Estimating Coverage of Harm-Reduction Measures for Injection Drug Users in Europe

Lucas Wiessing, M.Sc.
European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)
Lisbon, Portugal
With Baudouin Denis,[2] Ulf Guttormsson,[3] Sabine Haas,[4] Osamah Hamouda,[5] Fabienne Hariga,[6] Eva Hoch,[7] Elliot Imbert,[8] Willy De Maere,[9] Alojz Nociar,[10] Alain Origer,[11] Airi Partanen,[12] Tatiana Rajniaková,[13] Tim Rhodes,[14] Anna Rodés,[15] Jan Šejda,[16] Manina Terzidou,[17] Ludwig Kraus,[7] Petra Kümmler,[7] Gregor Burkhart,[1] Richard Hartnoll[1]
[1]European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Lisbon, Portugal; [2]Groupe d'Etudes des Maladies associées à la Toxicomanie, Charleroi, Belgium; [3]Austrian Health Institute, Vienna; [4]CAN, Stockholm, Sweden; [5]Robert Koch Institut, Berlin, Germany; [6]Modus Vivendi, Brussels, Belgium; [7]Institut für Therapieforschung, Munich, Germany; [8]Centre Municipal de Santé, Ivry-sur-Seine, France; [9]Free Clinic, Antwerp, Belgium; [10]National Central Node of Drug Information System at the General Secretariat of the Board of Ministers for Drug Dependencies and Drug Control, Bratislava, Slovak Republic; [11]Directorate of Health – AST–PFN, Luxembourg; [12]National Research and Development Centre for Welfare and Health (STAKES), Helsinki, Finland; [13]Open Society Foundation, Bratislava, Slovak Republic; [14]Centre for Research on Drugs and Health Behaviour, London, United Kingdom; [15]Centre for Epidemiological Studies on AIDS in Catalonia, Barcelona, Spain; [16]Drug Epidemiology Headquarters, Hygienic Station of the Capital Prague, Prague, Czech Republic; [17]Greek REITOX Focal Point, University of Mental Health Research Institute, Athens, Greece

Introduction

Harm-reduction approaches to prevention of drug-related infections (HIV, hepatitis B [HBV], and hepatitis C [HCV]) are becoming common practice throughout Europe (Stimson 1996; Wiessing 2000). Some countries introduced measures such as syringe exchanges during the early 1980s, while countries that initially did not provide such services rapidly introduced them in the 1990s, especially those countries that experienced the largest impact of HIV among injectors (PESESUD 1998). A preliminary overview of the existence of measures to reduce infections among injection drug users (IDUs) suggested that measures were available in most countries by the end of 1999 (Wiessing 2000).

However, it is not yet clear whether prevention measures now in effect are sufficient to control the potential for new increases in infections. Quantification is necessary to assess the implementation of these prevention measures throughout Europe. This study does not attempt to measure the efficacy or effectiveness of prevention measures, which would require a more sophisticated research design based on individual infection data. As a first step in that direction, however, this paper describes basic parameters such as the provision, utilization, and coverage of HIV prevention services (Habicht et al. 1999).

The concept of provision of HIV prevention services means whether the services are available. Utilization refers to whether the services are being used by the target population. Coverage refers to what portion of the target population is being reached. Thus this paper addresses the central question of whether it is possible to monitor the availability of harm-reduction measures on a European scale by developing indicators of the provision, utilization, and coverage of those services.

Methods

Investigators developed a pilot questionnaire to collect information on the implementation of harm-reduction measures at the national level for European countries. The questionnaire contained sections on needle and syringe exchange or distribution programs (SEPs), availability of pharmacies, HIV counseling and testing facilities, HIV treatment (HAART), HBV vaccination, and any action on HCV prevention. These measures were chosen as central to prevention of drug-related infections and feasible to describe in quantitative terms. The questionnaire consisted of 45 questions, which included the number of prevention services in the country, the barriers to accessibility, and suggestions for improvements. Answers were to be provided in free format and no precoded categories were given; the preliminary nature of the questionnaire was explained to respondents. (The questionnaire can be obtained from the first author.)

Investigators first sent the questionnaire in March 2000 to a small group of experts who were asked to provide the information for their country and to critique the questionnaire. Eight of the 13 questionnaires sent came back with detailed and useful data (Belgium, Czech Republic, Finland, France, Luxembourg, Slovak Republic, Spain, and the United Kingdom); three questionnaires contained unusable global information (the Netherlands, Portugal, and the first response from the UK); two questionnaires were not returned. Because few respondents commented on the questionnaire itself, investigators concluded that no changes

were needed. The lack of closed answer categories proved advantageous in enabling respondents to fit in the available data in combinations of free text, numbers, references, or tables from existing reports.

From May to September 2000 investigators requested further data through the EMCDDA/REITOX (European Monitoring Centre for Drugs and Drug Addiction/European Information Network on Drugs and Drug Addiction) network of national focal points from Austria, Belgium, Luxembourg, Ireland, Sweden, Germany, and Greece.

Only a small portion of the detailed data provided by respondents is represented in this report. However, the

Table 1. Estimates of injection drug use from: (A) mortality or HIV multiplier methods and (B) problem drug use estimates in combination with rates of IDU among opiate users first entering treatment

	(A) IDUs: mortality or HIV mult. methods*	All problem users: by other methods*	Rate of IDU in opiate users entering (1st) treatment (midpoint)*	(B) IDUs: col 2 x col 3	Final estimate IDUs: range (A) – (B)	Rate of IDUs per 1,000 population of all ages
Austria	n.a.	15,984–18,731	n.a. "injecting is prevalent mode": 60–80% taken (70%)	9,590–14,985	9,590–14,985	1.2–1.9
Belgium	20,200 HIV-registry multiplier	n.a.	18.3% 1st – 33% (25.7%)	n.a.	20,200	2.0
Finland	4,000–8,500 mortality multiplier	1,600–2,400 *** treatment multiplier	46.6% 1st **	n.a. ***	4,000–8,500	0.8–1.7
France	124,000–155,000 HIV-backcalculation multiplier	156,000–176,000 treatment multiplier	69.3% 1st	108,110–121,970	108,110–155,000	1.8–2.6
Germany	80,000–112,000 mortality multiplier	94,350–140,600 treatment multiplier	37% 1st – 49% (43%)	40,570–60,458	40,570–112,000	0.5–1.4
Greece****	n.a.	n.a.	78% 1st – 85% (81.5%)	n.a.	10,000–20,000 (assumed)	1–2 (assumed)
Luxembourg	n.a.	1,900 treatment multiplier	90%	1,710	1,710	4.3
Spain	83,972 mortality multiplier	177,756 treatment multiplier	21.9% 1st – 30% (26%)	46,217	46,217–83,972	1.2–2.1
Sweden	13,000–18,600 case finding	n.a.	n.a.	n.a.	13,000–18,600	1.5–2.1
UK (England and Wales only)****	88,900–177,800 whole UK	n.a.	n.a.	n.a.	50,000–150,000	1.0–2.9
Czech Rep.****	n.a.	n.a.	n.a.	n.a.	12,000–13,000	1.2
Slovak Rep.****	n.a.	n.a.	n.a.	n.a.	3,000	0.6

n.a. = not available

*Columns 1–3 were taken from EMCDDA complementary statistical tables to the 2000 Annual Report (see *www.emcdda.org*).

**In Finland rates of IDU were taken for all drug users entering treatment as opiate users are not predominant.

*** Estimate from treatment in Finland is not reliable as 2,500 clients of SEPs are known; therefore only the mortality estimate was taken.

****Estimates for Czech Republic and Slovak Republic are not based on EMCDDA project CT.97.EP.04. but reported by coauthors. The estimate for Greece was derived inversely by assuming a range of 1–2 IDUs per 1,000 population (see under Methods). The estimate for Sweden is old (1992) and might be low. The estimate of 50,000–150,000 reported for England and Wales was taken from: Hickman, M., Cox, S., Harvey, J. et al. (1999), Estimating the prevalence of problem drug use in inner London: A discussion of three capture-recapture studies, *Addiction* 94:1653–1662. This estimate is consistent with the estimate in column A for the whole UK as Scotland is thought to have about 20,000 injectors.

completed questionnaires will be accessible through the Internet as a descriptive database of harm-reduction measures in EU countries.

Table 1 presents the estimates of current injection drug use in the countries for which data were available. Figures are expressed as rates, using estimates of the total number of injection drug users as the denominator. These estimates are derived from multimethod estimates of the total number of problem drug users in EU countries (Kümmler in preparation; EMCDDA 1999). The numbers of IDUs in the Czech Republic and the Slovak Republic were reported estimates, not based on published data. The estimate for

Table 2. Provision, utilization, and coverage of syringe distribution services for injection drug users (IDUs) and coverage of pharmacies in some European countries, as reported by REITOX national Focal Points, 2000

	PROVISION SEPs: Syringe distribution points or programs	UTILIZATION SEPs: Syringes distributed or clients and contacts	COVERAGE SEPs: Syringes distributed or IDUs contact rate	COVERAGE Pharmacies: Number of pharmacies and rate per 1,000 IDUs
Austria	17 points in 13 towns	920,000 syringes in 1999 in most important programs, national total n.a.	61–96 (is lower bound, underestimates total)	1,065 (1998) (0.07–0.11 per IDU)
Belgium*	8 programs/points, all in Brussels and Liege, 0.4/1000 IDUs	300,000 syringes/year	15 syringes/IDU/year	5,000 (248/1000 IDUs) '30% are willing to sell'
Finland	6 programs 0.7–1.5/1000 IDUs, increasing (1999)	2,500 clients/13,700 contacts (5.5 contacts/ client in Helsinki, 14.4 in Tampere) (1999)	estimated proportion of IDUs in contact with service: 0.46 (1999) 'poor in Helsinki, increase other towns'; syringes/IDU/year: n.a.	800 pharmacies (94–200/1000) '85% sell (98,000 IDU visits in 1999)'
France	155 'human' points plus 200 machines 2.3–3.3/1000 IDUs (free distribution)	1999: 1.8 million syringes exchanged, plus 450,000 distributed through machines, total 2,250,000	15–21 syringes/IDU/year through SEPs	23,000 (148–213/1000 IDUs) 'most sell after special training' 1999: 6 million Stéribox sold to IDUs, plus 8 million syringes: 90–129 syringes/IDU/year (Stéribox or syringes)
Germany	>100 places, > 0.9–2.4/1000 IDUs	n.a.	n.a.	n.a.
Greece	2 programs in Athens 0.5–1/1000 IDUs	45–50,000 exchanges, 8,000 distributed per year	2.7–5.8 syringes/IDU/year	9,000 'most willing to sell' (450–900/1000 IDUs)
Luxembourg	1 program, 'many points'	174,558 distributed 1999, increasing trend	102 syringes/IDU/year	79 (46/1000 IDUs) = 41% of syringes used
Spain	1,007 active distribution points 12–22/1000 IDUs (1998)	36,000 clients/427,000 contacts (12 contacts/ client) (1998)	proportion of IDUs in contact with service: 0.43 – 0.78 (1998), syringes/IDU/year: n.a.	pharmacy-based SEPs in 5 out of 17 regions, 6 other regions sell kits
Sweden	2 points, 0.11–0.15/1000 IDUs	227,000 syringes 1999	12–18 syringes/IDU/year	885 (48–68/1000) 'not willing to sell to IDU'
UK (England and Wales only)	420 points (including pharmacies) 2.8–8.4/1000 IDUs	27 million syringes/year	180–540 syringes/IDU/year	10,500 (70–210/1000) '35% selling injecting equipment in 1995'
Czech Rep.	64 points, 4.9–5.3/1000 IDUs	850,000 syringes 1999	65–71 syringes/IDU/year '25–30% always use from exchanges'	1,900 (150/1000 IDUs)
Slovak Rep.	6 programs, 2.0/1000	80,000–100,000 syringes/year	33–27 syringes/IDU/year	'number unknown; most are willing to sell'

Note: The figures in the table suggest more precision than is the case in reality. Little information is available about the quality of services and whether they are located near concentrations of IDUs. Figures should only be interpreted as a very rough indication of average availability, use, and coverage of services.

* In Belgium an unknown number of pharmacies provide syringes to IDUs through a project of Modus Vivendi («Opération Boule de Neige »)

Greece was assumed to be 1–2 per 1,000 population, in line with some other south European countries, but not with nearby Italy (not shown in Table 1; Italy has about 200,000 IDUs in a population of 57 million, a rate of 3.5 per 1,000). Figures for Greece should therefore be interpreted with more caution and as a lower bound of IDU prevalence, consequently Greek coverage rates are upper bounds.

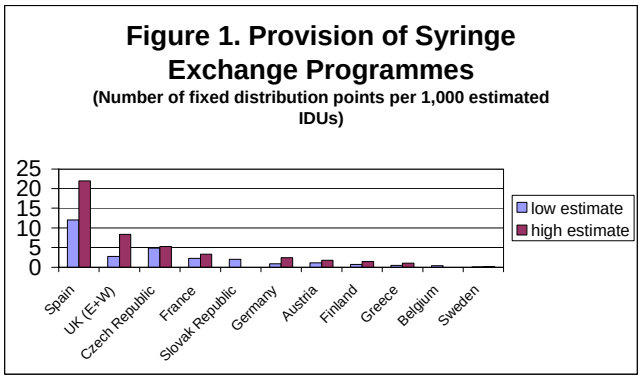
For the other EU countries, the existing multimethod estimates of problem drug use were interpreted as relating to injection drug use if they were derived from mortality multiplier methods or HIV infection multiplier methods (in Table 1, column 1). An independent estimate of IDUs in some cases can be obtained by multiplying estimates for all problem drug users (mostly heroin users), with rates of injection drug use among heroin users entering treatment (Table 1, column 4) (EMCDDA 2000). The total range of these IDU estimates was taken as the "best estimate" of IDUs for a country (Table 1, columns 5 and 6). These estimates were subsequently used as the denominator for assessing coverage rates (see Tables 2 and 3).

The estimates of injection drug use, and consequently the coverage rates of prevention measures, cannot be considered precise; in most cases, the true results can vary by a factor of 2 from the estimated results (100 percent higher or 50 percent lower: standard plausibility range based on general stability of estimates resulting from different methods and given that different methods may relate to different case definitions of problem drug use) (Kümmler in preparation; EMCDDA 1999). Differences between countries in estimated coverage that greatly exceed such margins may therefore indicate real differences in average coverage of prevention measures.

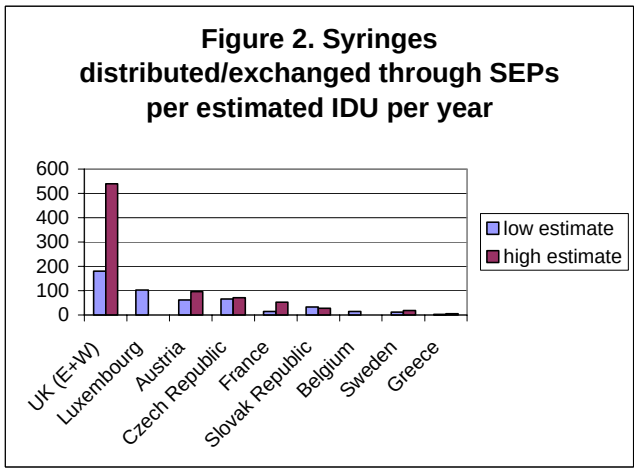
Results

The provision, or availability, of SEPs was highest in Spain, with a reported 1,007 active distribution points (12–22 per 1000 IDUs), and in the Czech Republic with 64 points (4.9–5.3 per 1000 IDUs) (see Table 2 and Figure 1). Lower figures were reported in Belgium (8 programs or points, 0.4 per 1000 IDUs) Greece (2 programs, 0.5–1.0 distribution points per 1000 IDUs, assuming five distribution points per program). For Greece and several other countries clarification is needed on the number of distribution points per program; however, even if there are more than five points per program (as in Spain), provision of SEPs is relatively low.

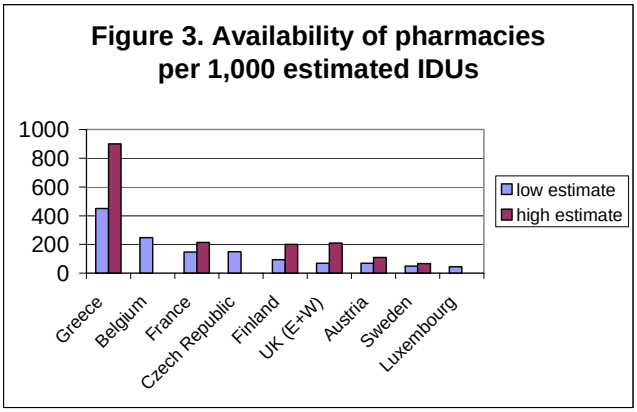
Utilization of SEPs in general seems high, given that large volumes of needles and syringes were reportedly distributed per year. Volumes exchanged or distributed ranged from 27 million in England and Wales to 53,000–58,000 in Greece.



Coverage of SEPs in terms of the number of syringes exchanged or distributed per IDU per year, differs significantly between countries (Figure 2). England and Wales distribute or exchange 180–540 syringes per IDU per year, Sweden only 12–18 per IDU per year, and Greece 3–6 per IDU per year, assuming that IDU population estimates are correct. These numbers suggest relatively high coverage of SEPs for England and Wales and low coverage for most other countries. Figures for France suggest that about 15 to 21 syringes are distributed per IDU per year through SEPs. It should be taken into account, however, that in France there is a large program in place to sell the "Stéribox" injection kit through pharmacies and other dispensers, which might have resulted in sales of another 39–55 syringes per IDU in 1999.



Note: Low estimate for France refers to syringes distributed/exchanged through SEPs, high estimate includes all Stéribox sold through pharmacies and dispensers (but not including other syringes sold through pharmacies). Estimates for Austria are too low as they only include syringes exchanged in the most important programs (no national total).



Although coverage of pharmacies seems relatively high in most countries, it often is not known how easily drug users can get needles or syringes over the counter. The general tendency of pharmacies to sell to drug users seems to differ among countries, although no hard data are available.

Again, assuming that estimates of IDU populations are correct, rates of pharmacy availability ranged from a high of about 450–900 per 1000 IDUs in Greece to a low of about 46 per 1000 in Luxembourg (Figure 3).

Regarding HIV counseling and testing, HIV treatment, and HBV vaccination, it was more difficult to obtain quantitative figures and information was necessarily more descriptive (see Table 3).

HIV counseling and testing is generally available and offered at no cost. In Sweden the test is offered anonymously only if the results are negative. In Belgium the cost of an HIV test ranges from 0 to 10 Euros. In Germany the test is offered in more than 130 places, but often not for free. In Greece the test is offered at no cost only for those covered by Social Security. In the Slovak Republic, testing appears to be easily available.

Table 3. Provision of HIV counseling and testing, HIV treatment, and HBV vaccination for injection drug users (IDUs) in some European countries, as reported by national Focal Points, 2000

	HIV Counseling & Testing	HIV Treatment (HAART)	HBV Vaccination
Austria	Easy access, free of costs in all regions (AIDS services and drug services)	8 clinics all over country, most but not all have insurance, often late start of treatment	offered by drug services in most but not all provinces, one proactive program
Belgium*	4 specialized sites in Wallonia/Brussels, from free to 10 euros	unknown	available but expensive
Finland	free, widely available	provided, special unit soon	free, numbers unknown
France	400 free programs (2.6—3.7/1000 IDUs) 90% IDUs tested	no financial barriers	28% fully vaccinated in 1997 (study) (38% in general pop.)
Germany	available in >130 places, but often not free, (>1.2—3.2/1000 IDUs)	free, problems with compliance/access	free, easily available, coverage unknown
Greece	all public hospitals, free if one has Social Security	free, easy to obtain also if no Social Security	free, all cities, coverage unknown
Luxembourg	2 sites (1/1000 IDUs), free testing. Another 10 sites provide counseling only.	2 hospitals, easy to obtain and free	free only for IDUs in special programs and non-adults in general, coverage n.a.
Spain	73% of SEPs offer C&T	unknown, sometimes through SEPs	unknown
Sweden	50–60 sites, (2.7–4.6/1000 IDUs) free, not anonymous if sero+	free	widely available and free, coverage unknown
UK (England and Wales only)	yes	yes	yes, though uptake probably not good/unknown
Czech Rep.	free, 51 locations 1999 (4/1000 IDUs)	costs covered (but financial shortage)	about 25% fully vaccinated
Slovak Rep.	'easily,' 5 locations in Bratislava	still only 2 reported HIV/IDU cases	1414 (1x) to 840 (full): 28%

* HIV counseling and testing may be strongly underestimated in Belgium as 5,000–10,000 DU (French Community) are in contact with MASS (methadone maintenance treatment centers) or with ALTO (general practitioner network for drug users). In both structures, HIV testing coverage is 80% for IDUs and is free in the case of a HIV single test (12 euros or more if simultaneous tests for HIV–HBV–HCV).

The number of HIV testing sites per 1,000 IDUs seems to range between 1 per 1,000 in Luxembourg to about 4 per 1,000 in the Czech Republic, but nationwide numbers were only reported by five countries. In Spain 73 percent of SEPs offer HIV counseling and testing, a rate of about 2 per 1,000 IDUs. It was reported that 90% of IDUs in France have been tested for HIV.

Information on HIV treatment rates by IDUs was even harder to obtain. Most countries report that treatment is free and easy to get. However the Czech Republic reports that financial shortages may limit treatment. Sweden reports that there are problems with compliance to treatment especially among homeless IDUs, and Germany also mentions problems with access. Because the questionnaire did not specifically ask about difficulty of access, treatment limitations may also exist in other countries but were not mentioned in the questionnaire responses. The Slovak Republic officially reported only 2 HIV-positive IDUs and access to HIV treatment seems still no major issue.

Regarding HBV vaccination, again little quantitative information is available, although most countries appear to provide vaccination for free. Some countries report vaccination coverage rates from specific local studies: a study in France showed that 28 percent of IDUs were fully vaccinated (as compared to 38 percent in the general population); about 25 percent were vaccinated in the Czech Republic and about 28 percent in the Slovak Republic. Although figures are lacking for most countries and only local in those reporting, coverage rates appear low and suggest potential for improvement.

Discussion

Responses by key informants to a pilot questionnaire gave investigators a first overview of the extent of implementation of HIV prevention measures in European Union countries. The data are an improvement on qualitative data collected previously, which had indicated that prevention measures exist in most countries but gave little insight into the availability of measures in relation to numbers of IDUs (Wiessing 2000). This pilot survey indicates that it is possible to collect quantitative data on the provision of HIV prevention measures and it suggests that indicators could be developed to routinely monitor prevention measures.

However, the report data are subject to several important limitations. First, investigators mostly relied on information from key informants with little means of validating the data against other sources. Because data were collected from 11 countries with 8 different languages, it was difficult to systematically check primary sources for quality of information. Also because the data were mostly unpublished—although therefore more up-to-date and more useful for monitoring—it is difficult to assess the quality of data production processes in the various countries.

Second, gross simplifications and generalizations had to be made for this study, which may sometimes lead to incorrect interpretations of findings. Because this study provides a general picture of prevention measures on a European scale, average figures were used for whole countries without taking into account much local detail or geographical heterogeneity. For example, even if the number of syringe exchange or distribution points in a country seems sufficient, there may be regions with no syringe exchange points and others where there are many. Also, while the number of syringes distributed per year per IDU seem sufficient on average, there may be large subgroups of IDUs with little or no access to services, while others use all the services provided. The approach of this study does not permit assessing such differences and should be complemented by smaller in-depth studies. On the other hand, the questionnaire provided the forum to report the results of such studies, and in most cases investigators received much additional qualitative information beyond the scope of this report.

Third, to assess coverage of prevention measures in relation to the population of IDUs, investigators relied on estimates of the number of IDUs in each country. Although improved from past studies, these estimates are far from satisfactory. The estimates of numbers of IDUs used in this report were derived as part of a study to estimate the extent of problem drug use in EU countries (Kümmler in preparation; EMCDDA 1999). In that study multiple methods were used in most countries, thereby increasing the overall reliability of the estimates of problem drug use. The estimates of IDUs were only a part of that exercise and therefore were based on a smaller number of estimation methods. However, in most countries the hierarchy of estimates of problem drug use gave a plausible range of estimates, and arguably the estimates of injection drug use would be subject to about the same amount of uncertainty as the estimates of problem drug use in general. Investigators expect estimates of IDUs for this study could be wrong by a factor 2 at most, thus differences in coverage rates that greatly exceed this range may be interpreted as reflecting real differences in coverage between countries. As the report data show, the differences

in coverage rates between countries are much larger than a factor of 2 and thus might reflect real differences.

A limited number of indicators emerged from the questionnaire responses that might be used for routine monitoring of the availability of prevention services. Many countries provided a total number of syringe exchange programs or syringe distribution points. Although these numbers say nothing of the quality of these services, they can be interpreted as indicating the degree of geographic accessibility of syringes and needles. That is, the more distribution points, the lesser the average distance to one of them.

It is important to distinguish programs from distribution points. Not all countries provided numbers for the latter and obviously a program can include several distribution points. For example, in Spain the average needle and syringe exchange program has 5.4 distribution points. Another distinction is how a distribution point is defined. Although the responses gave little descriptive information, several countries reported "distribution points of all types," including dispensing machines. An unsolved problem is how to include outreach distribution of needles and syringes. Although the questionnaire did not ask for this information, future surveys could ask how many of the existing distribution points use outreach services to provide needles and syringes. It is clear that rates of distribution points per 1,000 IDUs cannot be compared easily without taking outreach activities into account.

A second potential indicator of the provision and utilization of services is the total volume of needles or syringes distributed through SEPs. This variable is important, as it is easy to interpret and is available in most countries. It gives a clear measure of the total number of injections that occur with a clean needle and syringe, even if not indicative of the subgroups of IDUs involved. To improve interpretation of this indicator, it is important to estimate the average number of daily injections per IDU, necessarily by type of drug injected. Also it is important to estimate the number of syringes bought in pharmacies, since SEPs and pharmacies may not always easily be distinguished. For instance, in the United Kingdom a number of pharmacies providing SEP services were counted as SEPs, while such services were not considered SEPs in Belgium. Such differences have to be clarified and might partly account for large differences between some countries; for example, the high coverage of syringes from SEPs per estimated IDU in the UK (Figure 2). Therefore, the report data should only be taken as an indication that in most countries a large number of injections do not take place with a needle and syringe obtained from a SEP.

Although only three countries provided the total number of clients and number of contacts per year, this is an important indicator of coverage of the IDU population. The total number of clients can be directly compared with estimates of the total number of injectors, while smaller studies may give additional local information on the percent of injectors in contact with the service. These numbers can be compared to the aggregate national coverage rate to validate this figure or to improve understanding of geographic variations. The rate of contacts per client may be more difficult to interpret, but may provide information on the differences in "retention rates" and the appropriateness of different services. These contact rates may generate hypotheses that can be investigated further; for example, the difference in contact/client rates between Helsinki and Tampere in Finland either may be explainable by differences in how long the programs have existed or else may prompt further investigation.

The number of pharmacies in a country is probably less easy to interpret as an HIV prevention measure, since pharmacies are not specialized services for IDUs, but it may still be important to assess. Additional estimates should be obtained of the number of pharmacies willing to sell syringes or needles to IDUs, for example, through a survey to pharmacists. Some countries in our survey were able to provide such data from specific studies. However, it is also important to collect such data directly from IDUs who may give a better indication of implicit barriers to syringe distribution through pharmacies by reporting what proportion of their clean needles and syringes they obtain from which sources.

Given the limitations of interpreting the number of pharmacies in a country, it is interesting to observe that countries at both extremes of rates of SEPs (Greece and Belgium versus Luxembourg) exchanged their rank with regard to the rates of pharmacies willing to sell needles and syringes. The availability of pharmacies and SEPS seem to be inversely related, indicating that these services in practice may complement each other similarly to the Stéribox situation in France. There may be less need for specific syringe exchange programs in countries with high numbers of pharmacies if those pharmacies provide relevant services. However more detailed information on pharmacy access and sales of syringes is needed.

Aggregate data on services does not provide a good view of the implementation of services. As in the example on pharmacies given above, it is important to collect complementary data directly through field studies of IDUs, which will reveal how coverage of services works out in practice. Possible indicators are percentage of IDUs who report using a SEP, who report having taken an HIV or HCV test or a complete course of HBV vaccination, or who report being in substitution treatment. Such questions are often incorporated in field studies of IDUs and, if regularly repeated, will provide better quality data at least for some local areas that can be compared with average aggregated figures at the national level as collected in this survey.

In conclusion, this study suggests that it should be possible to monitor the implementation of HIV prevention measures at a macro level using aggregate data collected through key informants. Before data can be interpreted with more confidence, it is necessary to increase information on the data sources as well as to improve comparability by developing data collection standards. The provision and utilization of services seem relatively easy to measure; however, to interpret the degree to which services are sufficiently provided, information on coverage of the IDU population is necessary. These statistics are harder to come by because they depend on often unreliable estimates of IDU population size. However, the study data suggest that despite these limitations, large differences in coverage among European countries may in fact exist, while in general coverage of prevention measures in Europe can probably be improved.

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