

PROBLEM DRUG USE PRÉVALENCE IN FRANCE - 2006 ESTIMATIONS -

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INTRODUCTION

For over 10 years, EMCDDA has tried to provide comparable national estimates of the prevalence of the most severe patterns of drug use that cannot be reliably measured by conventional surveys. This information is useful for assessing treatment needs, and offers a realistic basis for estimating the social costs of drug problems [1].

Since 2005, all countries have been able to produce national prevalence estimates of problem drug use (PDU) using the definition and methodological guidelines established by the EMCDDA (“injecting drug use or long duration/regular use of opioids, cocaine and/or amphetamines”) [2]. Many of these estimates were values based on results from more than one estimation method, thereby adding to their comparability and reliability. The most recent data are available in the EMCDDA annual report [3].

This work provides a new estimate for France following the estimates previously produced in 1995 and 1999 [4-6]. It also provides an estimate of the number of regular heroin and intravenous drug users.

The results are presented after a detailed examination of the different information sources and methods used.

MATERIALS AND METHODS

The European protocol [2] describes the target population for the estimation (target group), the information sources which can potentially be used for the estimation and the different methods which can be used. It recommends using as many methods as possible in order to be able to compare their results.

TARGET OF THE ESTIMATION (TARGET GROUP)

The operational definition of a “problem drug user” used by the EMCDDA is: intravenous drug user or long duration/regular user of opiates, cocaine or amphetamines during the previous year in the 15-64 age group.

DATA SOURCES USED

Six separate data sources are used: these are described in succession.

ILIAD Local addiction information indicators

The ILIAD database combines the main departmental and regional indicators available for addictions and dependency on legal (alcohol and tobacco) and illegal (cannabis, heroin, cocaine) substances since 1997 for mainland France and, since 2006, for the French overseas départements (DOM).

This database is designed and administered by the OFDT and is available for consultation on its website [7].

Specialised centres for drug addicts activity reports

Since 1998, the specialised centres for drug addicts (CSST) have produced an annual activity report sent to the Departmental directorate of health and social affairs (DDASS). These reports are then sent to the General Health Department (DGS) which uses them with the assistance of the OFDT. The aim of this compendium is to monitor the activity of the care centres, while specifying the number and characteristics of the persons visiting the centres. The epidemiological data used by the OFDT are aggregated by care centre.

A new activity report common to the CSST and Outpatient Alcoholism Treatment Centres (CCAA) was introduced for the 2004 data.

In 2005, 191 outpatient CSST reports were incorporated into the database, representing coverage of 92%. Two-thirds of the care centres were managed by associations and the remaining third belonged to the public sector and hospitals in particular.

The CSST received 540 visitors (including family and friends) per organisation in 2005, 450 of whom were patients who were current or previous users of psychoactive substances. New patient intakes for all of the CSST amounted to approximately 90,000 patients. This estimate was obtained by adding the figures submitted by all the care centres having responded and allocating the last known new patient intake figures for those which did not. It includes a number of double counts, the proportion of which is estimated to be less than 5%. Approximately half of the patients seen in 2005 (49 %) were first-time visitors to the care centre [8].

FNAILS: National file of narcotics legislation offences

All of the procedures arising from narcotics offences conducted by the police and the gendarmerie in France (including the overseas departments, DOM) are recorded in the National file of narcotics legislation offences (FNAILS), except for offences identified by customs officials which did not result in a report.

The FNAILS contains information about arrests (broken down into simple use, use/dealing, local trafficking, and international trafficking) and seizures. The substance stated is the "predominant drug", i.e. the main drug taken by the user or held in the largest quantities by the trafficker. If this rule cannot be applied, the "hardest" drug is used.

This data source is managed by the Central Office for the Repression of Narcotics Trafficking (OCRTIS) [9, 10]. In 2007, its name was changed to OSIRIS (Information System and Tool for Drug-Related Offences).

SIAMOIS: System of information on the accessibility of injection equipment and substitution products (InVs)

The System of information on the accessibility of injection equipment and substitution products initiated by the General Health Department (DGS) and developed by the French National Health Watch Institute (InVS), was set up in 1996 to monitor trends in the access to sterile injection equipment available in pharmacies and substitution products. These data are sent by the Statistical Studies Design and Execution Group (GERS) for the pharmaceutical industry. By comparing this data to the 20 to 39-year-old population, which accounts for the majority of drug users, indicators providing regional and departmental comparisons of the prevalence of substitution treatment and injection equipment use are obtained. SIAMOIS also allows this information to be compared annually to the number of new cases of AIDS associated with drug injection (InVS data), arrests for heroin and cocaine use (OCRTIS data), and the number of overdose deaths (OCRTIS data) [11].

Ena-CAARUD National survey – low threshold services

This is a biennial survey set up in 2006. It is a client survey with all of the CAARUD (low threshold services for drug users) describing the visitors over a given week through a face-to-face questionnaire.

The questionnaire contains 24 questions on the socio-demographic features, social cover, current situation with regard to accommodation, family and close friends, current opiate substitution treatment, HIV, HBV and HCV screening tests, psychoactive substances taken during the previous month (method of use, frequency, age use first started), intravenous use, equipment sharing, daily use of tobacco, alcohol or cannabis and incarceration.

The survey contained 4,197 questionnaires in 2006 and had a response rate in the region of 80% [12].

NEMO: New multicentre OFDT study on local estimates of problem drug use prevalence

(See below: use of the capture/recapture method)

METHODS

Capture-Recapture method - local estimations

This method [13] combines data from different sources, e.g. from the health care system or the criminal system.

When two sources are used, each problem drug user may appear in either one, both or neither of the two sources. The number of users may be divided into the 4 cells of the table below depending on their identification in each of the sources. The number of users absent from both sources (cell d), which represents the hidden population, can be extrapolated from the other cells of the table (a,b,c) subject to one condition - the assumption of independence: being recorded in one system does not change the probability of being recorded in the other system. The extent of the hidden population, identified by no sources, may be calculated in the following manner:

$$d = b * c / a$$

		Source 2	
		Present	Absent
Source 1	Present	a	b
	Absent	c	d

The total number of problem drug users can be estimated from the equation:

$$N = a + b + c + (b*c/a)$$

As the assumption of independence between the sources is rarely valid, it is recommended, wherever possible, that at least three data sources be used and that log linear analysis be applied to take account of possible interactions between sources. The estimation of the size of the “hidden” population thus takes account of n-1 order dependencies (where n is the number of sources used in the log-linear analysis). Once the most appropriate log-linear model for the data has been selected, the estimation of the empty cell (“hidden” population not present in any of the sources) is obtained using Bishop’s formulae [14].

Multiplier method using treatment data

The key problem in estimating the number of problem drug users is that part of this population is hidden. The principle of the multiplier method is that if a sample (reference base) of this population, size B, and a person's probability of belonging to the sample, are known, the total population can be estimated from the equation: $N = B / c$. In this particular method, we consider as the reference base (B) the number of drug users registered in specialised treatment centres, with (c) being an estimate of the treatment coverage rate.

- B: number of drug users receiving treatment in a given year.
- c: probability, for a problem drug user, of being treated during the year

Police multiplier method

By analogy to the previous method, the number of problem drug users can be extrapolated from police statistics. In this case, the benchmark is the number of drug users arrested by the police in a given year. Here again, the probability, for a drug user, of being arrested by the police in a given year must be estimated.

- B: Number of drug users arrested by the police in a given year
- c: probability, for a drug user, of being arrested by the police in a given year

Multivariate indicator method

The prevalence of problem drug use in a country can be estimated from a set of indirect indicators (arrests, deaths, use of care, treatments) available on a smaller geographical level (regions) for which local prevalence estimates (anchor points) are available. The method analyses the relationship between indirect indicators and local prevalence estimates, and then applies the regression coefficients to the regions for which prevalence estimates are not available. The national estimate is obtained by adding up all of the local estimates.

RESULTS

CAPTURE-RECAPTURE METHOD - LOCAL ESTIMATIONS

Implementation

Six “three-sample capture/recapture analyses” were carried out in 2005-2006 in order to estimate the number of problem drug users in Lille, Lyon, Marseille, Metz, Rennes and Toulouse (NEMO study) [15]. In each participating town, the geographical area was defined taking account of the presence and coverage of the existing data sources and the administrative relevance of the geographical divisions. The study areas were the following: the Urban Community of Lille Métropole with almost 1.1 million inhabitants, «Greater Lyon» comprising 57 districts with almost 1.2 million inhabitants, inner Marseille with almost 800,000 inhabitants, the Metz area covering 61 districts with 310,000 inhabitants, the Rennes area comprising 10 districts with almost 270,000 inhabitants and the Toulouse metropolitan area with 72 districts and 760,000 inhabitants.

Data sources for problem drug users were identified and the data were collected from these sources over a six-month period between 2005 and 2006. These sources notably included the drug treatment centres, general practitioners, hospital units (infectious diseases, accident and emergency departments), low-threshold reception facilities (CAARUD), social services and law enforcement sources such as drug squads, the justice system, treatment units in prison and data held by the Central Office for the Repression of Narcotics Trafficking (OCRTIS). Data collection in prison was delayed for two months, compared to other data sources, in order to allow problem drug users entering prison during the last two months of the survey to be “captured” by other data sources. For each study (each town), the different data sources were grouped into three samples using a statistical criteria (an odds ratio between two data sources greater than one, suggesting possible lin-

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kage between both sources, leading to both data sources being combined) and a field criterion (when two data sources are locally known to be related).

Subjects were included in the study if they had resided for more than three months in one of the six cities, if they declared having used at least one illegal drug over the last 30 days (cannabis excluded): opiates, cocaine/crack, other stimulants and/or hallucinogens, and if they were 15-64 years old.

The final samples obtained were:

- In Lille, 1,815 records corresponding to 1,683 problem drug users, 7.5 % of whom were present in several samples.
- In Lyon, 1,363 records corresponding to 1,267 people, 7.3 % of whom were present in more than one sample.
- In Marseille, 929 records corresponding to 799 identified individuals, with only 4.2 % in several samples.
- In Metz, 467 individuals were identified from 502 records, 6.8 % of whom were present in several samples.
- In Rennes, 409 records corresponding to 351 people, 15.4 % of whom were present in several samples.
- In Toulouse, 1,151 records corresponding to 1,090 people, 5.5 % of whom were present in several samples.

NEMO Results

The results obtained in the six cities are the following:

Estimates of problematic drug users (PDU) in 6 french cities and prevalence rates among 15-64 year-old population, 2005-2006

	PDU estimates	Confidence interval*	15-64 years old population	Prevalence rates	Confidence interval
Lille	7 900	6 300 - 10 200	728 173	10.8 - 8.6	14.0
Lyon	8 400	6 300 - 11 800	788 893	10.7 - 8.0	15.0
Marseille	5 600	4 200 - 7 700	543 206	10.2 - 7.7	14.2
Metz	2 300	1 700 - 3 200	212 632	10.8 - 8.0	15.0
Rennes	1 500	1 100 - 2 300	196 389	7.6 - 5.6	11.7
Toulouse	5 400	4 300 - 6 900	534 132	10.1 - 8.0	12.9

Estimates rounded to the nearest hundred ; population : INSEE, census 1999

* Cormack method (réf: Cormack R.M., Interval Estimation for Mark-Recapture Studies of Closed Population, Biometrics, 1992, 48: p. 567-576)

Source : NEMO, OFDT

Extrapolation to the six departments covered by the NEMO study.

The primary objective of the NEMO study was to obtain problem drug use prevalence data for the six towns studied. The second objective was to contribute to the application of some national estimation methods for the number of problem drug users. The results have to allow the value “c” of the equation “ $N=B/c$ ” in the two multiplier methods and the “anchor points” needed to apply the multivariate method to be estimated (see method explanations above).

As all of the other data required to use the three methods are only available on a departmental scale, the NEMO data must also be extrapolated to a departmental scale.

Four hypotheses were examined to achieve this:

- **hypothesis 1:** extrapolation of NEMO prevalences for the towns to the entire department, based on the proportion of the population covered by NEMO.
- **hypothesis 2:** the towns concentrate all of the problem drug users for the department.
- **hypothesis 3:** extrapolation of NEMO prevalences for the towns to the entire department, using a prevalence figure of fifty per cent outside of the greater metropolitan area.
- **hypothesis 4:** extrapolation of NEMO prevalences for towns to the entire department, using the proportion of number of packs of high dose buprenorphine (HDB) sold in 2006 in the areas covered by NEMO as a function of all packs sold throughout the department.

The results obtained using these 4 hypotheses are shown in the table below:

NEMO participating cities	Department	15-64 y.o. population		UPD NEMO	Extrapolations to department UPD			
		Site NEMO	Department		Hyp1	Hyp 2	Hyp 3	Hyp 4
Lille	Nord	728 173	1 681 306	7 900	18 241	7 890	13 070	17 803
Lyon	Rhône	788 893	1 076 938	8 400	11 467	8 430	9 934	9 279
Marseille	B. du Rhône	543 206	1 233 046	5 600	12 712	5 556	9 156	7 789
Metz	Moselle	212 632	684 738	2 300	7 407	2 311	4 853	7 152
Rennes	Ile & Vilaine	196 389	587 209	1 500	4 485	1 493	2 993	2 225
Toulouse	Hte Garonne	534 132	748 237	5 400	7 565	5 378	6 482	5 789

Population : INSEE, recensement 1999

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The extrapolations obtained according to the different hypotheses differ greatly. The data from the fourth hypothesis were used as they are, in principle, the most credible for application of the three methods. France has a very high level of substitution treatment coverage (particularly with high dose buprenorphine), amongst problem drug users. Treatment is present over the entire national territory, with a close “geographical networking” to dispense medical drugs, mostly through dispensing pharmacies. HDB sales are therefore undoubtedly the best indirect indicator of problem drug use. In addition, HDB sales statistics are available on a sub-departmental scale.

Nevertheless, one should remain aware of the range of possible extrapolations, as these are fundamental when considering the final results expected.

MULTIPLIER METHOD USING TREATMENT DATA

Implementation

The ($N = B / c$) method is based on the ability to estimate two values:

- B: the number of drug users undergoing treatment in a given year
- c: the probability, for a drug user, of being treated during the year

These values are not directly available in France although they may be estimated from substitution treatment data, which are widely accessible for drug users. Based on HDB and methadone sales data in 2006, and using the currently accepted hypotheses on average daily doses prescribed for these two drugs (8 mg for HDB and 60 mg for methadone), the number of drug users receiving substitution treatment in mainland France can be estimated at 85,000. These data are also available on a departmental scale. They can therefore be compared to the estimates of the number of problem drug users from the NEMO studies in order to estimate the probability of a problem drug user receiving this type of treatment.

Results

This method produces the following results:

B = 85,737 drug users receiving substitution treatment.

Using the central estimates from the NEMO study, the table below allows c to be estimated as 0.32 and therefore $N = 271,957$, rounded off to 272,000.

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Department	Number of users	Number of users in substitution treatment	ST users/ all users
Nord	17 803	4 870	0,27
Rhône	9 279	2 301	0,25
Bouches du Rhône	7 789	3 429	0,44
Moselle	7 152	3 145	0,44
Ile et Vilaine	2 225	678	0,30
Haute-Garonne	5 789	1 352	0,23
6 all departments	50 038	15 775	0,32
Mainland France	271 957	85 737	0,32

Sources : OFDT, NEMO ; OFDT/DQS specialised centres activity reports

This calculation can be repeated for the extreme values of the confidence intervals of the NEMO estimates. The central value can therefore be placed within the following confidence interval:

Method	Average estimate	CI-	CI+
Treatment data multiplier	272 000	209 000	367 000

POLICE MULTIPLIER METHOD

Implementation

The $(N = B / c)$ method is based on the ability to estimate two values:

- B: Number of drug users arrested by the police in a given year
- c: probability, for a drug user, of being arrested by the police in a given year.

In 2005-2006¹, there were 15,118 arrests for drug law offences involving heroin or cocaine use. These arrests represent an approximation for the number B.

The people concerned are not all “problem drug users” as defined in the European protocol (see above), as an occasional user can be arrested by the police. Nevertheless, it is very likely that people arrested by the police will meet the criteria enabling them to be included in the target group.

In addition, the statistics record numbers of arrests and not numbers of people arrested. A study published by the OFDT in 1998 examined this difference and

1. The statistics for the two years were combined in order to minimise the effect of annual variations in this indicator by department. The data collection period for the NEMO studies also covers these two years.

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found, amongst other things, that the average number of arrests per person for heroin was 1.38 [16]. More recently, OCRTIS compared these arrest statistics to the number of people involved. In 2005, there were 4,486 arrests for heroin use while 4,177 people were arrested for heroin use, i.e. a ratio of 1.07. The equivalent ratio for cocaine was 1.02 [9]. The number of arrests can therefore be taken as a good approximation of the number of people arrested for heroin or cocaine use.

Finally, to estimate "c", the arrest statistics for the departments concerned can be compared to the estimates of the number of problem drug users from the NEMO studies. This produces the average number of arrests for a problem drug user.

Using the available data, the intermediary variables in the equation become:

- B: Number of arrests for heroin or cocaine use in a given year
- c: average number of arrests for heroin or cocaine use in a problem drug user for a given year.

Results

Applying this method using the central estimates from the NEMO studies produces the following figures:

Department	PDU	Number of drug users arrested (DUA)	DUA/PDU
Nord	17 803	1 567	0,09
Rhône	9 279	768	0,08
Bouches du Rhône	7 789	400	0,05
Moselle	7 152	971	0,14
Ile et Vilaine	2 225	94	0,04
Haute-Garonne	5 789	237	0,04
<i>Ensemble 6 dpts</i>	50 038	4 037	0,08
France métropolitaine	187 385	15 118	0,09

Sources : OFDT, NEMO ; OCRTIS, FNAILS

This calculation can be repeated for the extreme values of the confidence intervals of the NEMO estimates. The central value can then be placed within the following confidence interval:

Method	Average estimate	CI-	CI+
Police multiplier	187 000	144 000	253 000

MULTIVARIATE INDICATOR METHOD

Implementation

Six variables were initially considered for each mainland department, expressed as levels per 100,000 inhabitants between 15 and 64 years old: the number of people receiving treatment; the number of low-threshold centre users; Stéribox® (sterile syringe kit) sales figures; methadone sales figures; high dose buprenorphine (HDB) sales figures; and drug law offences (ILS). Five other socio-demographic indicators were subsequently considered: unemployment rate; medium income; enrolment percentage for 17 to 25-year-olds in a higher education establishment; population receiving social assistance or specific grants; population with French universal Social Security cover (CMU).

Firstly, a correlation matrix was produced for the variables concerned in order to identify statistically significant relationships. Secondly, the variables used were subjected to a principal component analysis (PCA), with the aim of weighting each individual statistic (in this case the 96 mainland départements) in order to estimate the user population.

Results

The correlation study resulted in the exclusion of the “low-threshold treatment centres” variable, which was too closely related to the other variables. Simultaneous introduction of the variables adopted in an initial PCA produced a mediocre estimate, the leading principal component only explaining 38% of total variance. A second analysis was performed excluding the five socio-demographic variables: in this case the leading component explained 67% of the variance. The initial correlation analysis identified a very close relationship between methadone and HDB sales: these two variables were merged into a single variable called “sales of opiate substitution treatments (OST)”. A third PCA was then performed, the leading component then explaining slightly more than 70% of variance:

Component	Eigen Value	Proportion	Cumulative
1	2.8114	0.7029	0.7029
2	0.5806	0.1452	0.8480
3	0.4857	0.1214	0.9694
4	0.1223	0.0306	1.0000

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An index was then calculated for each department from a linear combination of the following coefficients (i.e. the value obtained from PCA allocated to each variable summarising its impact on the leading component):

Variable	Coefficients
R_treatments	0.44845
R_Steribox	0.54041
R_substitution	0.55282
R_ILS	0.44861

This method produced the following estimate:

Method	Average estimate	CI-	CI+
Multivarée	264 000	189 000	338 000

SUMMARY OF RESULTS

The following results are obtained from the three methods:

Method	Average estimate	CI-	CI+
Treatment data multiplier	272 000	209 000	367 000
Police multiplier	187 000	144 000	253 000
Multivariate	264 000	189 000	338 000
		rate/1 000 hab.	15-65 y.o.
Treatment data multiplier	7,0	5,4	9,5
Police multiplier	4,8	3,7	6,5
Multivariate	6,8	4,9	8,7

Source : OFDT

The results obtained from the “multiplier-treatments” and “multivariate” methods converge. The third method shows markedly lower prevalences. Taking account of the three confidence intervals, the estimate range is found to be extremely wide, from 3.7 to 9.5 per 1,000 inhabitants between 15 and 64 years old.

DISCUSSION

CONSIDERATION ALONGSIDE FRAMEWORK DATA ON ILLEGAL DRUG USE

Problem drug use has been defined by the EMCDDA as intravenous or regular use of opiates, cocaine or amphetamines during the previous year in the 15-64 age group. The low prevalence of opiate, cocaine or amphetamine use very considerably limits the potential relevance of general population surveys to estimate this phenomenon. General population surveys provide us with estimates of the number of people who have used these substances at least once in their life (experimenters) or at least once in the previous year. We do not have estimates of the number of regular users of these substances (at least ten times over the previous month), as this behaviour is too rare to be measured in this type of survey. The following estimates were produced from the most recent general population surveys conducted in 2005 [17]:

	Lifetime users	Last year users
Cocaine	1 100 000	250 000
Heroin	360 000	

Sources : ESCAPAD 2003, OFDT ; ESPAD 2003, INSERM/OFDI/MJENR ; Baromètre santé 2005, INPES, exploitation OFDI

In view of these findings, we could have expected the estimates of the number of problem drug users to be less than those provided by the three methods used. This difference is partly explained by loss of social integration amongst problem drug users, as this particular population is not well covered by general population surveys.

LIMITATIONS INHERENT TO EACH OF THE METHODS

The first “Multiplier method using treatment data” is based on sales data for the two medical drugs used for substitution treatment, which enable estimates to be made of the number of drug users taking these treatments. In view of the extensive availability of this type of treatment in France, these data represent an excellent base for application of this method. Substitution treatments theoretically only cover part of the target group, opiate users, although in practice there is considerable overlap between the uses of the different substances. These estimates, however, may be subject to some sources of bias, particularly misuse of the treatments or their diversion onto the black market. These sources of bias could lead to an overestimation of the population being treated, as misused medicines are not taken by “users receiving treatment”. Nevertheless, the substances are still taken by drug users. The method, therefore, is still robust if this relatively well documented phenomenon [18-20] is consistent over all the French départements. This is not necessarily the case, as it is known that this misuse or diversion of treatment is concentrated in a few regions [21] (Paris region, Alsace, Languedoc) which do not include any NEMO study sites. There is therefore a risk that the numerator in the equation used in this method is over-estimated and therefore that the final result is also over-estimated.

The second “Police multiplier” method is based on an “arrests by the police for heroin or cocaine use” indicator which is relatively non-specific: it is an indirect indicator of drug use but also one of the extent of police activity in the field. This second factor is not necessarily consistent between départements. Another possible source of bias for this indicator is that the target it measures is slightly different from the definition of the target group (intravenous drug user or regular user of opiates, cocaine or amphetamine in the previous year for the 15-64 age group), as the offence does not distinguish between extent of use. An occasional user can be arrested and the police statistics do not distinguish between the types of use.

The third “multivariate indicator method” has the advantage of linking different data sources for which known prevalence estimates for 6 départements are extrapolated to the other 90 départements. Nevertheless, each of the four indicators used has its own limitations. Those relating to the number of people receiving substitution treatment and the number of arrests have already been described above. The “treatment data” come from an administrative source (activity report submitted to the statutory authorities). The reliability of declaration data on new patient intakes is debateable.

In addition, intra and inter-centre double counts cannot be excluded. Stéribox® sales are an indicator of both the magnitude of intravenous drug use, which only corresponds to part of the definition of problem drug use, and the coverage of harm reduction practices, which may vary across France.

Finally, it must not be forgotten that these three methods are all based on local estimates obtained from the NEMO study: the first two methods used local estimates in order to estimate the proportion of the population hidden from the information source used (factor “c” in the equation), and the last method uses departmental estimates as anchor points for extrapolating data. There are inherent difficulties in using the “capture/recapture” method in drug addiction as it uses theoretical hypotheses which have not been completely confirmed in practice. The capture-recapture technique relies on the hypothesis that each person belonging to the target group (the subject of the estimate) has the same probability of being captured by the different information sources (the hypothesis that the population is homogenous) and on the hypothesis that the sources are independent, i.e. that being recorded in one system does not change the probability of being recorded in all the other systems. In reality, regular illegal drug users are not homogenous: some “manage” their use and are very unlikely to be “identified” either by the health and social system or by the legal system, particularly for cocaine use. There are also possible links between being “captured” by several sources. A user who has been arrested may be prosecuted or even imprisoned, making it impossible for him/her to be identified by a CSAPA or CAARUD during this period. The use of log-linear analysis with three data sources, however, makes it possible to get away from the hypothesis that the sources are mutually independent (see 1.3.1) and according to the log-linear methods used, it appears unlikely that there is any interaction between the three sources. Finally, beyond these limitations on the bases of the hypotheses underpinning the method, the magnitude of the confidence intervals surrounding the NEMO estimates due to the small numbers of triplicates must be emphasised.

ESTIMATION OF THE NUMBER OF REGULAR HEROIN USERS

It would be useful to try to apply the European protocol in order to obtain an estimate of the number of heroin users in France. It is known that the magnitude of this behaviour in the French population cannot be obtained from data produced by general population surveys. This is firstly due to the fact that the prevalence of the phenomenon is below the limit which can be identified by these surveys, and secondly, to frequent loss of social integration of the population concerned.

Unfortunately, it is also impossible to apply the different methods of the European protocol described above to the limited field of heroin users. The breakdown by substance, which is available for some information sources, is not present in all of the sources these methods use. Therefore, if we wish to estimate the number of "problem heroin users" within the meaning of the EMCDDA definition, a figure which can be approximated to the number of "regular heroin users", the only solution is to search for the proportion of heroin users in the different drug user surveys and use this proportion to estimate the number of "problem drug users".

The following surveys are used:

Sources	Year	Size	Sample		Field	Type of survey	Body responsible
			Method	Coverage rate			
NEMO	2005-06	5 657	CRC	-	all treatments	local studies 6 cities	OFDT
RECAP	2006	25 832	exhaustive	60 %	Specialised centres	annual information system	OFDT
Ena-CAARUD	2006	3 349	exhaustive	80 %	Low threshold services	every 2 years national survey	OFDT
PRELUD	2006	1 017	voluntary participation	-	Low threshold services	local studies 6 cities	OFDT
OPPIDUM	2006	3 743	voluntary participation	-	Specialised centres + Low threshold services	annual national survey	CEIP
Coquelicot	2004	1 462	stratified	61 %	all treatments	local studies 5 cities	InVS

A detailed description of these surveys can be found in the "statistical sources directory" on the OFDT website: http://www.ofdt.fr/BDD_len/Bd_stats/58_Doc.xhtml.

The results of these surveys can be accessed in the following references [15, 22-25].

Prevalence of last month heroin use among drug users in different surveys, 2004-2006

Sources	Last month heroin use
	e%
NEMO 2006, OFDT	34
RECAP 2006, OFDT	46
Ena-CAARUD 2006, OFDT	26
PRELUD 2006, OFDT	34
Coquelicot 2004, InVS	20
Average estimation	32

Source : OFDT, 2008

A mean estimate can be produced from these different available health data: 32% of problem drug users² are heroin users (use during the previous month).

Police data place more emphasis on heroin. Heroin is involved in approximately 50% of arrests for non-cannabis narcotics use: 45% and 51% in 2005 and 2006 respectively. We must however take account of the fact that this indicator reflects drug-related police service activity more than the magnitude of the phenomenon itself. It is likely, therefore, that heroin use is “better identified” than, for example, cocaine by this information source because of the features of the users and the context in which use occurs. Furthermore, by definition, a number of problem drug users receiving treatment are not active users, at least at the time when they are questioned in the different health surveys. For these reasons, these data will not be taken into account.

It can therefore be estimated that approximately one third of problem drug users are active heroin users. To this third can be added a considerable proportion of people who were former heroin users, and who are now abstinent, either because they are receiving treatment (particularly substitution) or because they have moved on to other substances, and who may subsequently, either occasionally or regularly, take heroin again. This 32% figure can therefore be considered to be a minimalist estimate.

2. In view of the sources and data used, the range of substances can be considered to exclude cannabis. People seen mostly because of a cannabis problem for example were removed from the RECAP data.

ESTIMATION OF THE NUMBER OF INTRAVENOUS DRUG USERS

It would also be interesting to try to use the European protocol to obtain an estimation of the number of intravenous drug users in France. For the same reasons as above (see 4.3), this can neither be obtained from the general population survey data nor by directly applying the European protocol.

Here again the only solution is to look for the proportion of intravenous users in the different drug user surveys and apply this proportion to estimate the number of “problem drug users”.

Proportion of intravenous use among users in different national surveys, 2004-2006

Sources	Proportion (%)	
	Last month injection	Life time injection
NEMO 2006, OFDT	21	nd
RECAP 2006, OFDT	18	46
Ena-CAARUD 2006, OFDT	50	69
PRELUD 2006, OFDT	46	68
Coquelicot 2004, InVS	40	70
Average estimation	35	63

Source : OFDT, 2008

The different health data available provide a mean estimate of 63% injecting at least once during their life and 35% injecting within the previous month.

COMPARISON WITH PREVIOUS ESTIMATES AND EUROPEAN DATA

The first methodologically documented estimates of problem drug use prevalence in France date from the middle of the 1990s. A demographic method used in 1995 based on 1993 data produced an estimate of at least 160,000 heroin addicts [26]. A few years later, the first application of the European protocol, which was under construction, to the situation in France produced an estimate of 146-172,000 problem opiate users in France in 1995 [5].

It was during the same period that the capture/recapture method was first used in France for drug addiction (in the Toulouse metropolitan area) [27]. The European protocol was applied a second time at the beginning of this century, when the cap-

ture/recapture method was extended to several towns [28]. The new estimate based on 1999 data was similar to the previous one: 146-180,000 problem opiate or cocaine users [6].

The raw figures, which increased from 160,000 in 1993 to 230,000 in 2006 suggest a marked increase in the phenomenon. This impression is misleading for at least two reasons. Firstly, the methods and, in particular, the subject of the estimate, have changed. The context has moved from the concept of “heroin addicts” (1993) to “problem opiate users” (1995) and then to the definition “problem opiate or cocaine users” (1999) and finally to “intravenous drug users or regular users of opiates, cocaine or amphetamines” (2006). The scope of the estimate has therefore broadened over time.

The second reason is the magnitude of the confidence intervals around the central estimates. It can be seen from the confidence intervals obtained from the capture/recapture method – which lies at the heart of all of the methods used – that the national estimate calculated for 2005-06 ranged from 144,000 to 367,000. For these reasons, it is difficult to conclude that there has been a clear increase in the estimates.

We can only highlight that there may have been an increase in the number of problem drug users. Other information sources also indicate, firstly, “ageing of the population concerned”, with reduced mortality rates since the increase in substitution treatments at the end of the 1990s, and secondly, a degree of “population renewal” because of the spread of stimulants, the emergence of new opiate users and changes in the party scene, etc.

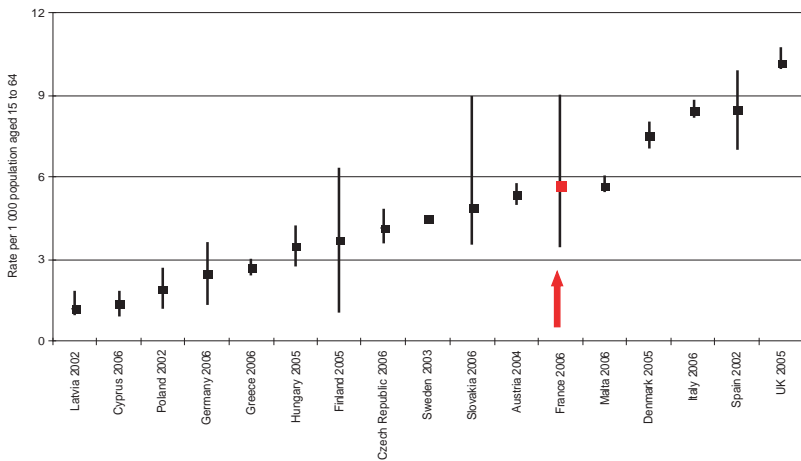
Finally, we should re-examine the theoretical definition produced by the EMCDDA. A problem drug user is defined as an intravenous drug user or regular user of opiates, cocaine, or amphetamines during the previous year in the 15-64 age group. To a greater or lesser extent, all of the methods proposed assume that the user can come into contact with one of the information sources used (arrest, treatment, health problems, death, etc.). These sources can extrapolate by estimating the number of people who have not yet come into contact with them but will do so in the future, but not the number of those “who will never come into contact with them”. It is therefore extremely likely that our estimate does not cover all “regular opiate, cocaine or amphetamine users) because of the inability (of these methods) to detect “controlled” uses of the substance in a better socially integrated population.

When the results obtained for France are compared with those for other European countries which have used the EMCDDA protocol, France is found to lie

Problem drug use prevalence in France - 2006 estimations -

within the European Union average with, compared to our neighbours, a prevalence that is higher than that of Germany but lower than that of Italy, Spain or the United Kingdom (see statistical bulletin on the EMCDDA website: <http://www.emcdda.europa.eu/stats08>).

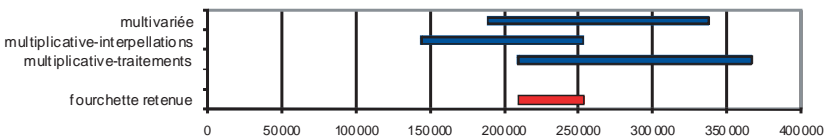
Estimates of the prevalence of problem drug use (rate per 1 000 population aged 15 to 64), 2002 to 2006



Sources : OEDT; Reitox, national focal points

CONCLUSION

The aim of this work was to produce a new estimate of problem drug users in France, together with the corresponding prevalence rate. There is great temptation to emphasise the wide range of results obtained and produce a wide estimate range. This however risks reducing the visibility and understanding of the result. The role of the expert is to offer a single estimate (or narrow estimate range) which in his/her opinion is probably closest to the actual situation.



Source : OFDT, 2008

In view of the inherent limitations of each of the methods used and described above, there is no “best method”. The values common to the confidence intervals for the three methods are therefore offered as the most likely estimation range, between 210 000 and 250 000 problem drug users in France en 2006 of which half involved in opiate substitution treatment. Indeed, it is estimated that 120 000 people have used opiate substitution drugs in the first half of 2007 [29].

**Problem drug use prevalence in France
- 2006 estimations -**

Problem drug use prevalence estimates in France, 2006

Estimate range selected	210 000 - 250 000
rate/1 000 hab. 15-64 y.o.	5,4 - 6,4
Central estimation	230 000
rate/1 000 hab. 15-64 y.o.	5,9
<i>including</i> - last month heroin users	74 000
rate/1 000 hab. 15-64 y.o.	1,9
- life time injecting users	145 000
rate/1 000 hab. 15-64 y.o.	3,7
- last month injecting users	81 000
rate/1 000 hab. 15-64 y.o.	2,1

Source : OFDT, 2008

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Problem Drug Use is one of the EMCCDDA five key indicators.

It is defined as "injecting drug use or long duration /regular use of opioids, cocaine and/or amphetamines" for the 15-64 year old age group.

This OFDT work provides a new estimate for France following the estimates previously produced in 1995 and 1999. This new estimate, between 210,000 and 250,000 problem drug users (central estimation 230,000) is based on data from 2006 and different methods.

This document also provides an estimate of the number of regular heroin users (75,000) and injecting drug users (81,000).