Global overview of injecting drug use and HIV infection among injecting drug users

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Objective: To provide global estimates of the prevalence of injecting drug use (IDU) and HIV prevalence among IDU, in particular to provide estimates for developing and transitional countries.

Methods: Collation and review of existing estimates of IDU prevalence and HIV prevalence from published and unpublished documents for the period 1998–2003. The strength of evidence for the information was assessed based on the source and type of study.

Results: Estimates of IDU prevalence were available for 130 countries. The number of IDU worldwide was estimated as approximately 13.2 million. Over ten million (78%) live in developing and transitional countries (Eastern Europe and Central Asia, 3.1 million; South and South-east Asia, 3.3 million; East-Asia and Pacific, 2.3 million). Estimates of HIV prevalence were available for 78 countries. HIV prevalence among IDU of over 20% was reported for at least one site in 25 countries and territories: Belarus, Estonia, Kazakhstan, Russia, Ukraine, Italy, Netherlands, Portugal, Serbia and Montenegro, Spain, Libya, India, Indonesia, Malaysia, Myanmar, Nepal, Thailand, Viet Nam, China, Argentina, Brazil, Uruguay, Puerto Rico, USA and Canada.

Conclusions: These findings update previous assessments of the number of countries with IDU and HIV-infected IDU, and the previous quantitative global estimates of the prevalence of IDU. However, gaps remain in the information and the strength of the evidence often was weak.

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Introduction

The United Nations General Assembly Special Session on HIV/AIDS 'Declaration of Commitment on HIV/AIDS' acknowledged that 'by the end of 2000, 36.1 million people worldwide were living with HIV/AIDS, 90% in developing countries' [1]. Ten percent of the HIV/AIDS cases worldwide are attributed to injecting drug use (IDU) [2]. It has been estimated that up to 10 million people worldwide inject drugs, and by the end of 1999 IDU had been reported by 136 countries and 114 have reported HIV infections asso-

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Note: The contents of this paper, including data, analysis, interpretation and presentation are the responsibility of the authors and not of the United Nations.

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ciated with IDU [3]. The importance of IDU in different regions in contributing to HIV epidemics is well documented [3,4].

In addition to the classification of HIV epidemic scenarios (low-level, concentrated and generalized) [5], which defines the current status of the epidemic in a given territory, several situations can be identified according to both the dimension of the epidemic and its prevalent routes of transmission. Thus, sub-Saharan Africa contains 70% of the HIV/AIDS cases (over 26 million people living with HIV/AIDS) with heterosexual transmission as the main route [6]. However, China, Indonesia, Viet Nam, several Asian republics, the Baltic States and North Africa have HIV epidemics driven by unsafe drug-injecting practices with additional HIV spread occurring through commercial sex work [4]. Furthermore, it has been recently estimated that in many countries in Europe, Asia, the Middle East and the Southern cone of Latin America, the sharing of injecting equipment is the primary mode of transmission, accounting for 30–90% of all reported infections [7].

Estimates of the prevalence of IDU and related HIV infection are critical to planning intervention responses, and to measuring the coverage of harm reduction (e.g. needle exchange/distribution, substitution treatment) and provision of anti-retroviral treatment (ARV) for IDU. However, information on the number of IDU or the prevalence of HIV infection among them is still scarce in key countries [7]. In 2001, the UN Reference Group on HIV/AIDS Prevention and Care among IDU in Developing and Transitional Countries was established to advise UNAIDS and co-sponsors on relevant issues regarding the HIV epidemic among IDU in developing and transitional countries. The group seeks to enhance an evidence-based approach to HIV prevention and care among IDU. Among its mandates is to synthesize and disseminate evidence on international HIV epidemiology, surveillance and HIV prevention and care among IDU. In this paper we report progress towards obtaining global, regional and national estimates of the prevalence of IDU, and prevalence of HIV infection among IDU.

Methods

Published and unpublished documents in English or Spanish containing data on prevalence of IDU or size of the IDU population, and HIV prevalence among IDU for 1998/2003 were identified for countries and territories worldwide. Earlier figures were accepted if there were no current data. There were insufficient resources to translate from other languages. The first stage search procedure gathered information from data systems and experts in international organizations including UNAIDS, World Health Organization (WHO), United Nations Office on Drugs and Crime (UNODC), and the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). This was followed by active searches in MEDLINE and EMBASE (for example, a search strategy for HIV prevalence was: Asia AND HIV AND (IDU OR injecting drug users OR drug injec* OR injec* drug us*); searches of conferences proceedings; and requests for information from IDU/HIV researchers, and members of collaborative networks (e.g. members and contacts of the UN Reference Group; the Central and Eastern European Harm Reduction Network; the Asian Harm Reduction Network).

Data was introduced in a database designed ad-hoc and maintained by the research group. Quality controls – consisting of the random selection of 10% of the figures in the database that are then checked against the original documents in which they were found – are regularly performed to ensure that data is introduced correctly and duplicates identified and deleted.

Qualitative information (e.g. report of presence or absence of IDU) was not considered. Countries were grouped as 'developing countries' in accordance with the United Nations Development Program 'Human Development Report 2003' [8]. The UNAIDS classification for regions was followed [3]. No searches for primary information were performed for developed countries; institutional reports and published data were used instead, e.g. EMCDDA [9–12] and the European Centre for the Epidemiological Monitoring of AIDS [13].

IDU prevalence was calculated using as the denominator the total adult population (15 to 64 years old) [14]. Given the lack of city population estimates by age group, IDU prevalence for cities and sub-national units was calculated assuming the same age distribution as in the country. In countries where no estimate of IDU population could be found reported numbers of IDU (e.g. registered IDU) were used. Fifteen estimates of IDU at the country level were excluded because of clear inconsistencies with other figures for the same country. Ranges and mid-points reported were in the original sources.

A measure of the strength of evidence was implemented based on study design and data source. Given multiple biases in measuring injecting using population surveys and recommendation to adopt indirect methods [15,16] we judged information quality for IDU prevalence as 'A' for estimates derived from indirect single or multiple methods (e.g. capture–recapture, synthetic estimation); 'B' for population surveys and actual numbers of IDU; 'C' for expert judgement, including rapid

assessment, based on evaluation of local evidence; and 'D' 'No technical information available'. HIV prevalence reports were rated 'A' if based on a study that had been conducted with at least two samples (multisite study); 'B' derived from a single sample (e.g. IDU in treatment); 'C' for denominator studies and 'D', if no technical information about the sample could be located. Assessments were made only for developing or transitional countries where we sought original material. Data for developed countries were derived from secondary sources.

Results

Data availability and strength of evidence and availability

A total of 224 documents provided information: 52 sources were used for IDU prevalence and 202 for HIV prevalence among IDU; 30 documents contained data on both indicators. The sources used, along with elaborated tables, may be found on the UN Reference Group website (www.idurefgroup.org). Data sources comprised 51 reports by international organizations, 68 peer-reviewed papers, 57 conference abstracts, 28 fact sheets, seven databases, seven books and booklets and six miscellaneous (slides, press articles and personal communications).

Of the 398 figures for IDU prevalence from developing countries 139 were for South and South-east Asia (36 for Indonesia and 24 for India) and 98 for Eastern Europe and Central Asia (22 in Russia and 18 in Ukraine); and of 801 figures on HIV prevalence in developing countries 272 were from Eastern Europe and Central Asia (134 Russia) and 256 for South and South-east Asia (70 for Viet Nam) with only 30 figures located for North Africa and Middle-East and 63 for East-Asia and Pacific (47 for China).

The strength of evidence generally was low: one of 398 figures on IDU prevalence were rated as 'A', one as 'B', 18 were rated as 'C' and 378 as 'D'; for HIV prevalence, 128 of 801 were rated as 'A', 162 as 'B', none as 'C' and 511 as 'D'.

Data on IDU prevalence were found for 130 countries and territories with reports of HIV prevalence among IDU greater than 0% for 78.

The gaps in information on IDU prevalence are mainly in Africa and the Caribbean. Information on IDU prevalence was missing for 119 countries and territories worldwide. We failed to find any quantitative estimate for 29 countries on a list compiled by the former UNODCCP (now UNODC) of countries with IDU; whereas we found an estimate for 15 countries and territories which had not been on the original UN-ODCCP list. Similarly, we did not find any data on HIV prevalence among IDU in 33 countries and territories where UNODCCP had reported information, and in further three (Egypt, Kuwait and Slovakia) the percentages we found equalled 0%. We found HIV prevalence data for four countries and territories that were not included on the original UNODCCP list [17]

Global overview of the IDU population and HIV prevalence

Collating the data yielded an estimate of the number of IDU worldwide as 13.2 million (0.3% of the estimated 4 billion adult population) by the end of 2003. The majority, 10.3 million (78%), live in developing and transitional countries. We estimate the number of IDU for Western Europe at from 1 to 1.4 million (9.41%) and for Eastern Europe and Central Asia from 2.3 to 4.1 million (24.18%). In South and South-east Asia we estimate that between 1.3 and 5.3 million (25.36%) IDU live in the region. Estimates for East-Asia and Pacific range between 0.6 and 4 million (17.66%). In North Africa and the Middle-East, the estimates go from 0.3 to 0.6 million and for sub-Saharan Africa the available figures indicate about 9000 people are IDU. In the Americas, estimates for Latin America suggest between 0.7 and 1.3 million IDUs, and 21 000 to 35 000 in the Caribbean. In North America about 1.4 million people are IDUs. Estimates for IDU in Australia and New Zealand are between 89 000 and 298 000.

Estimates of HIV among IDU were found for 84 countries and territories and HIV prevalence among this population was higher than 0.0% for 78 of them. HIV prevalence among IDU reported for the country as a whole ('national' in Tables 1–4), or for the capital city of other site was less than 5% in 43 countries and territories. In a further 16 countries a national, capital city or other site prevalence was between 5 and 20%. There were 25 countries that had an HIV prevalence of 20% or more at a national, capital city or other site level, and of these 15 had at least one site with an HIV prevalence of 50% or more (seven of these in East, South and South-east Asia).

The 25 countries and territories with at least one report of HIV prevalence of 20% or more at the 'national', 'capital city' or 'other sites' levels were: Belarus, Estonia, Kazakhstan, Russia, Ukraine (in Eastern Europe and Central Asia), Italy, Netherlands, Portugal, Serbia and Montenegro and Spain (in Western Europe), Libya (in North Africa and the Middle East), India, Indonesia, Malaysia, Myanmar, Nepal, Thailand and Viet Nam (in South and South-east Asia), China (in East-Asia and Pacific), Argentina, Brazil and Uruguay (in Latin America), Puerto Rico (in the Car-

Table 1. Europe and Central Asia, Injection drug users (IDU) prevalence and HIV prevalence among IDU.

Countries and territories	Population age 15–64 years (1000s)	IDU population Estimates (1000s)			IDU Prevalence (%) Mid	HIV prevalence (%)		
		Low	High	Mid		National	Capital city	Other sites
(a) Eastern Europe and Central Asia (number of countries and territories = 23)								
Armenia	2216	7	11	9	0.40	5.0–6.5	nk	6.25–19.0
Azerbaijan	4915	15	23	19	0.39	2.3	nk	nk
Belarus	7026	41	51	46	0.65	2.1–67.0	0.6–22.3	0.0–23.2
Bosnia & H	2727	11	11	11	0.42	nk	nk	nk
Bulgaria	5296	4	12	8	0.15	0.0	0.0–2.8	nk
Croatia	2865	19	23	21	0.73	0.5–1.93	nk	nk
Czech Rep	7157	25	26	26	0.36	0.05–0.1	nk	0.0–0.1
Estonia	970	10	30	20	2.05	13.0	41.0	nk
Georgia	3386	10	15	12	0.37	4.7	nk	nk
Hungary	6943	25	25	25	0.36	0.0	1.0	nk
Kazakhstan	10960	97	250	174	1.58	0.5–4.0	0.0	0.0–26.0
Kyrgyzstan	2731	19	23	21	0.77	0.5	nk	nk
Latvia	1627	9	12	11	0.66	6.7–17.5	12.0–19.0	18.3
Lithuania	2437	5	11	8	0.33	2.0	nk	3.0
Moldova	2967	77	116	97	0.36	2.6–4.9	nk	nk
Poland	26555	34	52	43	1.45	6.3–11.0	16.9	nk
Romania	15305	90	112	101	0.66	0.0–0.81	nk	nk
Russia	101124	1455	2500	1977	1.96	0.4–4.8	0.12–28.3	0.0–64.5
Slovakia	3735	11	16	13	0.36	0.0	0.0	0.0
Tajikistan	3449	43	62	53	1.53	2.5	nk	nk
Turkmenistan	2599	9	13	11	0.43	nk	nk	nk
Ukraine	33527	200	595	397	1.19	8.5–9.6	nk	14.4–73.67
Uzbekistan	24756	52	122	87	0.35	nk	nk	nk
(b) Western Europe (number of countries and territories = 24)								
Albania	2198	9	30	20	0.89	nk	nk	nk
Austria	5519	20	20	20	0.37	0.9–5.8	0.0–4.9	0.0–3.4
Belgium	6720	25	25	25	0.37	nk	nk	0.3–5.9
Denmark	3558	13	13	13	0.35	nk	15.0–19.5	0.0
Finland	3460	12	12	12	0.36	0.8–3.0	0.0–7.9	0.0–1.3
France	38715	80	120	100	0.26	13.6–19.3	nk	13.7
Germany	55850	201	201	201	0.36	2.8–4.0	nk	nk
Greece	10602	60	89	74	0.70	0.0–2.2	0.0	nk
Iceland	180	1	1	1	0.40	1.5	nk	nk
Ireland	2538	10	10	10	0.40	3.5–8.7	nk	9.0
Italy	39161	200	300	250	0.64	10.0–65.6	nk	0.6–32.8
Jersey	82	0.53	0.53	0.53	0.64	nk	nk	nk
Luxemburg	294	1	2	1	0.48	3.3–4.3	nk	nk
Macedonia	1362	4	6	5	0.37	nk	nk	nk
Malta	264	2	3	3	1.03	nk	nk	nk
Netherlands	10796	3	5	4	0.04	nk	25.9	0.5–21.6
Norway	2904	11	12	11	0.39	nk	2.49–4.69	3–14.6
Portugal	6787	25	35	30	0.45	13.6	8.3–41.3	0.0–37.0
Serbia & Montenegro	9102	27	27	27	0.30	nk	43.7[a]	4.6[a]
Slovenia	1339	5	5	5	0.39	0.0–0.4	nk	0.0–1.0
Spain	27334	233	347	290	1.06	15.2–66.5	nk	1.3–48.3
Sweden	5707	20	20	20	0.35	nk	2.6	nk
Switzerland	4920	9	14	12	0.24	0–1.7	nk	nk
UK	38971	103	103	103	0.26	0.8	2.9–4.5	0.2–3.3

[a] Figure prior to 1998. nk, not known. Column titled 'National', figures reported, implicit or explicitly, for the national territory; 'Capital city', figures reported for the capital city; 'Other sites', figures found in locations other than the capital city.

ibbean) and USA and Canada (in North America). Almost of all them have reports of high HIV prevalence in the capital city and other major urban areas.

In 47 countries and territories, estimates of the IDU population were located but no reports of the level of HIV prevalence among them were found. This was the case for 17 countries in North Africa and the Middle-East and sub-Saharan Africa and 12 in Latin America and the Caribbean.

Europe and Central Asia

Eastern Europe and Central Asia

In six countries (Kazakhstan, Poland, Romania, Russia, Ukraine and Uzbekistan) the IDU population exceeded 100 000 and in 12 countries (Belarus, Croatia, Estonia,

Table 2. Asia and Pacific, Injection drug users (IDU) prevalence and HIV prevalence among IDU.

Countries and territories	Population age 15–64 years (1000s)	IDU Population Estimates (1000s)			IDU Prevalence (%) Mid	HIV prevalence (%)		
		Low	High	Mid		National	Capital city	Other sites
(a) South and South-east Asia (number of countries and territories = 18)								
Afghanistan	14203	23	45	34	0.24	nk	nk	nk
Bangladesh	77939	25	170	98	0.13	0.2–2.5	2.5–2.6	0–1.7
Brunei D.	222	3	4	3	1.42	3.8	nk	nk
Cambodia	6790	0.3	1	0.6	0.01	nk	nk	nk
India	619671	563	2025	1294	0.21	1.3–68.4	44.5–45.0	2.0–81.0
Indonesia	139622	160	1000	580	0.42	15.0–47.0	14.9–40.0	16.0–56.0
Iran	40357	112	300	206	0.51	0.5–0.7	nk	0.0–13.0
Laos	2948	5	11	8	0.28	0.0	nk	nk
Malaysia	13298	150	240	195	1.47	10.0–40.0	nk	18.0
Myanmar	27346	90	300	195	0.71	37.1–63.0	37–38.9	7.0–92.3
Nepal	13803	24	58	41	0.30	45.0–60.0	40.0–80.0	8.3–50.0
Pakistan	77733	54	870	462	0.59	0.0	nk	0.0–0.04
Philippines	47116	10	24	17	0.04	1.0	nk	0.0
Singapore	3111	10	20	15	0.48	1.7	nk	nk
Sri Lanka	12891	18	38	28	0.22	nk	nk	nk
Thailand	42938	20	76	48	0.11	20.0–56.0	34.0	0.0–90.9
Timor	476	0.09	0.12	0.11	0.02	nk	nk	nk
Viet Nam	48862	70	156	113	0.23	0.0–89.4	3.3–13.5	13.5–64.0
(b) East-Asia (number of countries and territories = 9)								
China	855614	356	3500	1928	0.23	0.0–80.0[a]	na	1.0–84.0[a]
Hong Kong	4822	13	40	26	0.55	na	0–13.6	na
Macao	302	0.5	0.9	0.7	0.24	na	0–1.83	na
Fiji	526	0.1	0.2	0.1	0.02	nk	nk	nk
Japan	86339	150	500	325	0.38	0.0–0.04	nk	0.0
Mongolia	1625	0.01	0.1	0.1	0.004	nk	nk	nk
P. N. Guinea	2836	5	10	8	0.26	nk	nk	nk
Rep. of Korea	33897	1	5	3	0.01	nk	nk	nk
Taiwan	15550	60	60	60	0.39	nk	nk	nk
(c) Australia and New Zealand (number of countries and territories = 2)								
Australia	13234	75	250	163	0.57	1.23[b]	nk	nk
New Zealand	2627	14	48	31	0.79	0.3–0.5[b]	nk	nk

[a] Excluding Hong Kong and Macao. [b] Figure prior to 1998. nk, not known; na, non applicable. Column titled 'National', figures reported, implicit or explicitly, for the national territory; 'Capital city', figures reported for the capital city; 'Other sites', figures found in locations other than the capital city.

Kazakhstan, Kyrgyzstan, Latvia, Poland, Romania, Russia, Tajikistan, Turkmenistan and Ukraine) the prevalence of IDU among the adult population was over 0.5% (> 1 in 200 adults aged 15–64 years) (Table 1). Twelve countries have reported HIV prevalence among IDU at under 5%, three (Armenia, Latvia and Poland) have reported levels of infection between 5 and 20%, five (Belarus, Estonia, Kazakhstan, Russia and Ukraine) show levels of HIV above 20% and in the three no information was found.

There can be a wide range of HIV prevalence within a country, with extremely high values confined to specific areas. In Russia, for example, a study undertaken in six cities (Arkhangelsk, Ekateringburg, Irkutsk, Rostov-Don, Samara City and Tver) each with two samples (from needle exchange and drug treatment services), showed that with the exception of Arkhangelsk (at 0.5%) and one of the two sites in Rostov-Don (at 1.3%), the prevalence of HIV among IDU ranged from 10.9 to 64.5% [18].

In Moscow it was not until 2001 that a high prevalence of HIV infection among IDU was detected. Earlier figures (drawn from drug treatment samples) ranged from 0.12 to 4.9% [19]. In 2001 a study with 60 IDU recruited from drug treatment reported that 28% were HIV positive [19]. Similarly, in St. Petersburg in 1998 two studies reported HIV prevalence at less than 1% [20,21]; 1 year later HIV prevalences of 12% [20] and 46% [21] was found; in 2000 a prevalence of 10.9% [22] to 19.3% [22] was reported and in 2001 it was 35.7% [22].

Asia and Pacific

South and South-east Asia

Eight countries in this region (Table 2) have an estimated IDU population greater than 100 000 (Bangladesh, India, Indonesia, Iran, Malaysia, Myanmar, Pakistan, and Viet Nam) and seven have an IDU prevalence among adults greater than 0.5%: Brunei, Indonesia, Iran, Malaysia, Myanmar, Pakistan and Singapore.

Table 3. North Africa, Middle-East and sub-Saharan Africa. Injecting drug users (IDU) prevalence and HIV prevalence among IDU.

Countries and territories	Population age 15–64 years (1000s)	IDU population Estimates (1000s)			IDU Prevalence (%) Mid	HIV prevalence (%)		
		Low	High	Mid		National	Capital city	Other sites
(a) North Africa and Middle-East (number of countries and territories = 21)								
Algeria	18964	26	56	41	0.22	nk	nk	nk
Bahrain	426	0	1	1	0.16	0–2.3	nk	nk
Cyprus	500	0	1	1	0.16	nk	nk	nk
Egypt	42879	57	120	89	0.21	0.0	nk	nk
Iraq	12396	23	46	35	0.28	0.0	nk	nk
Israel	3652	6	12	9	0.26	nk	2.6[a]	nk
Jordan	2943	3	7	5	0.16	4.2[a]	nk	nk
Kuwait	1348	23	23	23	1.67	0.0	nk	nk
Lebanon	2342	2	4	3	0.14	7.8	nk	nk
Libya	3080	5	10	7	0.23	0.5–59.4	nk	nk
Morocco	18185	19	19	19	0.10	nk	nk	nk
OPT	535	1	3	2	0.35	nk	nk	nk
Oman	1432	3	6	4	0.30	5.0	nk	nk
Qatar	532	1	2	1	0.22	nk	nk	nk
Saudi Arabia	12063	15	32	24	0.20	nk	nk	nk
Sudan	18591	24	51	38	0.20	nk	nk	nk
Syria	9165	4	8	6	0.07	0.3[a]	nk	nk
Tunisia	6170	8	18	13	0.21	0.3[a]	nk	nk
Turkey	42638	67	133	100	0.23	1.0	nk	nk
UA Emirates	1613	3	6	5	0.30	nk	nk	nk
Yemen	8641	13	27	20	0.23	nk	nk	nk
(b) Sub-Saharan Africa (number of countries and territories = 9)								
Cote d'Ivoire	8205	0.004[b]	0.004[b]	0.004[b]	0.0004	nk	nk	nk
Ghana	10795	1	1	1	0.01	nk	nk	nk
Guinea	4528	0.01[b]	0.01[b]	0.01[b]	0.0002	nk	nk	nk
Mauritius	804	1	1	1	0.12	nk	nk	nk
Niger	5076	1	1	1	0.02	nk	nk	nk
Nigeria	66012	5	5	5	0.008	nk	nk	nk
Somalia	3831	1	1	1	0.03	nk	nk	nk
South Africa	26902	0.086[b]	0.086[b]	0.086[b]	0.0003	nk	2.0[a]	nk
Zambia	4928	0.005[b]	0.005[b]	0.005[b]	0.0001	nk	nk	nk

[a] Figure previous to 1998. [b] It is not an estimate but the actual number of IDU identified. nk, not known. Column titled 'National', figures reported, implicit or explicitly, for the national territory; 'Capital city', figures reported for the capital city; 'Other sites', figures found in locations other than the capital city.

Six countries had a reported HIV prevalence among in IDU of less than 5% (Bangladesh, Brunei Darussalam, Laos, Pakistan, Philippines and Singapore), whereas HIV prevalence greater than 20% were found for sites in India, Indonesia, Malaysia, Myanmar, Nepal, Thailand and Viet Nam.

In India the highest HIV prevalence was found in Manipur State at 50 to 81% [23,24]. New Delhi reported a 45% HIV prevalence [25,26], and in Mumbai HIV prevalence was reported as 7.4% in 1998 [26] and 24% in 2000 [25]. Unfortunately, much of the data lacked information on how the figures were derived and were subsequently classified as 'D'.

East Asia and Pacific

China and Japan have reported IDU populations over 100 000. In Hong Kong and Japan IDU prevalence among the adult population is over 0.5%. HIV prevalence under 5% among IDU was found in Macao and Japan. Reports of HIV prevalence greater than 20% were found for areas in China with estimates of over 70% in Ruili (Yunnan) and Yining (Xianjiang), in Wenshan and Gejiu, (Yunnan), Baise (Guanxi) [27] and in three cities of Yunnan [27].

Information on Australia and New Zealand is displayed in Table 2c.

North Africa, Middle East and sub-Saharan Africa

North Africa and the Middle East

Estimates of IDU populations greater than 100 000 were reported for Turkey and Egypt (Table 3). HIV prevalence was 0 to 5% in 10 out of 21 countries and information missing in nine. The highest HIV seroprevalence among IDU was reported for Libya: with one study reporting 0.5% in 1998 [28] and another 59% in 2001 [29].

Sub-Saharan Africa

Information on IDU populations was found in nine countries. HIV prevalence among IDU was found only

Table 4. America. Injecting drug users (IDU) prevalence and HIV prevalence among IDU.

Countries and territories	Population age 15–64 years (1000s)	IDU population Estimates (1000s)			IDU Prevalence (%) Mid	HIV prevalence (%)		
		Low	High	Mid		National	Capital city	Other sites
(a) Latin America (number of countries and territories = 17)								
Argentina	23494	6	75	41	0.17	18.8–39.2	7.6–80.0	60.0–61.0
Bolivia	4600	0.1	0.3	0.2	0.00	nk	nk	nk
Brazil	115662	600	1000	800	0.69	28.0–42.0	15.0–34.0	18.0–48.5
Chile	9877	29	29	29	0.29	1.9	nk	nk
Colombia	25061	2	8	5	0.02	nk	16.1	nk
Costa Rica	2328	1	1	1	0.04	nk	nk	nk
Ecuador	7675	8	11	9	0.12	nk	nk	nk
El Salvador	3486	4	5	4	0.13	nk	nk	nk
Guatemala	6824	6	9	7	0.11	nk	nk	nk
Honduras	3342	4	5	4	0.13	nk	nk	nk
Mexico	62092	10	96	53	0.09	0.0–6.0	nk	6.0
Nicaragua	2765	3	4	3	0.12	nk	nk	nk
Panama	1771	2	2	2	0.12	nk	nk	nk
Paraguay	3139	3	4	4	0.12	nk	15.0	nk
Peru	16345	1	1	1	0.003	nk	nk	nk
Uruguay	2088	2	3	2	0.10	24.4	nk	nk
Venezuela	14762	1	2	2	0.01	nk	nk	nk
(b) Caribbean (number of countries and territories = 5)								
Bermuda and Cayman Islands	101	2	8	5	4.93	nk	nk	nk
Cuba	7679	7	10	8	0.11	nk	nk	nk
Dominican Republic	5056	0.10	0.12	0.11	0.002	nk	0.0	nk
OECS	nk	0.32	0.46	0.039	nk	nk	nk	nk
Puerto Rico	2535	12	17	15	0.59	nk	42.4–55.2	nk
(c) North America (number of countries and territories = 2)								
USA	193690	1300	1300	1300	0.67	nk	nk	0.4–42.0
Canada	22085	125	145	135	0.61	14.5–47.9	7.1–23.5	1.1–41.0

[a] Figure prior to 1998. nk, not known. Column titled 'National', figures reported, implicit or explicitly, for the national territory; 'Capital city', figures reported for the capital city; 'Other sites', figures found in locations other than the capital city.

for South Africa (2.0% in a study conducted in 1991/2 [30])

Americas

Latin America

Brazil was the only country with an estimate of the IDU population of over 100 000 and prevalence greater than 0.5% among adults aged 15–64 years (Table 4). In Argentina a population of 50 000 men and 14 500 women cocaine-injectors has been estimated [31]. In Argentina, Brazil and Uruguay there were reports of sites with HIV prevalence greater than 20%. In 10 countries information on HIV prevalence could not be located. Again, the levels of infection are not uniform in a given country. For instance, whereas the national prevalence in Argentina in 2000 was reported as 39.2% (sentinel surveillance results based upon 7 329 patients) [32], the prevalence for Buenos Aires based on the screening of 600 IDU was 7.6% for 1998–2000 [33]. However, in another study in 2000, based in a hospital in Buenos Aires, a range of 70–80% of seroprevalence was reported [32].

Caribbean

Estimates for the size of the IDU population were located for three countries and territories. Puerto Rico was the only territory with figures on HIV prevalence among IDU greater than 20%. [34]

Information on North America is displayed in Table 4c.

Discussion

We estimate that there are approximately 13.2 million IDU globally. However, this estimate must be treated with great caution as there is great uncertainty surrounding some of the individual country estimates and data were missing for 119 countries and territories.

Information on the size of the IDU population was found for 130 countries and territories and figures for IDU associated HIV for 78. We failed to find any supporting evidence among the sources reviewed (over 300) for 29 of those listed by UNODCCP as having

IDU within their frontiers and for 36 having HIV associated with IDU.

Information on the prevalence of HIV among IDU in developing and transitional countries is scarcer than in developed countries. Even when data were available, the strength of evidence was low. It should be noted also, that our assessment of the strength of evidence was based on the type of study used to generate it, but given the difficulties of obtaining representative samples of IDU even the best designed studies need supporting evidence to interpret and corroborate the findings. The strength of evidence for HIV and IDU prevalence estimates in specific cities (data not shown, but available on request) often was greater than any national estimates. Obtaining reliable estimates of the prevalence of IDU through indirect methods that utilize routine data sources tends to be harder, and subject to additional potential biases, at a national than city level [35]. Equally, the best studies of HIV infection among IDU are conducted at city level. We recommend, therefore, that UNAIDS, UNODC, WHO and other agencies consider monitoring IDU and HIV epidemics among IDU in sentinel cities globally.

The amount of information available varied considerably, and did not necessarily correspond with the possible scale of the problem, more to the availability or lack of public health surveillance or monitoring initiatives. Paradoxically, although most of the research on IDU populations or in HIV infection in IDU populations has been conducted in the developed world our collation of estimates suggest that the scale of IDU and of IDU-related HIV infection is far higher in developing and transitional countries. For instance, some East and Southern Asian countries exhibit the highest rates of HIV infection among IDU worldwide. Furthermore, in these countries, IDU represent the most prevalent group among those infected with HIV: by 1999, drug-dependent individuals comprised about 77% of HIV infections in Malaysia and 69% in China, and 66% of AIDS cases in Viet Nam were also drug-dependent people [36]. IDUs account for 82% of all HIV/AIDS cases in Central and Eastern Europe and Former Soviet Union (CEE/FSU) states [21] and 1.5 million cases of HIV infection have already been reported in this region [4].

In North Africa and the Middle East, Libya appears to have experienced a rise of HIV among IDU. It is estimated to have about 7 000 drug users, most of whom inject heroin. Almost all of the new HIV infections reported in Libya (564 of 571) during 2000 were among drug users. No country in this region systematically samples and surveys high-risk groups for HIV/AIDS surveillance; instead the general population is represented by low-risk groups such as ante-natal mothers and blood donors. UNAIDS/WHO estimated that approximately 83 000 people were newly infected with HIV in this region in 2002 and that about 0.3% of adults in the region are currently infected.

According to the classification system of epidemic scenarios drawn by UNAIDS/WHO [5], six of the 18 developing countries with the higher HIV prevalence among IDUs, fit into the category of a generalized epidemic, that is with HIV prevalence consistently $> 1\%$ among pregnant women (India, Myanmar, Thailand, Viet Nam, Argentina and Brazil). The other 12 fit into the category of concentrated epidemics (HIV prevalence over 5% in at least one of the defined sub-populations and below 1% among pregnant women in urban areas). However, the diversity of situations observed in this group of countries questions the suitability of this classification system and suggests that while it could be useful for generalized epidemics such those observed in sub-Saharan Africa, perhaps is not the best system to apply to those countries where the epidemic is mainly driven by unsafe injecting practices.

In conclusion, it is obvious from the data collected and assessed in this study that the available information is often of poor quality. It is well known that monitoring risk behaviours in hidden populations is not straightforward. However efforts to improve the accuracy of the information systems should be encouraged. This paper provides a new baseline for estimates on the prevalence of IDU and HIV among IDU that could inform UNAIDS and other international agencies assessment of the global epidemic and breakdown among high-risk groups which was largely missing for IDU in the last report [37], and the start we hope for reducing the amount of missing information and strengthening the evidence in developing countries.

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