Identification and optimisation of evidence-based HCV prevention in Europe for young drug users at risk

Results of interviews with young drug users

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Content

1 Introduction 4
2 Methods 6
3 Findings 9
   3.1 Characteristics and substance use of interviewees 9
   3.2.1 Substance use patterns 12
   3.2.2 Drug use of the risk group 13
   3.2 Injection drug use of the risk group 14
       3.2.1 Injection risk behaviour 14
       3.2.2 Injection drug use and housing 15
       3.2.3 Injection drug use in prison 16
   2.2.4 HCV-free years 17
   3.3 Smoking and Sniffing 19
   3.4 Utilisation of harm reduction services 20
   3.5 Self-reported prevention strategies 22
4 Conclusions 24

References 28

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Tables

Table 1: Cities and institutions where interviews with drug users were conducted  7
Table 2: Sociodemographic characteristics, specified by countries  10
Table 3: Testing rates and prevalence of infection  11
Table 4: Utilisation of harm reduction services in past 30 days  21

Figures

Figure 1: Substances ever used and used in past 30 days (n = 377)  12
Figure 2: Substance use patterns for the risk group (n = 294)  14
Figure 3: Injection-related risk behaviour in past 30 days (n = 162)  15
Figure 4: Stable and unstable housing for injectors and non-injectors (n = 292)  16
Figure 5: Drug use in prison  17
Figure 6: Frequency distribution of HCV-free years among injectors (n = 158)  19
Figure 7: Risk behaviour related to smoking and sniffing  20
Figure 8: Self-reported prevention strategies of injectors and non-injectors  23

Abbreviations

ECDC European Centre for Disease Prevention and Control
EMCDDA European Monitoring Centre for Drugs and Drug Addiction
HCV Hepatitis C Virus, Hepatitis C
IDU Injecting Drug User, Injecting Drug Use
OST Opioid Substitution Treatment
SD Standard Deviation
1 Introduction

Young and recent-onset injection drug users (IDUs) are at particular risk for HCV infection. As literature suggests, most of them get infected within their first two or three years of injecting (Hagan et al., 2007; Maher, Li, Jalaludin, Chant, & Kaldor, 2007). These findings emphasise the need for new approaches in harm reduction, requiring interventions that are specifically tailored to this target group. For years, HCV rates among IDUs in industrialised countries have consistently remained on a high level (Cornberg et al., 2011). Thus, HCV-specific interventions, having a stronger focus on “blood awareness”, became increasingly important. However, these interventions might not be sufficient: a series of recent reviews indicate that the efficacy of harm reduction strategies on HCV prevention is limited, especially if they lack a multicomponent approach (Hagan, Pouget, & Des Jarlais, 2011; Palmateer et al., 2010).

Like the human immunodeficiency virus (HIV), HCV can be transmitted via sharing of injection equipment, especially needles and syringes. Unlike HIV, HCV can also be transmitted by lower-dose or indirect blood exposure such as spoons, cotton filters and other paraphernalia (EHRN, 2010). In some of the risks related to sharing of equipment the blood contact is not obvious. Though there are still gaps in scientific knowledge as regards the contribution of the various routes of transmission (Lavanchy, 2011), including transmission via crackpipes or sniffing equipment, these possible risks tend to be underestimated by drug users. From a prospective cohort study among 204 HCV-negative IDUs it is known that the main risk factors are the sharing of injecting equipment and paraphernalia, assisting someone for injecting, frequent injection and no utilisation of medical treatment (Wand et al., 2009).

In addition to research on the prevalence of risk behaviour and infection probabilities, there are also studies that aim to determine to which extent drug users are aware of these risks and if they have developed strategies to prevent HCV transmission. A study on HCV risk management strategies among 111 HCV-positive injectors (Carruthers, 2005) indicated that the majority of respondents were conscious of the possibility that they could transmit the virus, and they were able to describe actions to reduce those risks. However, some of those actions are hardly to be considered effective, e.g. unsafe methods for syringe disinfection. Further, assisting of injecting was shown to be rather widespread,
and some IDUs expressed the belief that other, more experienced injectors would have sufficient knowledge in safe injection techniques to prevent infections (Carruthers, 2005).

The currently ongoing “Staying Safe” study - a collaborative international project – aims to determine prevention strategies among drug users who have been injecting for long term but did not contract HCV (Harris, Treloar, & Maher, 2011). Data was obtained from qualitative interviews with this target group. First results reveal that strategies to remain HCV-negative are closely related to the need for social inclusion and the willingness to maintain social and structural resources. Such strategies include to avoid injecting track marks, to inject alone, to preserve an image as “normal” and not being perceived as drug user (weight, clothes), and the maintenance of stable housing, e.g. living in the family home (Harris, et al., 2011).

Within the European project we used a similar approach. This report presents the results from interviews with young drug users who reported to be negative for HCV or who did not know their HCV status. Interviews were conducted in five European cities and regions – Amsterdam, Athens, Hamburg, Barcelona and Vilnius. The interviews were mainly focused on prevention strategies and protective behaviours of interviewees, which they might have developed to prevent an infection with HCV. A further objective was to determine the level of awareness towards HCV risks, and the extent to which risk behaviour as well as protective behaviour occur.
2 Methods

Young drug users were interviewed by means of a structured questionnaire in five European Countries (Catalonia, Germany, Greece, Lithuania and The Netherlands). The questionnaire was about drug use patterns, risk behaviour and strategies to prevent infection with hepatitis C. Items were partly adapted from the European Addiction Severity Index (EuropASI, Kokkevi & Hartgers, 1995) and the Maudsley Addiction Profile (MAP, Marsden et al., 1998). Additional items, especially to investigate the risk behaviour, were developed in close agreement among the project partners.¹

Inclusion criteria for participation in the interviews were:

- To be at an age below 35 years
- A self-reported HCV status of being negative or unknown
- To regularly use heroin, cocaine powder, crack or amphetamines; regular use was defined as using drugs at least 3 days per week

As the focus of the project was on young drug users, initially it was intended to include only drug users up to 30 years. However, feedback from drug services in Hamburg, Barcelona, and in particular in Amsterdam revealed that it was difficult to find drug users who regularly use heroin, cocaine or amphetamines and who are below the age of 30. In consideration of these difficulties it was decided to extend the age limit of the targeted drug users to 35 years.

Though a period of regular drug use was mandatory, current drug use (past 30 days) was not part of the inclusion criteria. Accordingly individuals could be included if they did not use drugs in the past 30 days, e. g. due to substitution treatment or imprisonment. In order to take the current drug use into account, a so-called risk group has been defined with the following criteria:

- Age below 35 years
- Self-reported HCV status negative or unknown
- Regular use of heroin, cocaine powder, crack or amphetamines in the past 30 days
- Smoking, sniffing or injecting in the past 30 days

Most of the analyses in this report are performed with the risk group.

¹ The questionnaire is available as download: www.zis-hamburg.de/uploads/tx_userzis/HCV-questionnaire_on_drug_use_risks.pdf.
The drug users were interviewed in different European regions, and here, in different types of drug services and partly as well in prisons. The table below specifies the regions, institutions and the respective number of respondents.

Table 1: Cities and institutions where interviews with drug users were conducted

<table>
<thead>
<tr>
<th>Country</th>
<th>Cities and regions</th>
<th>Institutions</th>
<th>Number of interviewees¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalonia (Spain)</td>
<td>Barcelona, Lleida, Sant Adrià del Besòs</td>
<td>Harm reduction services, Prisons</td>
<td>97</td>
</tr>
<tr>
<td>Germany</td>
<td>Hamburg</td>
<td>OST outpatient clinic, Low-threshold services with drug consumption rooms, Counselling service</td>
<td>66</td>
</tr>
<tr>
<td>Greece</td>
<td>Athens, Attica, Piraeus</td>
<td>Drug treatment and counselling centres</td>
<td>104</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Klaipeda, Vilnius</td>
<td>Harm reduction services</td>
<td>89</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Almelo, Amsterdam, Leiden, Leeuwarden</td>
<td>Outreach work, Drug treatment centres, Prisons</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>377</td>
</tr>
</tbody>
</table>

¹ After exclusion according to eligibility criteria

After collecting the data, 18 drug users were excluded from analysis due to HCV-positivity (17 interviewees of the Lithuanian sample and one interviewee from the German sample). A total of 40 respondents were interviewed in prisons.

The majority of the interviews were conducted face-to-face by staff in low-threshold centres, outreach work, counselling or drug treatment centres and partly in prisons. Further questionnaires were filled out under close supervision and guidance of staff in these services.

Originally, the intention was to recruit 100 drug users in each of the five European regions. However, in the Netherlands and Germany it turned out to be difficult to find individuals who were regular drug users but reported not to be infected with hepatitis C. On the other hand, in Lithuania, Spain and Greece the intended sample size was mostly achieved. The
differences in the sample size reflect the variety in the group of young regular drug users existing in the respective countries.

Statistical Analyses were conducted with SPSS for windows, version 16.0. Descriptive analyses comprised percentages and total numbers. When appropriate, between-group differences were tested for statistical significance, according to their scale level. For categorical data, χ²-tests were performed. For interval-scaled and normally distributed variables, t-tests or analyses of variance were used. When the assumption of variance homogeneity was violated, we used nonparametric tests, e.g. Kruskal-Wallis. In contingency tables, when more than 20 % of cells had estimated frequencies < 5, Fisher’s exact test was used. In general all tests of significance were two-tailed, with a p value of 0.05 or less being considered statistically significant.
3 Findings

In this report the main findings from the analyses of the questionnaires with young drug users are presented. In a first part the characteristics of the interviewed drug users are described as to their sociodemographic characteristics and drug use behaviour. The second part of the findings is focused on injecting drug users, while the third part describes the drug user behaviour of smokers and sniffers. Subsequently, the utilisation of drug services is analysed. Finally the findings on the self-reported strategies to prevent an infection with hepatitis C are illustrated.

3.1 Characteristics and substance use of interviewees

The age of the interviewees ranges between 15 years (Greece) to 35 years (Catalonia). As there was no minimum age, minors were included. On average, the interviewed drug users were 26 years old (table 2). While the Greek respondents were rather young with an age from 15 to 30, respondents from Catalonia and Germany were the oldest ones and those with the broadest ranges in age (between 19 to 35 in Catalonia and between 18 and 34 in Germany). The differences in age between the country samples are significant ($H(4) = 19.256, p = .001$; Kruskal-Wallis).

Most of the respondents were male, as only about 32 % were females. Especially among the Dutch and Greek interviewees the proportion of female drug users was very low with 10-15 %. In the other European regions around 40 % of the samples were women. The different gender distribution across countries is statistically significant ($\chi^2(4) = 28.744, p < .001$).

Further, there is also a significant difference in stable housing ($\chi^2(4) = 55.724, p < .001$). Primarily, these differences are related to the Dutch sample where a considerable proportion of individuals reported living in night shelters or being homeless ($n = 10$). In contrast, almost all interviewees from Greece reported stable living conditions.

Employment rates among all drug users were low, with approximately 20 %. Poor employment rates were found in all country samples, and no significant between-group differences occurred ($p > .7$).
Table 2: Sociodemographic characteristics, specified by countries

<table>
<thead>
<tr>
<th></th>
<th>Catalonia (n = 97)</th>
<th>Germany (n = 66)</th>
<th>Greece (n = 104)</th>
<th>Lithuania (n = 89)</th>
<th>Netherlands (n = 21)</th>
<th>Total (n = 377)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.1 ± 3.09</td>
<td>26.9 ± 3.78</td>
<td>24.9 ± 3.84</td>
<td>25.5 ± 2.89</td>
<td>25.8 ± 3.70</td>
<td>26.0 ± 3.54</td>
</tr>
<tr>
<td>Female</td>
<td>37 (38.1%)</td>
<td>29 (43.9%)</td>
<td>15 (14.4%)</td>
<td>36 (40.4%)</td>
<td>2 (9.5%)</td>
<td>119 (31.6%)</td>
</tr>
<tr>
<td>Living condition ¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stable</td>
<td>80 (83.3%)</td>
<td>45 (68.2%)</td>
<td>101 (99.0%)</td>
<td>72 (80.9%)</td>
<td>8 (38.1%)</td>
<td>306 (81.8%)</td>
</tr>
<tr>
<td>Instable</td>
<td>16 (16.7%)</td>
<td>21 (31.8%)</td>
<td>1 (1.0%)</td>
<td>17 (19.1%)</td>
<td>13 (61.9%)</td>
<td>68 (18.2%)</td>
</tr>
<tr>
<td>Being employed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 364)</td>
<td>20 (23.3%)</td>
<td>15 (23.1%)</td>
<td>20 (19.4%)</td>
<td>14 (15.7%)</td>
<td>5 (23.8%)</td>
<td>74 (20.3%)</td>
</tr>
<tr>
<td>Highest formal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>education (n = 372)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>20 (21.5%)</td>
<td>13 (19.7%)</td>
<td>1 (1.0%)</td>
<td>3 (3.4%)</td>
<td>3 (14.3%)</td>
<td>40 (10.8%)</td>
</tr>
<tr>
<td>Secondary education</td>
<td>33 (35.5%)</td>
<td>29 (43.9%)</td>
<td>11 (10.7%)</td>
<td>24 (27.0%)</td>
<td>4 (19.0%)</td>
<td>101 (27.2%)</td>
</tr>
<tr>
<td>O-Level</td>
<td>12 (12.9%)</td>
<td>17 (25.8%)</td>
<td>40 (38.8%)</td>
<td>23 (25.8%)</td>
<td>8 (38.1%)</td>
<td>100 (26.9%)</td>
</tr>
<tr>
<td>A-Level</td>
<td>15 (16.1%)</td>
<td>4 (6.1%)</td>
<td>34 (33.0%)</td>
<td>25 (28.1%)</td>
<td>2 (9.5%)</td>
<td>80 (21.5%)</td>
</tr>
<tr>
<td>Professional</td>
<td>13 (14.0%)</td>
<td>3 (4.5%)</td>
<td>17 (16.5%)</td>
<td>14 (15.7%)</td>
<td>4 (19.0%)</td>
<td>51 (13.7%)</td>
</tr>
<tr>
<td>education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For categorical data numbers and percentages are indicated; for continuous data mean and standard deviation (SD) is specified.

¹ Stable housing comprises to live in own rooms/flats, to live with the partner, parents or other relatives, or to live in institutions (residential rehabilitation, prison, etc.). Unstable housing is defined as either being homeless/roofless or living in night shelters or hostels.

² Employment also comprises education and training.

Across all countries, the majority of the respondents had either finished secondary education or O-level (54.1 % in sum). However, proportions of formal education degrees differ significantly ($\chi^2 (16) = 85.587, p < .001$). In the Lithuanian and Greek sample, almost all participants had a degree of formal education, whereas in Catalonia, Germany and the Netherlands a substantial proportion of interviewees had no formal degree of education. The lack of any formal education ranges between 14.3 % (The Netherlands) and 21.5 % (Catalonia). Rates of A-level certificates were highest in Lithuania and Greece, and lowest in Germany and the Netherlands. Only six individuals reported having a university degree.
(three in Catalonia, three in Greece). Due to these small numbers, they were subsumed in the A-Level category.

Table 3: Testing rates and prevalence of infection

<table>
<thead>
<tr>
<th></th>
<th>Catalonia (n = 97)</th>
<th>Germany (n = 66)</th>
<th>Greece (n = 104)</th>
<th>Lithuania (n = 89)</th>
<th>Netherlands (n = 21)</th>
<th>Total (n = 377)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In last 12 months tested for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV (n = 372)</td>
<td>66 (68.8%)</td>
<td>52 (78.8%)</td>
<td>58 (58.0%)</td>
<td>64 (71.9%)</td>
<td>9 (42.9%)</td>
<td>249 (66.9%)</td>
</tr>
<tr>
<td>HBV (n = 371)</td>
<td>55 (57.9%)</td>
<td>51 (79.7%)</td>
<td>61 (59.8%)</td>
<td>25 (28.1%)</td>
<td>8 (38.1%)</td>
<td>200 (53.9%)</td>
</tr>
<tr>
<td>HCV (n = 374)</td>
<td>64 (67.4%)</td>
<td>52 (80.0%)</td>
<td>61 (58.7%)</td>
<td>37 (41.6%)</td>
<td>8 (38.1%)</td>
<td>222 (59.4%)</td>
</tr>
<tr>
<td>Infected with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV (n = 373)</td>
<td>3 (3.2%)</td>
<td>1 (1.5%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 (1.1%)</td>
</tr>
<tr>
<td>HBV (n = 373)</td>
<td>4 (4.2%)</td>
<td>2 (3.0%)</td>
<td>1 (1.0%)</td>
<td>6 (6.7%)</td>
<td>-</td>
<td>13 (3.5%)</td>
</tr>
<tr>
<td>HCV</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In most countries, at least half of the participants reported being tested for HIV, HBV or HCV in the past 12 months. On average about 67 % of the interviewees had been tested in this period. However, self-reported testing rates differ significantly between the countries: this is the case for testing rates of HIV ($\chi^2 (4) = 14.436, p = .006$) for HBV ($\chi^2 (4) = 45.142, p < .001$), and as well for HCV ($\chi^2 (4) = 29.634, p < .001$). The Dutch respondents reported overall lower testing rates. Among the interviewees from Lithuania, there is a marked difference between a rather high rate of reported HIV testing, but low rates for HCV and HBV testing. Regarding HCV, reported testing rates were highest in Catalonia and Germany with more than two thirds of the participants. Lowest HCV testing rates with around 40 % were found in respondents from the Netherlands and Lithuania. Between injectors and non-injectors, no significant differences in testing rates emerged.

Regarding self-reported infection rates, there were only few numbers of individuals who stated being positive for HIV or HBV. Infections were assessed by using a 3-stage response format (yes/ no /not sure). Due to the small numbers of “not sure”- answers (under 9 % for testing rates), the categories “no” and “not sure” were combined. In table 3, infection rates are presented for those drug users who answered clearly with “yes”. With respect to HBV, it has to be noticed that a considerably high number of drug users stated not to be sure of they are infected with hepatitis B (23.3 % of the total sample).
3.2.1 Substance use patterns

The majority of respondents specified having used heroin (figure 1). Nearly all of them had a lifetime history of heroin use, and 69% of the sample reported heroin use during the past 30 days. Heroin use was mostly used in Catalonia, followed by Greece. Apart from alcohol, Cocaine powder and amphetamines were the second most used substances in lifetime. In the past 30 days the use of cocaine powder was highest in Catalonia and Germany with around 40%. The use of crack during past 30 days was reported by nearly the half of the German respondents, but practically not in Lithuania and Greece (< 5%). Amphetamines were predominate used by the Dutch and the Lithuanian interviewees. Respondents were also asked for fentanyl use. However, all 19 participants who reported lifetime use of fentanyl had also a history of heroin use. Equally, all respondent who used fentanyl in the past 30 days (two in Germany, one in Spain) were also heroin users. As none of the participants reported the use of fentanyl without the use of heroin, this substance was subsumed under heroin.

Figure 1: Substances ever used and used in past 30 days (n = 377)

Overall, there were 45 out of 377 respondents (12%), who reported no use of any of the specified substances during the past 30 days. These participants were currently in substitution treatment and/or in prison. Further, there were 56 persons who did not specify
a route of administration. Thus, it remains unclear if they were injecting, sniffing or smoking.

3.2.2 Drug use of the risk group

As described above, a number of participants either reported no substance use during past 30 days or did not indicate a route of administration for the substances used. To identify risk behaviour and prevention strategies which are relevant regarding HCV, the following analyses are based on the defined risk group (see chapter 2). In the risk group, only individuals are included who have either used heroin, cocaine, crack or amphetamines in past 30 days, and who specified if these have been injected, smoked or sniffed.

According to this definition, the sample of the risk group consists of 294 drug users. From the respective country samples, the following number of respondents is included in the risk group:

- Catalonia: 86 out of 97
- Germany: 54 out of 66
- Greece: 79 out of 104
- Lithuania: 62 out of 89
- The Netherlands: 13 out of 21

In total, 83 respondents were excluded from the risk group. However, the excluded persons (n = 83) and the risk group (n = 294) are comparable in their sociodemographic characteristics, as no significant differences were found for age (p > .1), gender (p > .3), employment (p > .5), and education (p > .2). Also in self-reported testing and infection rates, no differences emerged. However, there a significant difference was found in the living conditions: in the risk group, the proportion of drug users with stable housing was lower than among the 83 persons excluded (79.1 % vs. 91.5 %; \( \chi^2 \) (4) = 6.568, p = .010).

For the risk group, the lifetime prevalence and the past 30 day prevalence of substance use is displayed in figure 2.
Figure 2: Substance use patterns for the risk group (n = 294)

Also in the risk group most respondents reported lifetime use of heroin, and, in contrast to the total sample (see figure 1) about 88% did use this substance as well in past 30 days. Further, one third of the risk group reported having used cocaine during the past 30 days. Out of the 294 individuals of the risk group, 162 persons injected during the past 30 days (55.1%) and 132 respondents reported only to have smoked and/or sniffed (44.9%). Among the 162 injectors, approximately half of them also smoked and or sniffed during the past 30 days (n = 75, 46%), whereas 87 respondents only injected (54%).

3.2 Injection drug use of the risk group

3.2.1 Injection risk behaviour

With regard to risk behaviour, injectors were asked for the sharing of needles, syringes and other injecting equipment. Results show that only a minority of the injectors in the risk group reported the sharing of needles and syringes (14.5% and 12.9% respectively). On the other hand, about 30% of the respondents admitted to share filters, spoon and water and/or to inject a solution prepared in another person’s equipment (figure 3).
Subsequently, we analysed if the occurrence of risk behaviour depended on the frequency of injections. No significant difference was found for the sharing of syringes and needles, neither for using paraphernalia (filter, spoon or water) that were already used by others. There was also no significant difference regarding the injection of a solution that was prepared in another person’s spoon or mixing container ($p = .059$). However, the $p$-value of the latter indicates a statistical trend. A regard on the frequency distributions revealed that this risk behaviour was less often reported by those who inject rarely (1-7 days per month) compared to those injecting occasionally (8-24 days) and intensively (more than 24 days per month) injectors (14.3 % vs. 31.7 % and 36.3 %).

As main reason for either the re-use or sharing of injection equipment, respondents stated that it was not possible to get new syringes and needles (55 out of 87 persons, multiple answers were allowed). Second most often, this behaviour was reasoned with the explanation that the next opportunity to exchange syringes was too far away (18 out of 87). Having no money to buy new syringes and needles was only admitted by 10 persons (8 of them from Lithuania). Also being in prison seemed to play a minor role, as this reason was mentioned by no more than six respondents (5 of them from Lithuania).

### 3.2.2 Injection drug use and housing

As already mentioned, the risk group differs in their living conditions from the whole sample of interviewees. For this reason, associations between living conditions and injection drug use were analysed separately for the risk group and for the total sample.
Results for the risk group (see figure 4) show that among persons in unstable housing, the prevalence of injectors was higher than among individuals in stable living situations (67.2% vs. 52.4%). This difference was shown to be statistically significant ($\chi^2 (1) = 4.298$, $p = .038$).

Figure 4: Stable and unstable housing for injectors and non-injectors (n = 292)

As the risk group cannot be considered as representative in their living conditions due to the higher proportion of drug users in unstable housing, this analysis was repeated for the whole sample of interviewees (n = 377). Here, a similar result emerged, which was even more pronounced (64.7% vs. 42.2%, $\chi^2 (1) = 11.379$, $p = .001$). As known from literature, homelessness appears to be an important risk factor for injection drug use and HCV infection. A South Wales cohort study reported an approximately four times higher incidence of HCV among homeless IDUs compared to those with stable housing (Craine et al., 2009). According to the authors, homelessness might increase injecting risk behaviour in terms of a greater injection frequency, less stable social networks of IDUs, and higher frequencies in sharing of injecting equipment.

### 3.2.3 Injection drug use in prison

Out of the 294 drug users of the risk group, 128 individuals (44.5 %) stated that they have ever been in prison (figure 5). Among those with prison experiences, the majority of 62.5 % (n = 80) reported to have used drugs in prison. Drug use in prison varies between...
50.0 % (Lithuania) and 81.6 % (Catalonia). Of the 80 individuals with drug use in prison, 22 individuals injected (27.5 %), 52 only smoked (65.0 %), and 6 persons did not specify a route of administration (7.5 %).

Figure 5: Drug use in prison

Of the 22 individuals who reported injection drug use in prison, 13 persons stated that they have shared injecting equipment with other prisoners (59.1 %). Among the 52 respondents who reported smoking, the majority has shared smoking equipment with other prisoners (61.5 %, n = 32).

2.2.4 HCV-free years

Among the 162 individuals of the risk group who reported injecting in the past 30 days, 158 persons specified the age when they started to inject regularly. On average, regular injecting began at the age of 20.6 (SD 4.28), ranging from the age of 14 to an age of 33. Based on the years between the age at regular injecting and the current age, we computed HCV-free years for each of the 158 persons. Mean HCV-free years are 5.3 (SD 4.00). HCV-free years were found to be lowest in the Greek sample with a mean of 3.4 years (SD 3.02) and highest in the German and Lithuanian sample with a mean of 6.6 years (SD 4.85) for Germany and a mean of 6.4 years (SD 3.76) for Lithuania.
Compared with findings from other studies, these average numbers of HCV-free years appear to be relatively high. Results from other studies indicate that most drug users get infected in the beginning of their injecting career, which is estimated to be approximately within the first two years (Hagan, et al., 2007; Maher, et al., 2007). In consideration of those findings, the question arises to what the high average HCV-free years found in this research might be related. One reason could be that the interviewees did not inject continuously but stopped injecting when, for instance, entering substitution treatment. Secondly, the HCV status was self-reported, which could imply that some of the interviewees might be infected with HCV but are not aware of their infection. In this case, the number of HCV-free years would represent an overestimation.

For this reason a reassessment was undertaken by repeating the calculation of HCV-free years only for those 95 individuals of the risk group, who reported having been tested for HCV in the last 12 months. This recalculation revealed that there was no substantial difference in the number of HCV-free years between those who reported being tested in the last 12 months and those who were not tested in this period: In both subgroups, the mean number of HCV-free years is 5.3 (SD 3.89 for the 95 individuals). This recalculation was also repeated for each country sample: again no differences were found.

Standard deviations of HCV-free years are rather high, indicating a high variability and wide range. For this reason the frequency distribution is shown (figure 6). Obviously there is a substantial proportion of respondents, who just started to inject since two and three years. The majority of the risk group respondents show four or less HCV-free years (53%).
The frequency distribution of the HCV-free years illustrates, that there could probably be two groups of drug users: One group of drug users who started to inject rather recently within the last two years and who is at high risk for an infection with hepatitis C. The second group consists of drug users who inject since a long time, and who have successfully developed strategies not to get infected with HCV.

3.3 Smoking and Sniffing

207 respondents of the risk group reported to have smoked and/or sniffed drugs during the past 30 days (70.4 %). Smoking was reported by 145 persons (49.3 %) and sniffing was reported by 140 individuals (47.6 %). The majority of smokers and/or sniffers (n = 132) did not inject. However, 75 of the smokers and sniffers stated to have also injected in the past 30 days.
The risk behaviour of the smokers and sniffers is presented in figure 7. Risk behaviour is defined as sharing of smoking and sniffing equipment, which happened at least once. Due to some missing values, sample sizes are reduced.

Figure 7: Risk behaviour related to smoking and sniffing

Almost half of the smokers have shared their crackpipe or smoking foil with other drug users, and 38% of the sniffers have shared their sniffing equipment with other drug users. Compared to the prevalence of risk behaviours related to injecting, the prevalence of risk behaviours related to smoking and sniffing is considerably high. Even though in literature the risk to obtain HCV by sharing smoking and sniffing equipment is not yet determined, these results indicate that drug users are probably more aware of the risks for blood-borne diseases resulting from injecting than of risks associated with smoking or sniffing.

3.4 Utilisation of harm reduction services

For the risk group it has been analysed which harm reduction services they utilised in the past 30 days (table 4). In total, 79.9% (n = 235) of the respondents reported to have used at least one service. In general, the results show that service utilisation was higher among current injectors than among non-injectors. However, the type of services used differed between injectors and non-injectors. Thus, syringe exchange was almost exclusively used
Approximately three quarters of current injectors reported to have used syringe exchange in past 30 days, ranging from 3.4% (one out of 29 individuals) in Greece to over 80% in Lithuania and Germany, and 95.5% in Catalonia. In the Dutch sample, there were only three current injectors, and two of them reported having used syringe exchange in past 30 days. No difference was found between current injectors and non-injectors as regards testing for HIV and hepatitis, and counselling on testing and testing results.

Table 4: Utilisation of harm reduction services in past 30 days

<table>
<thead>
<tr>
<th>Harm reduction services utilised</th>
<th>By total risk group (n = 294)</th>
<th>By injectors (n = 162)</th>
<th>By non-injectors (n = 132)</th>
<th>Statistics *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any service used</td>
<td>79.9%</td>
<td>90.7%</td>
<td>66.7%</td>
<td>χ² (1) = 26.279, p &lt; .001</td>
</tr>
<tr>
<td>Syringe exchange</td>
<td>41.2%</td>
<td>74.1%</td>
<td>0.8%</td>
<td>χ² (1) = 161.439, p &lt; .001</td>
</tr>
<tr>
<td>Received smoking foil</td>
<td>20.4%</td>
<td>9.9%</td>
<td>33.3%</td>
<td>χ² (1) = 24.638, p &lt; .001</td>
</tr>
<tr>
<td>Education for hygiene</td>
<td>20.4%</td>
<td>27.2%</td>
<td>12.1%</td>
<td>χ² (1) = 10.128, p = .001</td>
</tr>
<tr>
<td>Advice on safer use</td>
<td>18.7%</td>
<td>24.7%</td>
<td>11.4%</td>
<td>χ² (1) = 8.495, p = .004</td>
</tr>
<tr>
<td>Testing for HIV and hepatitis</td>
<td>41.2%</td>
<td>45.1%</td>
<td>36.4%</td>
<td>n.s.</td>
</tr>
<tr>
<td>Counselling on testing and testing results</td>
<td>32.7%</td>
<td>37.0%</td>
<td>27.3%</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Substitution treatment

- Currently in substitution treatment | 37.6% | 36.9% | 38.5% | n.s. |
- Months in substitution treatment (SD) | 11.15 (SD 14.07) | 9.0 (SD 11.15) | 14.43 (SD 17.38) | n.s. |

* Group differences between injectors and non-injectors

In the overall risk group, the proportion of respondents in substitution treatment is 37.6%, without significant differences between injectors and non-injectors. Both, injectors and non-injectors were in opiate substitution treatment (OST) for a mean time of approximately one year; the treatment duration varied between one month to three years. Even though the duration of OST among injectors and non-injectors is comparable, slightly more non-injectors attended OST longer than 12 months (38% vs. 20%). The proportion of current drug users in substitution treatment differed considerably when distinguishing between the countries. Of the respondents from Greece, 6 out of 75 individuals attended OST (8%), whereas 42 out of 54 respondents from Germany were in OST (78%).
The drug users were asked if they perceived the utilisation of these services as helpful in remaining HCV-negative. Among the 235 service users, 207 individuals responded to this question.

The use of services was perceived as helpful:

- Yes: 65.2 % (n = 135)
- Partly: 10.6 % (n = 22)
- Don’t know: 10.6 % (n = 22)
- No: 13.5 % (n = 28)

Slightly more current injectors - compared to the non-injectors - rated the utilisation of services clearly as helpful in remaining HCV-negative (70.4 % vs. 57.3 %). This difference fell just short of statistical significance (p = .053).

3.5 Self-reported prevention strategies

In order to obtain knowledge about further strategies that the respondents of the risk group might practice to avoid HCV infection, they were asked from a given list of strategies, which of them they apply in their regular drug use behaviour (figure 8).

Nearly all respondents indicated the avoidance of blood contact and taking care for hygiene as their main prevention strategies for not becoming infected with hepatitis C (88 %). This was equally the case for injectors and non-injectors. To only use the own equipment for drug use was specified more often by injectors (80 % vs. 49 %). As expected, an important prevention strategy of non-injectors is to avoid injecting at all (81 %). Injectors specified the exclusive use of new needles and syringes as an important strategy (54 %).

It is to be considered that prevention strategies were assessed more generally and did not solely refer to the past 30 days. This might be the reason why 6.8 % of the current injectors indicated not to inject drugs and why 12.9 % of the current non-injectors stated only to use new needles and syringes. Overall, only few respondents affirmed to share equipment only with his or her partner.
In addition to the pre-defined question for prevention strategies, the drug users were asked in an open question to specify one main reason why – in their own opinion - they were able to avoid an infection with HCV. 226 individuals of the risk group (76.9 %) stated reasons, and their answers can be allocated to the following categories:

- Not sharing drug use equipment: 51.8 %
- Taking care for hygiene: 20.4 %
- No injecting: 16.8 %
- Avoiding blood contact: 5.3 %
- Only luck: 5.8 %

A closer look at the responses reveals that the perceptions about non-sharing, taking care for hygiene, or avoiding blood contact appear to be very different. For instance, “not sharing drug use equipment” comprises a variety of behaviours such as:

- Not sharing any equipment at all
- Not sharing needles
- Try to avoid sharing of injecting and smoking equipment
- Not sharing with those users known to be infected
- Only sharing with well known persons such as brother, partner
- Being the first one preparing the drug if sharing with others

Similarly, the strategy to avoid blood contact includes answers such as:

- Safer sex
- Using drugs only alone, avoid contact with injectors
- No tattoos in prison, not sharing razors
- Trying not to touch other person’s blood

And finally, taking care for hygiene has the following dimensions:

- Taking care for own body, using disinfectants
- Trying to use drugs in a clean place
- Keeping distance to people known to be infected
- Keeping distance to people assumed to be infected / “dirty” people
- Smoking instead of injecting if no clean needles and syringes are available

Regarding the answers to the open question, it becomes obvious that prevention strategies differ largely in the level of consequence, when applying rules of safer use. This is in particularly illustrated in the various behaviours covered by the self-reported rule not to share drug use equipment. However, from the open answers, many strategies can be identified which are related to social networks, such as keeping distance to people assumed to be infected. Well known persons, such as relatives or partners, are regarded as exceptions, as sharing of drug use equipment might be practised with them.

4 Conclusions

This study has a number of limitations that need to be considered for an appropriate interpretation of the results. The most important restriction in the study results is that our main inclusion criterion, HCV serostatus, is based on self-reported statements of the interviewed drug users. If the included drug users are not infected with hepatitis C or if they have at least an unknown HCV status, relies completely on the responses of the interviewees and was not verified by any HCV testing. Consequently, from a strict point of view, it might be that there are also drug users in the study sample who are HCV-positive. However, 59% of the sample (with a huge variance across the countries) have been
tested for HCV within the last 12 months – a period recommended for testing (EMCDDA, 2010).

In general, the drug users included in this research are heterogenous. Some of them are negative for HCV, and some do not know their status. Further, the number of HCV-free years varies considerably among the injectors of the sample, ranging from less than one year to 15 years. Given this variety it can be assumed that our sample consists of two rather different groups. One group consists of recent IDUs who are still at high risk to become infected with hepatitis C. The other group is composed of long-term injectors, who might successfully have developed strategies to avoid an infection with hepatitis C. One of these strategies is to attend substitution treatment, even if treatment might be interrupted periodically.

The major contribution of this study is to achieve knowledge on the drug users’ perceptions of risks, the realisation of protective behaviour, safer use and prevention strategies that they practice in daily life. Our findings reveal that risk behaviour occurs even among young drug users who reported being HCV-negative or who did not know their status. Risk behaviour therefore needs to be regarded as part of everyday drug using lifestyle. However, high risk behaviour such as sharing of needles and syringes was found to be quite rare. On the other hand, qualitative ethnographic studies have shown that drug injectors’ interpretations of ‘syringe sharing’ may differ from those presumed in epidemiologic research, and that syringe sharing may be under-reported (Rhodes & Treloar, 2008). This is consistent with our findings, showing a rather inconsequent handling of equipment sharing.

Self-reported strategies to avoid an infection with HCV differ for injectors and non-injectors. Injectors predominately report the utilisation of harm reduction services, in particular NSP and education in safer use. In addition they confirmed to avoid sharing drug use equipment, and to try taking more time and rest for drug use. Smokers and/or sniffers without injection drug use predominately stated to avoid injecting, to care for hygiene and to keep distance to injectors. Injectors and non-injectors reported comparable rates of testing.

Cross-sectional surveys of IDUs indicated an infection with HCV also in those who reported “never having shared” (Home Office, 2009). Due to its robustness and persistence outside of the human body, it is assumed that the HC-virus might be transmitted in other ways, e.g. via crackpipes or the sharing of injection paraphernalia, in which drug users are unaware that they are sharing equipment and get into contact with blood. This
unawareness of risks might be an explanation for the higher prevalence found in the present study for sharing of smoking/ snifffing equipment and injection paraphernalia, which interviewees might not perceive as risk behaviour. One main finding is that risk behaviour also occurs in persons that report to “take care”. The analysis of the open question reveals that drug users only partially and inconsistently apply their self-reported prevention strategies such as “no sharing” or “avoiding blood contact”.

As regards the perception of risks, it became apparent that drug users rely on wrong beliefs about social networks; for example they assume that they can recognize those who are infected, and keep distance to them. In terms of prevention these beliefs indicate the need to address the drug users’ attitudes associated with a “false security”. Furthermore social networks shape up as an important factor and a resource which should be used to target prevention efforts. The role of peers in teaching rules for safer use and hygiene standards, in particular in the beginning of the injection careers of drug users, could be used for prevention. This was also shown by the recent study of Harris et al. (2011). An appropriate focus in HCV prevention should not mainly be centred on “blood awareness”, but stress more generally “risk awareness”, which includes the awareness for protective factors, like stable living situation, withdrawal management, and hygiene.

Unstable living conditions are associated with the risk to contract HCV, which has already been demonstrated in a Welsh cohort study (Craine, et al., 2009). The results from our interviews with drug users confirm the risks related to homelessness. Homelessness and instable living conditions have an impact on social inclusion and social networks, and prevention efforts need to support establishing stable social networks, including stable housing.

Social networks should be recognized as an important factor in prevention efforts, in addition to personal risk behaviours (De, Cox, Boivin, Platt, & Jolly, 2007). Due to the results of the Staying Safe Study, also Harris et al. (2011) propose a revision of prevention messages, i.e. refraining from current disease-oriented prevention-messages to a stronger focus on social inclusion aspects, such as a focus on vein care, management of image or family, etc.

A more focussed orientation on social networks in prevention is recommended as the results illustrated that social networks may transport wrong messages regarding the estimation of risks to contract HCV. Drug users need to be educated in HCV to become aware of “real risks” and “false security”. Along with education, we consider it important
that regular testing for HCV becomes more widespread, to give drug users a more realistic basis to judge the risks to contract HCV.
References


