41
Moldova, Republic Of	2,658,000	0.14	2007	630	88.73	1.26	86.26	91.20
Nepal	16,444,000	0.15	2007	300	78.33	2.38	73.67	82.99
Philippines	53,275,000	0.27‡	2007	752	14.10	1.27	11.61	16.59
Russian Federation	102,331,000	1.78	2005	596	23.83	1.75	20.41	27.25
Tajikistan	3,919,000	0.45	2006	600	25.17	1.77	21.70	28.64
Ukraine	32,288,000	1.16	2007	4140	46.11	0.77	44.59	47.63
Summary statistics								
No. countries with data meeting inclusion criteria/no. countries reporting	Minimum	Maximum	25th percentile	75th percentile	SD			
15/26	5.09	88.73	23.83	56.21	25.53			
Sum of reporting countries' estimated IDU populations:total LMIC IDU populations		Median	Mean	Confidence interval§	Mean weighted by IDU popln size			
0.48		46.11	43.62	31.02 to 56.18	25.65			
Regional IDU population weighted means								
Region	No. countries reporting			IDU population weighted mean				
Western Europe	0			—				
Eastern Europe	8			27.7				
Central Asia	1			—				
South Asia	2			80.2				
East and South-East Asia	3			25.8				
Middle East and North Africa	0			—				
Sub-Saharan Africa	0			—				
Latin America	1			—				

*Regional IDU prevalence for Eastern Europe used.

†Regional IDU prevalence for Latin America used.

‡Regional IDU prevalence for East and South East Asia used.

§Confidence interval around unweighted mean determined by random effects meta-analysis.

CI, confidence interval.

Condom Use

Twenty-nine countries (containing 65% of the estimated number of IDUs in LMICs) reported on condom use among IDUs at the time of last sexual intercourse, with an overall IDU population-weighted mean of 37% (Table 5). Regional weighted estimates ranged from 11% for the Middle East and North Africa (2 countries) to 93% for Latin America (2 countries).

Safe Injecting Practices

Twenty-nine countries reported on the use of sterile injecting equipment at last injecting, with an IDU population-weighted mean of 63% (Table 6). The highest regional IDU population weighted mean was observed for Eastern Europe (11 countries; mean of 77%) and the lowest in the Middle East and North Africa (2 countries; mean 10%).

DISCUSSION

HIV prevention interventions must target and successfully reach most-at-risk populations such as people who inject drugs, especially in countries where epidemics are being fuelled by the sharing of contaminated injecting equipment.

The data provided in the 2008 UNGASS reporting round suggest that for each of the 5 IDU-related indicators, the LMICs reporting data represent approximately 50% or more of the total population of injectors estimated to live in all LMICs. For the 2 indicators assessing HIV prevention behaviors, this proportion approaches two-thirds (65% for the condom use indicator and 63% for the safe injecting practices indicator).

The overall level of coverage reported for the indicator assessing the reach of HIV prevention programs for IDU was especially low, with approximately 25% (IDU population-weighted mean) of IDUs reporting that they knew where to get

TABLE 4. Most-at-Risk Populations (Injecting Drug Users): Knowledge About HIV Prevention

	Population Aged 15–64 Years, 2007	Prevalence of IDU (15-Year to 64-Year olds) ²	Year/s of Data Collection	Sample Size	Value %	Standard Error of %	Lower Bound of 95% CI	Upper Bound of 95% CI
Armenia	2,065,000	0.10	2007	280	68.10	2.79	62.64	73.56
Bangladesh	98,492,000	0.03	2006–2007	1196	20.20	1.16	17.92	22.48
Belarus	6,872,000	0.09	2007	687	57.79	1.88	54.10	61.48
Bosnia	2,700,000	1.50*	2007	260	21.92	2.57	16.89	26.95
Bulgaria	5,291,000	0.38	2006	1223	28.62	1.29	26.09	31.15
China	954,910,000	0.25	2007	13472	49.00	0.43	48.16	49.84
Georgia	2,981,000	4.19	2005–2006	469	41.36	2.27	36.90	45.82
Iran, Islamic Republic Of	48,889,000	0.40	2007	3060	23.79	0.77	22.28	25.30
Kazakhstan	10,571,000	0.96	2006–2007	4902	62.71	0.69	61.36	64.06
Kyrgyzstan	3,434,000	0.74	2006	500	63.60	2.15	59.38	67.82
Latvia	1,577,000	1.50†	2007	551	45.40	2.12	41.24	49.56
Macedonia, The FYRO	1,423,000	0.37‡	2007	386	34.46	2.42	29.72	39.20
Moldova, Republic Of	2,658,000	0.14	2007	630	64.44	1.91	60.70	68.18
Nepal	16,444,000	0.15	2007	300	66.00	2.73	60.64	71.36
Nigeria	78,804,000	0.84§	2007	680	34.01	1.82	30.45	37.57
Romania	14,983,000	1.50	2007	302	29.80	2.63	24.64	34.96
Russian Federation	102,331,000	1.78	2005	593	45.70	2.05	41.69	49.71
Thailand	45,147,000	0.38	2006–2007	267	49.10	3.06	43.10	55.10
Ukraine	32,288,000	1.16	2007	4140	46.69	0.78	45.17	48.21

Summary statistics

No. countries with data meeting inclusion criteria/no. countries reporting	Minimum	Maximum	25th percentile	75th percentile	SD
19/32	20.2	68.1	29.80	62.71	15.91
Sum of reporting countries' estimated IDU populations:total LMIC IDU populations		Median	Mean	Confidence interval¶	Mean weighted by IDU population size
0.53		45.70	44.88	38.12 to 51.57	44.67

Regional IDU population weighted means

Region	No. countries reporting	IDU population weighted mean
Western Europe	1	—
Eastern Europe	10	43.9
Central Asia	2	62.9
South Asia	3	27.5
East and South-East Asia	2	49.0
Middle East and North Africa	0	—
Sub-Saharan Africa	1	—
Latin America	0	—

*Regional IDU prevalence for Eastern Europe used.

†Regional IDU prevalence for Eastern Europe used.

‡Regional IDU prevalence for Western Europe used.

§Regional IDU prevalence for Sub-Saharan Africa used.

||Regional IDU prevalence for Eastern Europe used.

¶Confidence interval around unweighted mean determined by random effects meta-analysis.

CI, confidence interval.

tested for HIV and had received condoms and syringes in the last 12 months. This is far below what is considered universal access to HIV prevention services. However, it is important to note that harm reduction programs for injectors have been initiated relatively recently in many of these LMICs.

Levels of HIV testing in the last 12 months were higher than levels of access to HIV prevention services. HIV testing

can serve as a gateway for access to antiretroviral and other treatment. It is also an HIV prevention education opportunity and an access point for other HIV prevention services. The data collected, however, do not indicate whether or not testing was voluntary. It is possible that the higher levels of testing reported in this round reflect, to some extent, mandatory testing of subpopulations of IDUs (such as those who are

TABLE 5. Injecting Drug Users: Condom Use

	Population Aged 15–64 Years, 2007	Prevalence of IDU (15-Year to 64-Year Olds) ²	Year/s of Data Collection	Sample Size	Value %	Standard Error of %	Lower Bound of 95% CI	Upper Bound of 95% CI
Argentina	25,242,000	0.29	2007	355	63.50	2.56	58.49	68.51
Armenia	2,065,000	0.10	2007	280	56.25	2.96	50.44	62.06
Azerbaijan	5,879,000	5.21	2003–2004	400	18.30	1.93	14.51	22.09
Bangladesh	98,492,000	0.03	2006–2007	665	44.30	1.93	40.52	48.08
Belarus	6,872,000	0.09	2007	733	59.39	1.81	55.83	62.95
Bosnia	2,700,000	1.50*	2007	161	23.20	3.33	16.68	29.72
Bulgaria	5,291,000	0.38	2006	1231	19.46	1.13	17.25	21.67
China	954,910,000	0.25	2007	21490	34.20	0.32	33.57	34.83
Georgia	2,981,000	4.19	2005	469	47.82	2.31	43.30	52.34
Indonesia	154,180,000	0.14	2007	1404	33.90	1.26	31.42	36.38
Iran, Islamic Republic Of	48,889,000	0.40	2006–2007	1582	32.81	1.18	30.50	35.12
Kazakhstan	10,571,000	0.96	2006–2007	4902	36.91	0.69	35.56	38.26
Kyrgyzstan	3,434,000	0.74	2006	500	10.70	1.38	7.99	13.41
Latvia	1,577,000	1.50†	2007	551	38.30	2.07	34.24	42.36
Macedonia, The FYRO	1,423,000	0.37‡	2007	391	50.76	2.53	45.80	55.72
Malaysia	17,266,000	1.33	2003–2004	237	5.10	1.43	2.30	7.90
Mexico	68,399,000	0.59§	2007	684	28.95	1.73	25.55	32.35
Moldova, Republic Of	2,658,000	0.14	2007	630	67.85	1.86	64.20	71.50
Morocco	20,437,000	0.05	2005	496	13.13	1.52	10.16	16.10
Nepal	16,444,000	0.15	2007	300	37.67	2.80	32.19	43.15
Nigeria	78,804,000	0.84¶	2007	690	66.19	1.80	62.66	69.72
Pakistan	98,923,000	0.14	2007	4039	22.74	0.66	21.45	24.03
Russian Federation	102,331,000	1.78	2005	596	36.52	1.97	32.65	40.39
Tajikistan	3,919,000	0.45	2006	600	36.41	1.96	32.56	40.26
Thailand	45,147,000	0.38	2007	509	35.00	2.11	30.86	39.14
Turkey	50,045,000	0.05#	2006–2007	200	10.30	2.15	6.09	14.51
Ukraine	32,288,000	1.16	2007	4140	54.95	0.77	53.43	56.47
Uzbekistan	17,461,000	0.47	2005	3756	38.82	0.80	37.26	40.38
Vietnam	57,919,000	0.25	2005–2006	2032	36.36	1.07	34.27	38.45

Summary statistics

No. countries with data meeting inclusion criteria/no. countries reporting	Minimum	Maximum	25th percentile	75th percentile	SD
29/34	5.10	67.85	22.97	49.29	17.12
Sum of reporting countries' estimated IDU populations:total LMIC IDU populations	Median	Mean	Confidence interval**		Mean weighted by IDU population size
0.65	36.41	36.54	31.79 to 41.19		36.96

Regional IDU population weighted means

Region	No. countries reporting	IDU population weighted mean
Western Europe	1	—
Eastern Europe	10	37.3
Central Asia	4	38.8
South Asia	4	29.6
East and South-East Asia	5	32.2
Middle East and North Africa	2	11.1
Sub-Saharan Africa	1	—
Latin America	2	92.5

*Regional IDU prevalence for Eastern Europe used.

†Regional IDU prevalence for Eastern Europe used.

‡Regional IDU prevalence for Western Europe used.

§Regional IDU prevalence for Latin America used.

||Regional IDU prevalence for the Middle East and North Africa used.

¶Regional IDU prevalence for Sub-Saharan Africa used.

#Regional IDU prevalence for the Middle East and North Africa used.

**Confidence interval around unweighted mean determined by random effects meta-analysis.

CI, confidence interval.

TABLE 6. Injecting Drug Users: Safe Injecting Practices

	Population aged 15-64 years, 2007	Prevalence of IDU (15-64 year olds) ²	Year/s of data collection	Sample size	Value %	Standard Error of %	Lower bound of 95% CI	Upper bound of 95% CI
Armenia	2,065,000	0.10	2007	280	94.98	1.30	92.42	97.54
Azerbaijan	5,879,000	5.21	2006	400	77.00	2.10	72.88	81.12
Bangladesh	98,492,000	0.03	2006	1196	33.60	1.37	30.92	36.28
Belarus	6,872,000	0.09	2007	733	70.94	1.68	67.65	74.23
Bosnia	2,700,000	1.50*	2007	260	25.40	2.70	20.11	30.69
Bulgaria	5,291,000	0.38	2006	1231	25.18	1.24	22.76	27.60
China	954,910,000	0.25	2007	21490	40.50	0.33	39.84	41.16
Georgia	2,981,000	4.19	2005-2006	461	93.06	1.18	90.74	95.38
Indonesia	154,180,000	0.14	2004	1404	81.98	1.03	79.97	83.99
Iran, Islamic Republic Of	48,889,000	0.40	2006-2007	2036	74.46	0.97	72.57	76.35
Kazakhstan	10,571,000	0.96	2006-2007	4902	58.82	0.70	57.44	60.20
Kyrgyzstan	3,434,000	0.74	2006	500	77.00	1.88	73.31	80.69
Latvia	1,577,000	1.50†	2007	551	89.60	1.30	87.05	92.15
Macedonia, The FYRO	1,423,000	0.37‡	2007	391	72.73	2.25	68.32	77.14
Malaysia	17,266,000	1.33	2003-2004	800	27.60	1.58	24.50	30.70
Mexico	68,399,000	0.59§	2006	1060	14.15	1.07	12.05	16.25
Moldova, Republic Of	2,658,000	0.14	2007	630	95.88	0.79	94.33	97.43
Morocco	20,437,000	0.05	2005	496	7.47	1.18	5.16	9.78
Nepal	16,444,000	0.15	2007	300	95.67	1.18	93.37	97.97
Nigeria	78,804,000	0.84¶	2007	690	89.15	1.18	86.83	91.47
Pakistan	98,923,000	0.14	2007	4039	27.78	0.70	26.40	29.16
Philippines	53,275,000	0.27#	2007	752	47.74	1.82	44.17	51.31
Romania	14,983,000	1.50**	2004	500	28.00	2.01	24.06	31.94
Russian Federation	102,331,000	1.78	2006	701	81.60	1.46	78.73	84.47
Tajikistan	3,919,000	0.45	2006	600	31.79	1.90	28.06	35.52
Turkey	50,045,000	0.05††	2006-2007	200	10.29	2.15	6.08	14.50
Ukraine	32,288,000	1.16	2007	4140	84.03	0.57	82.91	85.15
Uzbekistan	17,461,000	0.47	2005	3756	22.99	0.69	21.64	24.34
Vietnam	57,919,000	0.25	2005-2006	2032	88.78	0.70	87.41	90.15

Summary statistics

No. countries with data meeting inclusion criteria/no. countries reporting	Minimum	Maximum	25th percentile	75th percentile	SD
29/34	7.50	95.90	27.69	86.41	30.53
Sum of reporting countries' estimated IDU populations:total LMIC IDU populations		Median	Mean	Confidence interval‡‡	Mean weighted by IDU population size
0.63		70.94	57.52	47.01 to 68.07	62.78

Regional IDU population weighted means

Region	No. countries reporting	IDU population weighted mean
Western Europe	1	72.7
Eastern Europe	11	76.7
Central Asia	4	45.8
South Asia	4	53.2
East and South-East Asia	5	45.0
Middle East and North Africa	2	9.5
Sub-Saharan Africa	1	—
Latin America	1	—

*Regional IDU prevalence for Eastern Europe used.

†Regional IDU prevalence for Eastern Europe used.

‡Regional IDU prevalence for Western Europe used.

§Regional IDU prevalence for Latin America used.

||Regional IDU prevalence for the Middle East and North Africa used.

¶Regional IDU prevalence for Sub-Saharan Africa used.

#Regional IDU prevalence for East and South East Asia used.

**Regional IDU prevalence for Eastern Europe used.

††Regional IDU prevalence for the Middle East and North Africa used.

‡‡Confidence interval around unweighted mean determined by random effects meta-analysis.

CI, confidence interval.

incarcerated or who attend health care facilities). Encouragingly, reports from the LMICs that did provide data indicate that a majority of IDUs report using a sterile syringe at the last injection. However, the behaviors of IDUs in countries that did not report data (home to an estimated 37% of people who inject drugs in LMICs) are not known.

There are limitations to the indicator data reported by countries and to the analysis of these data described here.

Because so few countries reported consistently across all the indicators we examined here, it was not possible to deduce regional trends.

Very little detailed information is available on the methods used to collect the data that countries submit. In particular, in the absence of information regarding how and where samples were recruited, it is difficult to interpret many of these indicators. The samples investigated may not be representative of the total population of injectors in a country. Sampling of sentinel populations that are commonly accessed via service sites introduces a likely bias when measuring service coverage, that is, availability of HIV prevention services tends to be higher than in the rest of the country. Thus, there is potential risk of overestimating levels of service coverage. In addition, it is possible that many countries may report data from samples gathered in a single or limited number of geographic locations. Few countries provided information on where samples were drawn from. But, among those that did provide such information, sampling invariably was reported to have occurred in large cities only. In the Russian Federation, for example, samples were gathered from 3 major cities only, whereas it is known that injecting occurs in other locations and the levels of services provided is inconsistent across these different settings. It is therefore possible that the heterogeneity of IDUs, of their behavior and of their access to services within a country may not be reflected in these data.

The reporting process itself is also subject to inaccuracy if countries make errors or omissions in the reports they submit. All data submitted are reviewed and checked for irregularities, but this does not exclude the possibility of incorrect data going undetected as the reviewers do not have access to original source material or information.

Furthermore, a lack of comparable data from other sources prevents verification of the data on these indicators reported by countries. An extensive search of the peer-reviewed and grey literature yielded relatively few data that were similar enough to allow comparison with the UNGASS reported data. There seemed to be a substantial amount of other data being collected on the reach of HIV prevention programs and HIV prevention behaviors of people who injected drugs. For the most part, however, these data were either from the very same source as submitted to UNAIDS (and thus identical) or, conversely, were too dissimilar to compare directly with the data from the UNGASS process.

In addition, the indicators in the 2008 UNGASS reporting round have some inherent limitations that are important to recognize. For example, the indicator assessing the reach of HIV prevention programs does not measure the quality of services provided. This indicator only measures whether or not an injector has accessed a service at least once

in the last 12 months (but with no qualification of the nature of that contact).

The indicator definitions are necessarily strict to allow for comparison of data from different countries. However, this also leads to data from many countries being excluded from the analysis. This may reflect difficulties countries face when reporting against these indicators, or it may be that the UNGASS indicators are not regarded as appropriate measures in particular country contexts.

The situation in a large number of countries is not reported, however, it is important that efforts are made to gain understanding of the status of HIV prevention in those countries and to identify factors that might impede data collection or reporting.

Although the data reported for many LMIC countries suggest that many IDUs do have an understanding of how to prevent HIV transmission and that some are using condoms and, to some extent, inject with clean injecting equipment, it is clear that many remain at risk of sexual and injecting-related transmission of HIV. In addition, the goal of universal access to HIV prevention programs for IDUs is far from being achieved in LMICs. Given the role of IDUs in contributing to and in some regions, driving the HIV epidemics, failure to adequately address HIV transmission among IDUs is a serious barrier to achieve the targets of the Millennium Development Goal (MDG 6), which calls halting and reversing the spread of HIV/AIDS by 2015.

The UNGASS indicators are not intended to be a comprehensive set of measures for monitoring all aspects of countries' HIV prevention programs. Instead, they are proposed to provide an index with which countries' responses can be compared and to assist in monitoring progress of the overall global response. Despite these limitations and the difficulties inherent in monitoring and evaluating the current state of HIV prevention responses for people who inject drugs, the 2008 UNGASS reporting round does provide a useful baseline against which future progress might be measured. If in future rounds a greater number of countries report on these indicators and if there continues to be an improvement in the quality of the data submitted, this dataset will be of even greater value in understanding progress toward universal access and achievement of the Millennium Development Goals. This is critical given the continued absence of any comparable global assessment mechanism.

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Tim Slade and Deborah Randall, (National Drug and Alcohol Research Centre, University of New South Wales, Sydney, Australia) provided advice on statistical analysis and Tim Slade performed the meta-analyses and meta-regressions.

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APPENDIX 1. LOW AND MIDDLE INCOME COUNTRIES (LMIC) IN 2007 AS CLASSIFIED BY THE WORLD BANK³ (147 COUNTRIES) AND, OF THESE, WHERE INJECTING DRUG USE HAS BEEN REPORTED MARKED WITH * (99 COUNTRIES)

Afghanistan*
 Albania*
 Algeria*
 Angola
 Argentina*
 Armenia*
 Azerbaijan*
 Bangladesh*
 Belarus*
 Belize
 Benin
 Bhutan*
 Bolivia*
 Bosnia*
 Botswana
 Brazil*
 Bulgaria*
 Burkina Faso
 Burundi
 Cambodia*
 Cameroon
 Cape Verde
 Central African Republic
 Chad
 Chile*
 China*
 Colombia*
 Comoros
 Congo
 Congo, Democratic Republic of The
 Costa Rica*
 Côte d’Ivoire*
 Croatia*
 Cuba
 Djibouti*
 Dominica
 Dominican Republic*

Ecuador*
 Egypt*
 El Salvador*
 Equatorial Guinea
 Eritrea
 Ethiopia
 Fiji*
 Gabon*
 Gambia
 Georgia*
 Ghana*
 Grenada
 Guatemala*
 Guinea
 Guinea-Bissau
 Guyana
 Haiti*
 Honduras*
 India*
 Indonesia*
 Iran, Islamic Republic of*
 Iraq*
 Jamaica*
 Jordan*
 Kazakhstan*
 Kenya*
 Kiribati*
 Korea, Democratic People’s Republic of
 Kyrgyzstan*
 Lao People’s Democratic Republic*
 Latvia*
 Lebanon*
 Lesotho
 Liberia
 Libyan Arab Jamahiriya*
 Lithuania*
 Macedonia, The FYRO*
 Madagascar
 Malawi*
 Malaysia*
 Maldives*
 Mali
 Marshall Islands
 Mauritania
 Mauritius*
 Mexico*
 Micronesia, Fed. States of*
 Moldova, Republic of*
 Mongolia*
 Montenegro*
 Morocco*
 Mozambique
 Myanmar*
 Namibia
 Nauru
 Nepal*
 Nicaragua*
 Niger
 Nigeria*
 Oman*
 Pakistan*
 Palau
 Panama*
 Papua New Guinea*
 Paraguay*
 Peru*
 Philippines*
 Poland*
 Romania*
 Russian Federation*
 Rwanda
 Saint Kitts and Nevis

Saint Lucia
Saint Vincent and the Grenadines
Samoa*
Sao Tome & Principe
Senegal*
Serbia*
Seychelles
Sierra Leone
Slovakia*
Solomon Islands*
Somalia
South Africa*
Sri Lanka*
Sudan*
Suriname*
Swaziland
Syrian Arab Republic*
Tajikistan*
Tanzania, United Republic of*

Thailand*
Timor Leste*
Togo
Tonga*
Trinidad and Tobago
Tunisia*
Turkey*
Turkmenistan*
Tuvalu
Uganda*
Ukraine*
Uruguay*
Uzbekistan*
Vanuatu*
Venezuela*
Vietnam*
Yemen*
Zambia*
Zimbabwe