Design, sampling, organising the field for a TLS survey and new developments: Coquelicot, a survey of drug users

Marie Jauffret-Roustide, Yann Le Strat

Abstract

The French ANRS-Coquelicot survey was conducted between 2004 and 2007 to follow the dynamics of the epidemic of hepatitis C among drug users (DU) in France. Having taken place in 5 cities (Lille, Strasbourg, Paris, Bordeaux, Marseille), the survey was constituted of two parts, one epidemiological and the other socio-anthropological. The target population of this survey was both difficult to define and hard to reach, because of diversified social profiles, relations to drug use, and of the stigmatization of this practice. The studied DU population is the one that frequents specialised services, represents a sub-population having a ‘problematic relationship to drugs’ and is rather socially precarious. The methodology used in the epidemiological part of the study implemented a strategy of random sampling via a sampling scheme integrating the Generalized Weight Share Method (GWSM) and relies on the collection of biological data to estimate the prevalence of hepatitis C. The use of innovative methodological tools used for the first time in France (sampling plan with GWSM, biological tests) in the ANRS-Coquelicot survey has enabled to produce valid estimates of the prevalence of the HCV in the DU population, a particularly high prevalence which raises to 60%. The methodology implemented in this survey enabled a generalisation of its results to the studied target population. Using a mixed methods approach, the epidemiological data and qualitative data (in-depth interviews and ethnographical observations) were combined to enable a better understanding of the social context of risk and the meaning that the DUs gave it. The use of both quantitative and qualitative methodologies thus allowed a more sophisticated analysis of the risk factors involved in the exposure to hepatitis C among drug users in France.

Keywords: Methodology, drug use, infectious risk, epidemiology, socio-anthropology

Introduction

In France, the number of people whose drug use is problematic is estimated at 230,000 according the French Monitoring Centre for Drugs and Drug Addiction (Observatoire Français des Drogues et des Toxicomanies (OFDT)), i.e. 5.9 drug users (DUs) per 1000 inhabitants aged between 15 and 64 years. Within this population, 80,000 DUs (2.1 per thousand) may be considered as active injecting DUs (i.e. they have injected

1 Problematic use is defined as any intravenous consumption or regular consumption (at least 10 times a month) of opiates, cocaine/crack or amphetamines over a year.

Correspondence: M. Jauffret-Roustide, InVS, 12 rue du Val d'Osne, 94415 Saint-Maurice, France, Tel: 33141796743. E-mail: m.jauffret@invs.sante.fr

ISSN 1748-0612 online
DOI: 10.4256/mio.2010.0016
over the last month) and 145,000 (3.7 per thousand) have taken drugs intravenously at least once in their life (Costas, 2009). According to data from the European Monitoring Center for Drugs and Drug Addiction (EMCDDA), France’s drug use patterns are average for a European country, with a lower prevalence of problematic drug use than Italy, Spain and the United Kingdom, but a higher prevalence than Germany.

DUs said to be ‘problematic’ are a population particularly at risk for the transmission of Hepatitis C (Alter et al. 1999; Heintges and Wands, 1997), since sharing injection equipment is the greatest risk factor for the transmission of this virus (Hagan, 1998; McCoy et al. 1998; Roy et al. 2002). In order to reduce the health and social consequences associated with drug use, a harm reduction (HR) policy was implemented in France towards the end of the 1980s (Bergeron, 1999; Jauffret-Roustide, 2009). This practical policy tries to keep its distance from any moral position on drug use in order to focus on health and medical aspects. The two leading HR measures are making sterile injection equipment and opioid substitutive treatments (OST) available. The harm reduction policy has helped to improve the health of DUs by reducing the number of overdoses and the transmission of HIV in this population (Emmanuelli and Desenclos, 2005), but up to now its impact on the transmission of HCV has been more limited. Among the population of DUs, the prevalence of Hepatitis C remains very high today in those countries for which surveillance data is available; on average, it exceeds 50% (Aceijas and Rhodes, 2007). Thus, Hepatitis C is a major public health problem for DUs in France and at an international level.

In order to monitor the patterns of the HCV epidemic among DUs in France, a socio-behavioural survey called the ANRS-Coquelicot survey was carried out in France between 2004 and 2007. This article will address the imperatives for its design and implementation, particularly for sampling and interdisciplinary collaboration between epidemiology and socio-anthropology.

The DU population at risk for transmission of viral infections tends to be defined in terms of modes of consumption of these products (injection, snorting, smoking crack) rather than by the products themselves. The central objective for the ANRS-Coquelicot survey was to document the routes of transmission of HIV, HCV and HBV. Thus, the population examined in the study was restricted to DUs who had snorted or injected drugs at least once in their life. This meant that those using solely alcohol or cannabis were excluded from the ANRS-Coquelicot survey. The population we studied was made up of users of heroine, cocaine, misused medicinal drugs or crack, most of whom live in very precarious social situations. The modes of consumption used were sniffing, injection or smoking (for crack). Most of the DUs were active and said to be ‘problematic’, i.e. they consumed at least one of the psycho-active products mentioned above over the last month and some of them did so intravenously.

This target population is hard to define and also hard to reach. It is diversified in terms of social profiles and relations to drug use. It is also a stigmatised population, since drug use is illegal in France. The fact that the practice is hidden makes the population of DUs hard to reach.

The most visible population of DUs consist of those who visit the specialized centres and who represent a particular section of DUs: a sub-population with a ‘problematic’ relationship with drugs and whose living conditions tend to be socially precarious. Thus, some members of the population of DUs are excluded by the epidemiological surveys in France. This includes DUs whose drug use is ‘regulated’ and who are most socially integrated and at the other end of the scale the most marginal of the marginal, young people and women.

How can hard-to-reach populations such as DUs be studied?

**Design of the survey**

Up to now in France, the information on the prevalence of HIV or HCV among DUs came from declarative data deriving from convenience sampling, i.e. non-random sampling, referring to a limited number of specialized centres for DUs (Palle and Tellier, 2000; IREP, 1996; Gadel and Nunes, 1998; Bello et al. 2005). In these surveys, the data were collected by professionals working in care services for DUs. In 2004, after a pilot phase (Jauffret et al. 2006), the InVS carried out a survey on seroprevalence among DUs, which was
called the ANRS-Coquelicot survey and was supported by the Agence Nationale de Recherches sur le Sida et les hépatites virales (ANRS [National Aids and Viral Hepatitis Research Agency]) and implemented in cooperation with the Institut National d’Études Démographiques (INED [National Institute for Demographic Studies], the Centre National de Référence (CNR) du VIH de Tours [Tours HIV National Reference Centre] and the Centre de Recherche Psychotropes Santé Mentale et Société (CESAMES [Centre for Psychotropic Research, Mental Health and Society]). This study’s objectives were to estimate the prevalence of HIV and HCV in DUs on the basis of biological data and to compare these with the declarative data; to characterise the DU population in socio-demographic terms; to describe their at-risk situation in relation to their consumption of psychoactive products; and to explore certain determinants of risk-taking.

The ANRS-Coquelicot survey is an epidemiological survey of seroprevalence carried out among DUs in several cities (Lille, Strasbourg, Paris, Bordeaux and Marseilles) and at several locations (participants were recruited at almost all of the care and HR organisations, threshold services and among general practitioners (GPs) prescribing opioid substitutive treatment (OST).

Being by nature chiefly descriptive, its primary objective was to estimate the consequences of drug use in terms of infectious diseases, while its secondary goal was to detect risks of infection and at-risk practices in this population. At a practical level, the aim was to put forward public health recommendations. The epidemiological section of the ANRS-Coquelicot survey is characterised by a population-based approach since its focus is on a specific population (DUs), whose socio-demographic characteristics, way of life and practices it describes. It tries to identify the determinants of their at-risk practices that could affect their state of health and more particularly whether they have been infected with HIV and HCV. It also allows hypotheses to be formulated in order to evaluate the HR policy.

The target population is made up of DUs who have injected or snorted drugs at least once in their life and who use specialized services or attend GPs based in one of the cities covered by the survey. Minors and non-native French speakers were excluded for legal and also logistic reasons. In order to ensure that the interviewers would be safe and that the data would be reliable, persons who were very excited or aggressive when the questionnaire was being handed out were not surveyed. The level of participation in the survey was 75%, which can be considered satisfactory for this type of study. In all, 1462 DUs were included in the survey.

Methods

In the field of research on drug use and harm reduction, the methods used in the ANRS-Coquelicot survey were original in several ways. Firstly, while previous studies were based on convenience sampling (Palle and Tellier, 2000; IREP, 1996; Gadel and Nunes, 1998; Bello et al. 2005), the sampling strategy used here was random using a sampling plan. Moreover, this sampling plan incorporated a new dimension, the Generalised Weight Share Method (GWSM), which had been tried out in the course of the INSEE SD2001 survey (Ardilly and Le Blanc, 2001), but never applied in the field of epidemiology. The GWSM makes it possible to take account of an important aspect of the life of DUs in the weighting, namely that they visited several specialized services during the survey period. These multiple visits may affect inclusion probabilities for DUs and consequently may impact on the estimates (Jauffret-Roustide et al. 2009).

In theory, this type of survey requires a sampling frame for all DUs. In the ANRS-Coquelicot survey it would not have been possible to take a census of the entire population concerned. Thus, the survey was reduced to

---

2 The population-based approach entails three dimensions, the descriptive, analytical and evaluative. Its objectives are to describe the behaviour of a specific population, to understand the determinants that can influence their health and thus to contribute to the formulation of public policies aimed at populations, policies or forms of intervention whose impact on the health of these populations will subsequently be evaluated (Kovess, 1996).

3 In order to evaluate a public policy accurately on the basis of epidemiological data, it is necessary, however, to have two points of comparison. Hence the need to repeat the surveys at regular intervals. In order to formulate hypotheses on the impact of the HR policy on the transmission of HIV and HCV, the ANRS-Coquelicot survey referred to data generated by previous prevalence surveys using different methods, which limited comparability.
users of the specialist services and patients of GPs prescribing OST, who constituted the sampling frame. Two-stage sampling plans were implemented.

The sampling plan for the services

A detailed inventory of all services that might take care of DUs or offer harm reduction services was drawn up in all of the 5 cities included in the survey. The places of recruitment included specialized care settings for drug addicts and accommodation services such as hotels and apartments where treatment is provided. These were supplemented by HR organisations such as needle exchange programmes, places in which OST were administered in specialized centres, hospitals and buses, low threshold day-time reception centres and night-time (sleep-in) centres, as well as outreach teams offering harm reduction material (syringes, filters, cups) to consumers in places where drug dealing occurs. The surgeries of GPs prescribing OST were also included in the survey. Taking account of the diversity of the care and prevention on offer in recruiting the services to be included in the survey made it possible to reach a great diversity of DUs, including some DUs who are hard to reach in surveys, both those in the most precarious situations and some of those who are the most socially integrated (identified by the GPs). Recruiting DUs throughout the treatment chain (both high and low-threshold) and among GPs reflected the care circuit for DUs and the diversity of France’s public policies on drugs.

Of the 107 services listed as coming within the scope of the survey, 6 refused to participate either for reasons related to the operation of the service (cramped rooms, departure of the organisation’s manager just as the survey was carried out) or for reasons connected with how the impact of the survey on the DUs was perceived. Some of the professionals feared that the blood sampling might be perceived as too intrusive or that the results could further stigmatise DUs by scientifically validating the high prevalence of HIV and HCV in this population. In total, 101 specialized services were included, i.e. 95% of the services listed, so the coverage of the survey was particularly high.

A sampling frame for the services was constructed in each city. A list was made of all services open for a half-day in order to obtain pairs (organisations/half days) using simple random sampling. The number of pairs was proportional to the active DU lists declared by the services. A schedule for visiting the various services was drawn up.

In each primary unit \( i \) (half-day service\(^*\)), a list of users was not available at the beginning of the day (except in the case of accommodation providers), so that it was impossible to estimate a sampling rate and pick users systematically. A random sample of \( n_i \) users was picked at random using a random criterion. The interviewer picked the first user who appeared at random. The other users interviewed were interviewed according to an adapted sampling rate, in order to prevent the interviewer or the professionals working at the service from choosing the users to be interviewed, which would have introduced a selection bias.

An active list of DUs for the half-day \( (N_i) \) was subsequently drawn up by those in charge of the services. The way in which individuals were selected was assimilated to a simple random sample with an inclusion probability per user \( = \frac{n_i}{N_i} \).

Sampling plan for GPs

A sampling frame for GPs in the cities covered by the survey was constructed and then stratified in terms of their volume of OST prescriptions, on the basis of data provided by the Institut de Communication Médicale (InCM [Institute of Medical Communication]). In each city, GPs were randomly selected from each stratum, with an over-representation of heavy prescribers. Each participating doctor offered the questionnaire to all DUs among his or her patients. A two-stage random survey was implemented with stratification carried out on the city. As regards the first stage of the sampling plan, this was a simple random sample of the doctors prescribing OST with stratification based on the volume of their OST prescription (heavy/average prescribers). For the second stage, all DUs were interviewed using a cluster sample with the weightings calculated in accordance with this type of sampling.
**Generalised Weight Share Method (GWSM)**

One user may go to more than one service per day, whereas another might only visit a service once a week or once a month. A user attending several services thus has a greater probability of inclusion than one who attends rarely. The heterogeneity of the users’ attendance (in terms of attendance and also of the diversity of organisations) had to be taken into account.

In practice, the three following questions were asked to the DUs concerning the number of visits and the identification of organisations visited by them allowing to build the links between the services and the individuals:

Q1: Which of these services, apart from this one, have you been to or will you go to today?

Q2: In the last month, how many times on average have you been to the service we are currently in (including this occasion)? (once/2 to 4 times/more than 4 times)

Q3: Did you go to any of the organisations listed on this card yesterday (or on Friday, if the interview is held on a Monday)? If so, how many times?

From these questions, we estimated the number of services visited by each individual during the survey. Then the GWSM was applied. Statistically, this means calculating a new sampling weight for each DU based on its classical sampling weight (inverse of the inclusion probability) and the number of services visited.

**Organisational and methodological challenges**

Several organisational and methodological challenges presented in connection with the survey’s epidemiological section. As regards the sampling strategy, what was needed was to have the collection of data listed accepted by the organisations in order to construct the sampling frame, while limiting their perception that their activities were being ‘critically’ assessed. What was required as regards the validity of the data was to obtain data on seroprevalence by finger-prick self-sampling on blotting paper without returning the results [to the participants] and to make the professionals at the organisations aware of the acceptance of the test. As regards the reliability of data, what was needed was for trained interviewers who were external to the organisations in question to organise the collection of anonymous and confidential information from DUs relating to stigmatised practices (drug use, dealing, at-risk practices). Preliminary work on making the professionals at the organisations aware [of the issues] was carried out in advance over a year in order to ensure that the interviewers would get a favourable reception at the organisations. In the field, in the course of the collection of the epidemiological data, a balance had to be struck between having the interviewers welcomed by the organisations and limiting the role of the professionals working in those organisations in the field in choosing the DUs to be included in the survey.

One of the methodological challenges for this survey was to reconcile the epidemiological and socio-anthropological approaches with the objective of gaining an understanding of the dimension of at-risk practices associated with the use of drugs in all their complexity.

**Taking a socio-anthropological approach in epidemiological surveys**

Alongside the epidemiological section, there was also a focus on socio-anthropological matters in the ANRS-Coquelicot survey. This qualitative section carried out between 2003 and 2007 was aimed at preparing the epidemiological data collection stage (analysis of public policies and the stakes for professionals, getting professionals interested in the survey), at gaining access to and identifying the DU populations said to be ‘hidden’ and analysing and questioning certain epidemiological results.
The qualitative section of the survey was called socio-anthropological in order both to acknowledge the discipline from which the approach derived (sociology) and a type of methodological tool (qualitative methods) used in this section. The designation ‘socio-anthropology’ pre-empts confusion with quantitative sociology, which uses a statistical tool, as does epidemiology, but produces a subtle interpretation of the data. The socio-anthropological approach can be used prior to the epidemiological section in constructing hypotheses, drawing up the questionnaire and preparing the field. This section continued after the survey and made it possible to reach certain hard-to-reach populations, to analyse and also to question certain quantitative results. The socio-anthropological section in the ANRS-Coquelicot survey was aimed at gaining a more subtle understanding of the determinants of at-risk practices by relating the social experience of drug use and risk-taking and introducing the dimension of the social and political context. The socio-anthropological approach thus made it possible to describe individuals’ situations and practices and to clarify the social risks associated with these practices (Ehrenberg, 2007).

Preparing the field for epidemiological surveys

Prior to this survey which was carried out on a complex field, preliminary work for approaching the field and analysing public policies was carried out between September 2003 and September 2004. The question of drug use was understood not only through a population of DUs but also as a social space in which the strategies of the actors, what was at stake for those involved and representations of the phenomenon studied existed side by side. The members of the team (epidemiologists and sociologists) wished to go beyond mere knowledge of the objectives of public health policies and to carry out a more comprehensive analysis of the entire field concerned. We believed that taking account of a socio-historical analysis of this field would encourage both the interviewers’ understanding of the phenomenon and acceptance of the quantitative survey by professionals working in the field and by the DUs. Thus, over an entire year, observations were made and interviews held with parties in the field of care for drug addicts and harm reduction in order to take account of what is at stake within this group. This immersion in the object of study and this sociological analysis of the relations between the parties are particularly important stages in the field where collecting data may be experienced as a form of intrusion into the life of DUs and as a form of evaluation of the practices of professionals. Professionals in the area of care for drug addicts constitute a professional body set up in the 1970s and influential by the ideas of the philosopher Michel Foucault. Because of this, they tend to see epidemiology and quantitative survey techniques as a mean of social control of DUs. The use of a blood sample without returning the results to the DUs heightened their doubts and reservations towards the study. Among the six managers of specialized services who refused to take part in the survey, several of them referred openly to the risks of stigmatisation and social control of DUs through the epidemiological arsenal. Emphasising the high prevalence of HCV and the persistence of at-risk practices among DUs could reinforce the image of DUs as irresponsible individuals, with reference to the current debates in the field of drug addiction at the time at which the harm reduction policy was implemented (Bergeron, 1999; Coppel, 1996; Jauffret, 2000). This preliminary qualitative work thus allowed us to involve the actors in the preparation of the field. This qualitative data was then used to interpret the results by reintegrating the socio-political context of drug use in France. Thus, taking risk in a context where syringes are not available for DUs cannot be interpreted in the same way as risk-taking in a situation where there is a high level of access to sterile equipment as a result of the harm reduction policy applied in France.

This stage of preparing for the epidemiological survey was devoted to spreading awareness to actors in the field and certainly allowed us to manage the stage of collecting epidemiological data more effectively, thus encouraging the professionals’ acceptance of the survey as a tool and ensuring a high level of participation by DUs.

Getting to hard-to-reach populations

The epidemiological section of the ANRS-Coquelicot survey allowed us to make an inference from the results of the survey about the population of DUs taking advantage of the specialist care services and attending GPs. However, its cover is incomplete insofar as it did not include persons who do not attend these organisations.
The epidemiological study sample is diversified because the DUss were recruited throughout the treatment chain (accommodation organisations, health care centres, harm reduction organisations, GPs’ surgeries) but it represented only a sub-population of DUs, those who are in contact with the specialized organisations. In order that the population studied should be more representative, it was therefore necessary to work on the population of hard-to-reach DUs, i.e. DUs without any contact with the specialized organisations. A qualitative approach offered the advantage of its capacity to reach those DU populations that are said to be hidden and thus was able to make recruitment to the study more comprehensive.

This population outside of the institutions is hardly known and the information about it comprises essentially qualitative data from socio-anthropological studies based on sub-groups of hidden populations but which are not aimed at describing this population in its diversity (Bouhnik et al. 2002; Fontaine and Fontana, 2003; Reynaud-Maurupt and Verchère, 2003; Reynaud-Maurupt and Acola, 2004). Engaging with this exploratory data suggests that the profiles of these DUs are diversified and include young DUs (aged under 30 years) situated at the two extremes of the social ladder, the most marginal and the most integrated. These populations can be hard to reach or to interview because they do not identify with the DU scene and try to keep their distance from it (young people from the party scene, socially integrated DUs) or because access to them is difficult (crack scenes, ‘street users’, women). Moreover some of these DUs (women with children, integrated DUs) do not attend these institutions because they are afraid of losing their anonymity, which could have an impact on their daily life. For some DUs the health care and harm-reduction options offered are not adapted to their expectations and that is why they do not attend these organisations. Moreover, these sub-groups in the population are closely linked. Nevertheless, it was possible to recruit some members of this population in the epidemiological section, in the course of their recruitment at GPs’s surgeries or by outreach teams, organisations that allow DUs to limit their contact with other DUs.

For those populations said to be hidden or hard to reach, the use of a questionnaire and blood sampling was more difficult to implement. A non-guided interview seemed more appropriate than a questionnaire since it allowed data to be collected without directly naming the practices and allowed DUs to reply subtly without feeling imprisoned within a fixed questionnaire’s pre-established categories [in their replies]. Using interviewers who are integrated into the networks of DUs, often living in proximity to the persons interviewed and mastering the codes used may facilitate access to these hidden populations as these mediators can increase trust. Since the population of the socio-anthropological study was not known precisely at the outset, sampling occurred progressively through a method known as snowballing, with DUs being contacted by intermediaries integrated into the DU scene. Several sub-groups of users were contacted and studied and recruitment targeted in particular DUs aged under 30 years and women, who were less represented in the specialized organisations. A socio-anthropological approach made it possible to identify networks of ‘invisible’ individuals in the epidemiological studies who, despite their invisibility, formed part of the target population. Taking account of these sub-populations thus allowed us to improve the description of the ways of life and practices of DUs. In the course of the ANRS-Coquelicot survey, 99 semi-guided interviews were held with DUs between 2005 and 2007.

**Conclusion and prospects**

The use of innovative methodological tools for the first time in France (sampling plan with GWSM and biological tests) in the ANRS-Coquelicot survey made it possible to produce valid estimates of the prevalence of HCV and HIV in the population of DUs. There were no major difficulties in calculating inclusion probabilities. This was firstly because the number of persons contacted (respondents and non-respondents) was clearly indicated by the interviewer at each stage of the survey in the organisations. Secondly, the numbers of DUs who had attended the organisation in the course of the half-day on which the survey was carried out was also clearly indicated. Some missing values were subsequently recovered with the help of staff at the organisations.

Moreover, the DUs replied to the three questions concerning the number of visits and the identification of the organisations they visited in the course of the survey period. The main reason for this is that the interviewers had been told that these questions were very important and that the answers needed to be collected rigorously.
On the other hand, it would have been preferable to ask the question concerning attendance over the last month in greater detail.

The chief epidemiological results of the Coquelicot survey highlight the prevalence of HCV, which affects 60% of the population of DUs and the fact that 13% engage in at-risk practices associated with repeated injections and sharing syringes, while 38% engage in at risk practices associated with drug paraphernalia (Jauffret-Roustide et al. 2009). Female DUs constitute a particularly vulnerable population in terms of exposure to risk in the areas of drug use and sexuality. The socio-anthropological section allowed us to gain a better understanding of this vulnerability by introducing the dimension of social sexual relations and how risk is viewed. Women’s dependence on their spouse reduces their capacity to control the circumstances in which injection occurs, thus encouraging them to borrow injection equipment. The risk of borrowing injection equipment is five times higher among women than men. Taking account of the framework within which women view risk reveals that they may attach less importance to the risk of infection than to risks affecting their emotional life and relationships (Jauffret-Roustide et al. 2008).

The methods used in this survey meant that we could make inferences from the results about the target population studied. Standardising the research tools used in epidemiology allows us to compare the French and international situations and to carry out behavioural surveillance over time. Thus, epidemiology allows us to describe, measure and reach a certain level of generalisation. Since the epidemiological tools used are perceived as more reliable by the public authorities, they can more easily be used as aids to decision-making.

The qualitative data (interviews and ethnographic observations) were used in part for the purpose of triangulation of the data, in order to engage with the data produced by the quantitative section of the ANRS-Coquelicot. The ethnographic observations were also incorporated into the process of the triangulation of the qualitative data by limiting the bias associated with the context in which the question of risks was discussed, which was present in both the interviews and the questionnaires. The qualitative section also allowed us to reveal the complexity of the various stakes associated with at risk practices, a complexity that challenged the quantitative data through a different interpretation from that yielded by considering the question in epidemiological terms. The relevant question here is the triangulation of data rather than the superiority of one survey technique over another. Each technique entails its own biases and using more than one investigative technique allows us to engage with the data sources and to approach the subject studied in its complexity. To sum up, in practice the socio-anthropological section helped to improve knowledge of the field studied in advance of the survey, to improve the choice of indicators and categories used in the questionnaire, to work on the interviewers’ representations of the subject of the survey and to gain access to the so-called hidden population of DUs.

In order to improve the ability of the Coquelicot survey to produce data from which inferences can be made about the population of DUs, methodological improvements are planned for the next edition, which is scheduled for 2010. Three additional cities (Rennes, Lyons and Toulouse) will be certainly included in the survey in order to improve the geographical representation of the population. Organisations within prisons will also be included in order to reduce the deficiency in coverage by excluding the population attending such organisations. Finally, DUs who have no contact with any organisations and who were identified in the socio-anthropological section, corresponding to the so-called ‘hidden’ population of DUs, will be included in the epidemiological section of the next survey.
Figure 2: The different populations of DUs. The persons reached in the survey are indicated in white, those not reached are indicated in light grey while those partially reached are represented in dark grey.

The sero-epidemiological section of the next edition of Coquelicot 2010 will be made up of four independent surveys targeting specific populations of DUs: ANRS-Coquelicot specialized services (1), GPs (2), hidden populations (3) and prisons (4). The survey of the organisations and GPs will repeat the design previously used in the earlier survey.

As regards the survey of hidden populations, in order to include DUs who have no contact with the organisations covered by section 1 of the survey, a method of the respondent-driven sampling type (RDS) will be used. Since, to the best of our knowledge, this method has never been applied on a large scale to DUs in France (Lovell, 2001), it will be applied only in Paris, since the point here is to try out this method. The method has already been applied in other countries (Heckathorn, 2002; 2007; Heckathorn et al. 2002) and we shall draw on this experience.

As regards the survey in prisons, it is difficult to transpose the survey methods used in the ‘conventional’ fields. In addition to adapting the method, preliminary work entailing negotiation will need to be carried out in order to optimise conditions for carrying out the survey. This work will need to be undertaken in cooperation with the prison administration, prison officers and medical staff. In particular, applications for authorisations to be put in contact with prisoners in ‘neutral’ spaces that will encourage discussion will have to be negotiated. There will also be reflection on the sampling strategy (selection of prisons) and the second sampling stage (selection of prisoners), in which particular care must be taken to avoid stigmatising prisoners. Given the specific difficulties in carrying out surveys on stigmatised practices in prisons (sexuality, drug use), we also plan to supplement the epidemiological section with a socio-anthropological section addressing DUs who have been in prison in order to interview them retrospectively concerning their consumption of psychoactive products and their at risk practices while detained.

Acknowledgements

We thank all the DUs, professionals at the specialized organisations and GPs who took part in the survey in the 5 cities.
París: Nova Dona, Pierre Nicolle, Horizons, La Corde Raide, Charonne, SOS DI, Drogues Jeunesse, Moreau de Tours, Murger, Cassini, Emergence, EGO, MDM, AIDES, La Terrasse, Marmottan, Dr Majerloch, Dr Margelisch, Dr Molinier, Dr Joory, Dr Ekue, Dr Bezanson, Dr Demoor, Dr Francoz, Dr Gandour

Lille: Boris Vian, CITD, Espace du Possible, Le Cèdre Bleu, AIDES, Dr Marousez, Dr Heunet, Dr Messaadi, Dr Debomy, Dr Matton, Dr Riff, Dr Flageollet

Strasbourg: Espace Indépendance, ALT, Le fil d’Ariane, Dr Bernard-Henry, Dr Verhnes, Dr Garnier, Dr Gras, Dr Michel, Dr Rolland-Jacquemin, Dr Sellam

Bordeaux: MDM, CEID, Montesquieu, Pellegrin, Parlement Saint-Pierre, Dr Lorans, Dr Quilichini, Dr Sagardoy, Dr Thibaut, Dr De Ducla, Dr Canovas

Marseille: AMPTA, MDM, AIDES, Sainte-Marguerite, Intersecteur des pharmacodépendances, SOS DI, Le Cabanon, Dr Beria, Dr Federici, Dr Philibert, Dr Martin, Dr Robichon, Dr Brun, Dr Hakoun, Dr Hariton, Dr Chiappe

Interviewers:

Paris: A. Aberkane, I. Alet, P. Boudet, B. Burnel, C. Flamant, S. Golenishev, E. Guillais, C. Hamelin, H. Léon, L. Quaglia, J. Quenet-Vincent, M. Roussier, M. Tiloy, B. Schuch

Lille: P. Legroux, A. Luyckx, M. Makouala, C. Sarazin

Strasbourg: M. Duwig, N. Olivier-Martín, J. Oswald,

Bordeaux: F. Bordes, P. Chambreau, E. Lion, E. Martinheira, E. Rappeneau

Marseille: C. Coquillat, J. Denoyer, H. Habert, C. Latard, M. Mounition, H. Sigaud

Monitoring of interviewers: M. Quaglia, G. Vivier, K. Guenfoud, A-M. Noel

Sampling plan: N. Razafindratsima, C. Lefevre

InVS team participating in the survey: J. Emmanuelli, JC Desenclos, E. Couturier, L. Oudaya, C. Semaille

Biological analyses: Prof. F. Barin, D. Thierry

Scientific committee: F. Beck, V. Doré, A. Ehrenberg, JM. Firdion, I. Grémy, F. Lert

Funding: This survey received financial and scientific support from the Agence Nationale de recherche sur le Sida et les Hépatites (ANRS - National Agency for Research into AIDS and Hepatitis)

References

Aceijas, C., Rhodes, T. (2007) ‘Global estimates of prevalence of HCV infection among injecting drug users’, Int J Drug Policy, Vol. 18, pp. 352-358.
Alter, M.J., Kruszon-Moran, D., Nainan, O.V., McQuillan, G.M., Gao, F., Moyer, L.A., Kaslow, R.A. et Margolis, H. (1999) ‘The prevalence of hepatitis C virus infection in the United States, 1988 through 1994’, N Engl J Med, Vol. 341, No.8, pp. 556-62.

Ardilly, P., Le Blanc, D. (2001) ‘Sampling and weighting a survey of homeless persons: a French example’, Survey Methodology, Vol. 27, pp. 109-18.

Bello, P.Y., Toufik, A., Gandilhon, M. et Evrard, I. (2005) Phénomènes émergents liés aux drogues en 2004. Sixième rapport national du dispositif TREND. Saint-Denis : OFDT, pp. 1-178.

Bergeron, H. (1999) L’État et la toxicomanie. Paris, France : PUF.

Bouhnik, P., Touzé, S., Valette-Viallard, C. (2002) Sous le signe du "matos": contextes, trajectoires, risques et sensations liés à l’injection de produits psychoactifs. Paris : RESSCOM.

Coppel, A. (1996) « Les intervenants en toxicomanie, le sida et la réduction des risques », Communications, Vol. 62, pp. 75-108.

Costes, J.M. (2009) Prévalence de l’usage problématique de drogues en France - Estimations 2006. Saint-Denis : OFDT.

Ehrenberg, A. (2007) ‘Epistemology, sociology, public health: how to clarify?’, Neuropsychiatrie de l’enfance et de l'adolescence, Vol. 55, pp. 450-455.

Emmanuelli, J., Desenclos, J.C. (2005) ‘Harm reduction interventions, behaviours and associated health outcomes in France, 1996-2003’, Addiction, Vol. 100, pp. 690-700.

Fontaine, A., Fontana, C. (2003) Drogues, activité professionnelle et vie privée, Saint-Denis : OFDT.

Gadel, G., Nunes, C. (1998) « Les toxicomanes suivis dans les structures sanitaires et sociales en novembre 1996 », Études et Résultats, No 1, pp. 1-6.

Hagan, H. (1998) ‘Hepatitis C virus transmission dynamics in injection drug users’, Subst Use Misuse, Vol. 33, pp. 1197-212.

Heckathorn, D.D. (2002) ‘Respondent-driven sampling II: Deriving valid population estimates from chain-referral samples of hidden populations’, Social Problems, Vol. 49, pp. 11-34.

Heckathorn, D.D., Semaan, S., Broadhead, R.S., Hughes, J.J. (2002) ‘Extensions of Respondent-driven sampling: A new approach to the study of injection drug users aged 18-25’, AIDS Behav, Vol. 6, pp. 55-67.

Heckathorn, D.D. (2007) ‘Extensions of respondent-driven sampling : Analyzing continuous variables and controlling for differential recruitment’, Sociological Methodology, Vol. 27.

Heintges, T., Wands, J.R. (1997) Hepatitis C virus: epidemiology and transmission’, Hepatology, Vol. 26, pp. 521-6.

IREP (1996) Étude multicentrique sur les attitudes et les comportements des toxicomanes face aux risques de contamination par le VIH et les virus de l'hépatite. Paris : IREP.

Jauffret, M. (2000) « La réduction des risques: enjeux autour d'une mobilisation collective », MANA, Vol. 8, pp. 161-188.

Jauffret-Rousteid, M., Emmanuelli, J., Quaglia, M., Barin, F., Arduin, P., Laporte, A. et Desenclos, J.C.
(2006) ’Impact of a harm-reduction policy on HIV and hepatitis C virus transmission among drug users: recent French data—the ANRS-Coquelicot Study’, Subst Use Misuse, Vol. 41, No.10-12, pp. 1603-1621.

Jauffret-Roustide, M., Le Strat, Y., Couturier, E., Thierry, D., Rondy, M., Quaglia, M., Razafindratsima, N., Emmanueli, J., Guibert, G., Barin, F., et Desenclos, J.C. (2009) ‘A national cross-sectional study among drug-users in France: epidemiology of HCV and highlight on practical and statistical aspects of the design’, BMC Infect Dis, Vol. 9, p.113.

Jauffret-Roustide, M., Oudaya, L., Rondy, M., Kudawu, Y., Le Strat, Y., Couturier, E., Emmanueli, J. et Desenclos, J.C. (2008) ‘Life trajectory and risk-taking among women drug users’, Med Sci (Paris), Vol. 24, No. 2 (special issue), pp. 111-121.

Jauffret-Roustide M. Self-support for drug users in the context of harm reduction policy: a lay expertise defined by drug users’ life skills and citizenship. Health Sociology Review 2009;18:159-72.

Kovess, V. (1996) Epidémiologie et santé mentale. Paris : Médecine-Science, Flammarion.

Lovell, A.M. (2001) ‘Ordonner les risques: l'individu et le pharmaco-sociatif face à la réduction des dommages dans l'injection de drogues’, in Les cultures de la santé publique, pp. 309-341. Paris.

McCoy, C.B., Metsch, L.R., Chitwood, D.D., Shapshak, P., Comerford, S.T. (1998) ‘Parenteral transmission of HIV among injection drug users: assessing the frequency of multiperson use of needles, syringes, cookers, cotton, and water’, J Acquir Immune Defic Syndr Hum Retrovirol, Vol. 18, Suppl. 1, pp. S25-S29.

Palle, C., Tellier, S. (2000) « Les usagers de drogues illicites pris en charge par le système de soins en novembre 1997 », Études et Résultats, No. 59, pp.1-8.

Reynaud-Maurupt, C., Akola, S., (2004) Usages détournés de la kétamine en France. Saint-Denis : OFDT.

Reynaud-Maurupt, C. et Verchère, C. (2003) Les nouveaux usages de l'héroïne. Saint-Denis : OFDT.

Roy, K., Hay, G., Andragetti, R., Taylor, A., Goldberg, D. et Wiessing, L. (2002) ‘Monitoring hepatitis C virus infection among injecting drug users in the European Union: a review of the literature’, Epidemiol Infect, Vol. 129, pp. 577-85.