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Preventing hepatitis C: what do positive injectors do?

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Abstract

The majority of hepatitis C prevention research among injectors is concerned with preventing initial exposure to the virus. Given that the prevalence of hepatitis C among injectors is between 50 and 60 per cent, one aim should be to prevent further transmission of the virus from infected to non-infected injectors. The major aim of this study was to investigate the risk management strategies hepatitis C positive injectors might take to prevent further transmission of the virus. A total of 111 hepatitis C positive injectors were recruited and interviewed with a questionnaire designed to gather information regarding current and past injecting behaviours and risk reduction options outlined in response to a series of injecting vignettes. The responses indicated that the majority of respondents recognised the risks associated with the various injecting scenarios and could describe actions by which they could reduce those risks. However, the examination of reported options revealed that while some of these would indeed eliminate the risk of further transmission others would be less effective because they either relied on unproven methods of removing viral material from used needle and syringes or the user assumed that other injectors had knowledge equivalent to that of the respondent. [Carruthers SJ. Preventing hepatitis C: what do positive injectors do? *Drug Alcohol Rev* 2005;24:000 – 000]

Key words: harm reduction options, hepatitis C, injecting drug use, prevention.

Background

Approximately half of all injectors in Australia are
(1) infected with hepatitis C [1]. Prevalence in this population is closely correlated with duration of injecting, such that the longer a person has been injecting the more likely they are to be infected. Because the majority of hepatitis C-infected individuals progress to chronic infection and are therefore capable of transmitting the virus, new injectors are likely to be injecting in the midst of a large pool of infection, resulting in a very high likelihood of contact between infected and susceptible people. Given the infectious nature of the virus it is little wonder that the epidemic of hepatitis C among injecting drug users continues almost unabated.

A number of injecting behaviours are associated with an increased risk of exposure to blood-borne viruses (BBV); the sharing of needle and syringes (N&Ss), being injected by another person or injecting another person [2] and the sharing of other injecting equipment [3,4]. The sharing of N&Ss remains the most risky behaviour in terms of the transmission of hepatitis C and while the prevalence of this practice has declined significantly over the past two decades, around 19% of injecting drug users (IDU) still report sharing on a regular basis [1]. The sharing of other injecting equipment, such as spoons, filters or water, is very common [5,6] although the risk associated with this practice is low when sterile N&Ss are used to mix and administer the drugs. Being injected by another person or assisting someone else to inject is also common practice, with approximately one in five injectors reporting the practice [7]. Often the person giving the injection has injected themselves immediately before and may have contaminated their fingers with their own blood, which could be spread to the injectee's site when feeling for a vein or when touching the site after withdrawing the needle. Investigations examining the context in which injecting takes place demonstrates that this practice results in close physical contact between injectors which, in turn, increases the risk of exposure to foreign blood and therefore blood-borne viruses [6].

The majority of prevention research aims to improve our understanding of how to prevent initial exposure to blood-borne viruses through injecting drug use practices. Given that at least half of all injectors have already been exposed to hepatitis C, there is a paucity of

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research which investigates what, if anything, those who are already infected, do to prevent transmitting the virus to those with whom they inject. Therefore, the major aim of this study was to investigate what hepatitis C antibody positive injectors might do to reduce the risk of transmitting the virus to those with whom they inject.

Method

The study was cross-sectional and used a combination of qualitative and quantitative research methods. Hepatitis C antibody positive respondents (self-reported) completed an interviewer-administrated structured questionnaire designed to collect demographic, drug use and hepatitis C testing and medical management information. In order to investigate what respondents might do to reduce the risk of transmitting hepatitis C to injecting partners and friends, they were presented with a series of injecting vignettes. While the use of vignettes in social sciences dates back to the 1950s, their recent increase in popularity stems from a growing recognition of the limitations of questionnaires in studies of attitudes, beliefs and norms [8]. The use of the vignette technique can improve the quality of the data by reducing the influence of socially desirable responses. Neff [9] attributes this advantage to the situated context of the vignette, which allows respondents to respond within the context of the scenario presented while distancing themselves from a potentially difficult topic—in this case that of sharing needle and syringes. There are practical problems in using the vignette technique. For example, if the differences between the actual experiences of the respondents, and the characters within the vignette they are asked to consider are too great, problems can occur. This can be overcome by ensuring that the vignettes presented are similar to what the respondent might be experiencing in real life. The second problem arises from the difference between real life and the vignette scenario. Vignettes cannot capture completely the reality of a person's life, which raises important considerations in the analysis of data and generalizability of the findings. However, used in conjunction with other research techniques they can be a valuable research tool in the study of people's lives. McKeganey and colleagues [10] found the method useful in a study in which respondents were presented with a series of vignettes in order to determine under what circumstances injectors would borrow or loan their needle and syringes. The vignettes used in the current study were devised using examples of injecting events recorded during observational studies conducted by the author [6] (see Table 1).

To be eligible to take part in the study respondents had to be regular injectors, defined as injecting a minimum of once a month in the previous 6 months, and have been diagnosed as hepatitis C antibody positive. Respondents were recruited through advertisements displayed at the West Australian Substance Users Association (WASUA) and in a popular, free weekly music publication. Initial contact was made by telephone, at which time the caller was screened for eligibility. If found to be eligible, an interview time was arranged. Interviews took place at the WASUA between October 2000 and February 2001 and took between 1 and 1.5 hours to complete. Respondents were remunerated $AUS30. The study was approved by the Curtin University Human Research Ethics Committee.

Table 1. *Injecting vignettes*

The following are hypothetical questions only. There are no right or wrong responses. To set the scene, imagine the following:
You are with another injector, someone you regularly inject with and this person is either hepatitis C negative or has never been tested for hepatitis C. You are hepatitis C positive. You have scored and decided to use and just to make it more difficult it is 2 a.m., you have no transport and live more than 5 kilometres from the all-night chemist.
1. You have only one sterile needle* and no used needles anywhere. What do you do?
2. You have NO sterile needles but you do have one that you used yesterday. What do you do?
3. You have had your hit and your partner/friend is having trouble finding a vein. He/she asks you to hit them up. What do you do?

*It was assumed that the needle belonged to the respondent who therefore had control over its use.

Results

Demographics and drug use

The study group consisted of 111 injecting drugs users, 77% of whom were male and 90% over the age of 26 years (median 36 years; mode 43 years). Sixty-five per cent reported 10 years or less schooling, 54% had completed a TAFE qualification and 10% a university degree. Eighty per cent were unemployed at the time of interview and derived their income from social security, parenting or disability payments. While 66% reported living in stable rented accommodation, a substantial number were in temporary accommodation (boarding house or refuge) or had no fixed abode. Twenty-seven per cent lived alone, 39% in shared accommodation, 22% with a partner and/or children and 10% with one or both parents. When major demographic variables were investigated for differences by gender only one was found; females were significantly more likely than males to have a university qualification (χ^2? 9.68; $p < 0.008$).

In the month prior to interview the most frequently injected drugs were heroin (56%), other opioids (methadone, homebake and morphine) (55.8) and amphetamine (68%). The majority of respondents were polydrug users, 33% injecting two drug types and 39% injecting three or more. At the time of interview 34% were injecting on a daily basis, 35% two to three times a week and 30% once a week or less. Nineteen per cent reported sharing N&Ss in the month prior to interview, the vast majority (86%) with only one other person. Of those who shared, 71% always, 5% sometimes and 24% never cleaned the N&S before re-using it.

Forty-seven per cent were in drug treatment at the time of interview; 58% in methadone maintenance, 17% through their general practitioner and 14% in drug counselling. Despite active involvement in drug treatment this group continued to inject on a regular basis. Only 8% of the study group had never been involved in drug treatment.

Hepatitis C history

As required for entry into the study, all respondents reported being diagnosed as hepatitis C antibody positive. Twenty-two per cent of the study group were diagnosed as antibody positive on the first occasion they were tested, hence the duration of their infection could not be calculated. For those who had been tested more than once and returned a negative test result on all occasions except the last, the time since diagnosis was calculated by subtracting the year of the last test (at which they were diagnosed as hepatitis C antibody positive) from the year of interview. For this group, time since diagnosis ranged from less than 1 year to more than 10 years, with an average of 3.7 years.

Respondents were asked whether they were advised to make any changes to their drug use or injecting behaviours around the time of diagnosis. Twenty-four per cent were advised to stop or reduce their drug use and the same proportion were advised to stop sharing needles and other injecting equipment. Less than 5% of these respondents actually reduced their drug use following this advice. In contrast, all those who were advised to stop sharing reported that they had done so, and a further 12% chose to stop sharing of their own volition. However, 58% had not made any changes to their injecting practices, 26% because they believed their practices were safe prior to diagnosis and 74% because they felt change was unnecessary now they were hepatitis C positive.

Injecting vignettes

Respondents were presented with three injecting vignettes, V1, V2 and V3, the details of which can be seen in Table 1. Each vignette involved two injectors, the respondent (R1) and their injecting partner (R2). R1 was known to be hepatitis C antibody positive, while R2 was either antibody negative or had not been tested. Although it was not specified who 'owned' the sterile or used N&Ss in V1 and V2 it was assumed they belonged to the respondent, who therefore had control over its use.

Vignette 1

Vignette 1 (V1) described a scene where an injectable drug had been obtained but only one sterile needle was available. Respondents were asked how they would respond to the situation described. Five respondents could not describe how they would respond and the responses of the remaining 106 respondents are summarized in order of frequency in Table 2.

As shown in Table 2, 65% of the study group described how they would let the second person, assumed to be negative or untested, use the needle first, cleaning the needle prior to using it themselves.

The responses detailed above were examined for their ability to eliminate or reduce the risks inherent in V1. In summary, responses 1,3, 4, 5 and 7 would eliminate the risk of transmitting hepatitis C to R2. However, response 1 could put R1 at risk if R2 had an undiagnosed blood-borne virus. The remaining responses (2, 6 and 8) could reduce the risk to R2 but would not necessarily eliminate it. Responses 2 and 8 implied the decision to use (or not use) the N&S was R2's responsibility. In making such a decision, R2 could be influenced by a need to use to relieve withdrawal and thus be prepared to take risks, or might have insufficient knowledge to make an informed choice. Response 6 relied on cleaning the N&S prior to use by R2 and could not be considered to eliminate transmission risk although it could well reduce the risk.

Vignette 2

Vignette 2 (V2) differed from V1 in that the one needle available at the time was the one that had been used previously by R1. Six respondents could not say what they would do in the described situation and four responses were incomplete. The remaining responses in order of frequency are summarized in Table 3.

The response to V2 were more varied than for V1. Almost a third of respondents indicated they would inform R2 of their status and leave them to decide whether or not to use it afterwards. A quarter would insist the second person use the drugs by other means, while the third largest group took responsibility for cleaning the used needle before allowing R2 to use it first.

Responses detailed in Table 3 were grouped according to their ability to affect the level of risk inherent in

Table 2. *Responses to vignette 1 (*n = *106)*

No.	Response	%	*n*
1	Let them* go first then I clean and use	65.1	69
2	I use the needle first, tell them I have hepatitis C then it is their decision	14.2	15
3	I use needle and they use by non-injecting means	5.7	6
4	We wait until clean needle available	8.3	9
5	They use needle, I use drugs other way	2.8	3
6	I use first, clean then let other person use	1.8	2
7	Both use the drugs by non-injecting means	0.9	1
8	Tell them I have hepatitis C then they choose what to do	0.9	1

*Them/they refers to R2; I refers to R1.

Table 3. *Responses to vignette 2*

No.	Response	%	*n*
1	I* use, tell about HCV then their* decision	30.4	31
2	I clean, I use—they snort or swallow	26.4	27
3	I clean, they use, I clean then I use	18.6	19
4	Both snort/swallow OR wait for clean N&S	12.7	13
5	I use it, clean it and they use it	6.7	7
6	They use, I clean and then I use	4.9	5
7	I smoke, their choice about the used needle	1.9	2

*Them/they/their refers to R2; I refers to R1.

the vignette. Responses 2 and 4 were considered to eliminate the risk and responses 3, 5 and 6 could reduce the risk depending on the level of N&S cleaning. The ability of responses 1 and 7 to eliminate or reduce the risk could not be evaluated because they relied on R2 making a decision which could be influenced by a lack of knowledge or an urgent need to use due to withdrawal.

The responses for V1 and V2 were organized into one of three categories: (1) those who would share, (2) those who would choose non-injecting options and (3) those who would leave the decision to the other person. The results were then tested for differences in relation to gender, age, education level and enrolment in drug treatment. In relation to the responses to V1, there were no significant differences between the three categories for gender, age or education. However, those enrolled in drug treatment were significantly more likely than those not enrolled to describe an option which involved sharing the N&S (χ^2 14.48; df 1; $p = 0.001$).

When V2 response categories were examined no significant differences for gender, age, or education level were detected. However, those in treatment at the time of interview were significantly more likely to report non-sharing options than those not in treatment (χ^2 23.35; df 1; $p < 0.0001$).

The responses to V1 were compared to those for V2. Respondents were significantly more likely to report the sharing option in response to V1, where there was one clean needle, than they were for V2, where one used needle was available (χ^2 88.54; df 1; $p = 0.001$).

Vignette 3

For the final vignette (V3), respondents were asked how they would respond if, after they had completed their own injection, R2 asked for assistance. Ninety per cent indicated that they would be prepared to assist. Of those who would not assist, five were not able to inject themselves so the question was moot, two felt the responsibility of injecting the other person would be too great, one described how he would not be able to inject R2 because his hands were too unsteady and the remaining three people felt that injecting was something one should do for one's self. Those who would assist another person were compared to those who indicated they would not. There were no significant differences between the two groups for age, gender, level of education or enrolment in current drug treatment.

Those who would assist R2 were separated into two categories; those who would take specific precautions to reduce the risk of transmitting the virus ($n = 42$) and those who would not ($n = 52$). When the latter group were pressed to explain why they would not take any precautions, the majority stated they did not believe they were necessary. The precautions described by the first group are summarized in Table 4 in order of frequency.

Washing hands, (before, after or before *and* after) was the most frequently described precaution, followed by swabbing R2's site prior to the injection and avoiding blood-to-blood contact. A small percentage specified they would only inject another person if they, as the injector, did not have any cuts on their hands.

Discussion

Approximately 58% of all IDU in Australia have antibodies to hepatitis C, indicating that they have been exposed to the virus [5]. Given the high prevalence of hepatitis C among injectors, it was

Table 4. *Precautions when injecting another person* (n = *42)*

Precautions described	%	*n*
Wash hands before and/or after	35.7	15
Swab R2's injection site first	33.3	14
Avoid blood to blood contact	23.8	10
Check no cuts on hands	7.1	3

deemed appropriate to investigate what positive injectors might do to reduce the risk of transmitting the virus to those with whom they inject. Hence, the aim of the current study was to report the responses of hepatitis C positive injectors to a number of injecting vignettes in which their injecting partner was hepatitis C negative (or did not know their status).

The study group was demographically similar to other groups of antibody positive IDU in Australia [5,11] . They tended to be older (> 26 years), to inject at least two or three times a week, be enrolled in treatment, injecting opioids by preference and have a history of at least 5 years of injecting. The similarity of this study group to others described in the literature allows the author to have some confidence that the findings of this investigation will be applicable to similar groups of injectors.

When presented with the first vignette (in which there was one sterile needle and syringe available) more than 80% of respondents were able to describe options which would eliminate the risk of transmitting hepatitis C; an encouraging finding. In contrast, only 39% of options given in response to vignette 2 (where there was one used needle and syringe available) were sufficient to eliminate the risk of transmission. The majority of other options recorded relied on the cleaning of needle and syringes to reduce the risk of transmission. While any type of cleaning is likely to reduce the risk associated with sharing, its efficacy in removing hepatitis C viral material is unclear.

While preparedness to share N&Ss in V1 and V2 was not associated with age, gender or level of education it was associated with current involvement in drug treatment. Those enrolled in methadone maintenance were significantly more likely to share in response to V1 and significantly less likely to share in V2 than those not enrolled. This finding was contradictory and not easily explained. It could be surmised that those on methadone maintenance were more experienced or longer-term injectors and therefore more likely to be exposed to peer education regarding the risks associated with injecting. Altrnatively, it may be because of their involvement in treatment that they were less likely to consider themselves in withdrawal and more able to make informed decisions about their possible injecting behaviours. Methadone maintenance is not necessarily abstinence-based and many IDU enrolled in this treatment regimen will continue to inject, albeit at a reduced level of frequency. While reducing the frequency of injecting may result in more stable lifestyles and improved general health, any level of injecting remains a risk for transmission of hepatitis C. It is therefore imperative that methadone clients are targeted with safe injecting education to prevent further transmission of hepatitis C.

Injecting another person (or being injected) is known to be associated with a higher prevalence of HIV (and by association, hepatitis C) in the United States [2]. Hence, it was disturbing that 55% of those who were prepared to inject another person, if requested, did not consider it necessary to take any precautions. Of the 45% who did describe precautions they might take when assisting another person to inject, the majority suggested washing their hands. Unfortunately, while it was encouraging that a substantial proportion suggested the strategy other studies have shown that hand-washing is not common practice [6]. The washing of hands has been recognized as an important risk reduction strategy by peer educators and is the subject of a national harm reduction programme in Australia. The use of swabs to cleanse the injection site prior to injection was also cited as a precaution one could take to reduce risk associated with injecting another person. Unfortunately, while this practice is likely to remove dirt from the injection site, it is unlikely to reduce the risk of transmitting the virus.

Study limitations

The findings from this study cannot be used to generalize about the hepatitis C risk behaviours of all IDU. The current study group was similar to others [7,11] in terms of education history, employment status and main source of incomebut was also considerably older than the same groups and contained a higher proportion of males. However, the current study group was similar in terms of age, last drug injected, duration of injecting and enrolment in treatment when compared to other study groups of hepatitis C positive injectors [5,11] .

It must also be stated that when describing vignettes there are some caveats which apply to any discussion of the findings—vignettes represent situations designed to elicit possible responses and it could be argued that actual behaviour may be significantly different. In addition, the vignettes used in this investigation were restricted to injecting with one other person and the nature of the relationship between the characters was not specified. Because there is research evidence suggesting that the closer the relationship between injectors the more likely sharing is seen to be acceptable [12], the generalizabilty of the findings of this study is

further restricted. Despite these limitations, the findings from this investigation will contribute to the body of knowledge relating to injecting drug users and the prevention of hepatitis C infection.

Conclusion

The majority of injectors occasionally find themselves in situations where they do not have access to clean injecting equipment and must decide whether or not to accept or pass on used needle and syringes. Furthermore, even though injectors may have modified their behaviour to reduce or eliminate sharing, a propensity to share remains. This study has demonstrated that hepatitis C positive IDU are able to describe injecting options which can eliminate or, at the very least, reduce the risk of transmitting the virus to an uninfected partner. The efficacy of some of the described options, in particular those relating to the cleaning of use N&Ss, was questionable, suggesting that there is a continuing need to educate IDU about the risks of sharing, the importance of ensuring that clean equipment is always available and the efficacy of cleaning of needle and syringes as a risk reduction strategy. Given that half of the current study group was in touch with treatment services, it would seem prudent to ensure that prevention education is an essential part of any drug treatment. There was also an apparent lack of recognition that specific precautions are needed when injecting another person. These findings suggest that the risks associated with the giving and receiving of injections need to be stressed and resources promoting the washing of hands prior to injecting another person should be developed and promoted.

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