Published in final edited form as:

Int J Drug Policy. 2007 October ; 18(5): 338–340.

How can hepatitis C be prevented in the long-term?

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The importance of finding more effective ways to prevent HCV is pressing. HCV infection is endemic among populations of IDUs globally (Aceijas and Rhodes, 2007), with significant implications for mortality and morbidity as well as costs to health services (WHO, 2002). Although significant advances have been made in preventing HIV infection among injectors (Institute of Medicine, 2006), but we still do not know how to successfully prevent Hepatitis C (HCV). As Hagan (in this issue) concludes after a meta-analysis of 127 studies reporting HCV prevalence: “we are far from having certain knowledge in the areas of devising effective programmes to prevent HCV and circumstances that reduce HCV transmission among IDUs.” Both prevalence and incidence of hepatitis C can remain high among IDUs even in the context of widespread and sizeable implementation of harm reduction programmes (Maher et. al. 2007; Judd et al., 2005).

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Thus, HCV prevention science is in its infancy. Syringe exchange and distribution is the primary HCV prevention strategy targeting IDUs, though evidence of risk reduction impact is stronger in relation to HIV (Hagan et al., 2005). Low-threshold opioid substitution treatment is also associated with reduced HIV incidence, but there is only modest evidence of impact in relation to HCV (Rezza et al. 1996; Crofts et al. 1997; Thiede 2000). A number of factors contribute to continued high HCV prevalence and incidence among IDUs including the efficiency of transmission by injection and potential for transmission via contaminated injecting paraphernalia other than needles and syringes, such as filters and spoons (Hagan et al. 2001; Thorpe et al. 2002; Hahn et al. 2002). The emphasis by some programs on needles and syringes as disease vectors to the exclusion of other equipment may also contribute to HCV spread. While there is a growing epidemiological evidence-base on the risk factors associated with HCV transmission (Hagan et al. 2001; Hahn et al. 2002; Lucidarme et al. 2006; Miller et al. 2004; Maher et al. 2006; Thorpe et al. 2002), we need to develop new ways to fill the knowledge gap regarding HCV prevention.

One way is to learn from the experts—those IDUs who, after long-term injection in social milieus of high hepatitis C prevalence, nonetheless remain uninfected. Studying the knowledge, circumstances, practices and strategies of IDUs who have avoided hepatitis C despite the large odds against remaining uninfected could provide valuable lessons on how to enhance sustained Hepatitis C avoidance. This implies research exploring how drug injectors live their lives, especially in the face of risk, moving us towards qualitative or ethnographic and life history approaches rather than a short-term focus on the risk factors associated with incident cases. We consider IDUs who have avoided hepatitis C throughout their injection careers to be “positive deviants” (Schroeder et al. 2004) because they remain uninfected unlike the great majority of their fellow users. (The possibility of false classification of subjects due to clearing prior infection or natural immunity is very unlikely [Aitken et al. 2004])

In New York City 64-75 % of IDUs are infected after six years of injection. In New South Wales, Australia, HCV prevalence between 2001 and 2005 was 67% among IDUs who had injected for between eight and fifteen years. In Valencia, Spain, between the same time period, HCV prevalence among IDUs who enrolled in treatment for the first time was 74 %. Similarly, in London, in 2005, HCV prevalence was 69% among IDUs who have injected for between eight and fifteen years, and 77% among those who have injected for over fifteen years.

We have developed an approach that focuses on understanding the behaviours, strategies, and environmental factors associated with “staying safe”. This represents a 180-degree turn in IDU research where most focus has been on risk. Instead, our current studies focus on *Staying Safe* and thus on resilience. We ask: What do IDUs do to remain uninfected? We know a lot about risky behaviours and how injectors become infected. Surprisingly, we know very little about what IDUs do to remain safe and how they overcome very large odds to remain uninfected over the long term. We want to discover processes whereby IDUs who have been injecting drugs for a fairly long period of time (8 – 15 years in NYC, Sydney and London; 8 - 20 years in Valencia) nonetheless remain uninfected by HCV. Such studies are ongoing in New York and Valencia and in preparation in Sydney and London.

While preparing the New York study we had an initial concern. We were not sure whether successful IDUs *actually do something (staying safe practices)* to remain uninfected or if it is rather a byproduct of plain luck, safe or uninfected injection networks or life circumstances that protect them. Our preliminary findings indicate that uninfected IDUs do indeed take actions to remain safe (although some infected IDUs do so too). Remaining uninfected over the long term seems to involve very proactive efforts on the part of IDUs, not chance or “structural pampering.” (e.g. being shielded from loss of steady income, homelessness, incarceration). At

the very least, we have already established the existence of Staying Safe practices—although determining whether they effectively prevent HCV infection will require additional research.

We have also begun to identify some environmental factors that make “staying safe” behaviours easier to sustain. These include social support, needle and syringe availability, steady income, drug sources and treatment. All of the New York uninfected injectors have fallen, at times, into devolution periods (in which drug-related or other causes result in major life disruptions such as homelessness or uncontrolled drug use). Although devolution makes it difficult to engage in “staying safe behaviours”, the uninfected users nonetheless seem to act proactively and to implement tactics and practices to protect themselves even during devolution periods. Drug users exercise agency to protect themselves despite major challenges.

Let us consider an example. Participant 007 in New York is uninfected despite having injected for nine years; numerous arrests for drug possession and carrying needles; having injected in shooting galleries; having an IDU/sex partner who is a sex worker; being homeless for eight years; and having very high drug intake during some of his injection years. Despite these difficult circumstances, 007 describes having a clear intention to remain uninfected. He told us about many practices he has enacted to do so, such as having only one injection partner with whom he cooperated to inject safely; and paying for a “private” room when using shooting galleries. He also maintains critical social support and “crashing” links that mean family and friends remain willing to provide him a place to shower and, at times, sleep. In our study we have come to know subject 007 as the Staying Safe James Bond.

In order to bring a useful international comparison and a better understanding of how staying safe practices may be a byproduct of specific risk environments, and to detect additional prevention strategies and tactics, researchers in New York, Valencia, Sydney and London are collaborating in parallel studies. These studies aim to provide the conceptual basis for developing a new generation of HCV prevention programs to assist both new and experienced IDUs to remain uninfected over the long run. We anticipate that the project will discover a number of strategies and practices for risk avoidance that have been poorly documented in the literature, and also learn more about how social environments contribute to changes in injectors' risk avoidance practices.

While current HCV prevention efforts have their limits, trials of innovative and peer based behavioural interventions, and the prospect of candidate HCV vaccines, offer hope for future HCV prevention. Learning from those who have avoided infection in the long term will be an important and necessary component in developing a new generation of behavioural and biomedical prevention.

Acknowledgements

Staying Safe in New York City has been supported by NIDA grant R01 DA19383.

Staying Safe in Valencia has been supported by Delegación del Gobierno para el Plan Nacional sobre Drogas. Ministerio de Sanidad y Consumo. Proyecto 3SI/05/15.

Carla Treloar is affiliated with National Centre in HIV Social Research University of New South Wales, Australia. This center is supported by a core grant from the Australian Commonwealth Department of Health and Ageing.

Lisa Maher is supported by a National Health and Medical Research Council (NHMRC) Population Health Career Development Award and based at the National Centre in HIV Epidemiology and Clinical Research which is core funded by the Australian Department of Health and Ageing.

Tim Rhodes is at the Centre for Research on Drugs and Health Behaviour (London School of Hygiene and Tropical Medicine, UK), which receives core funding from the Department of Health National Coordinating Centre for Research Capacity and Development.

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