

We Need a New National Approach to Control Hepatitis C: It is Becoming too Late

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Hepatitis C virus (HCV) has now been recognized as a major health problem worldwide and affecting over 170 million people worldwide ⁽¹⁾. Hepatitis B is a preventable infection by vaccination and the prevalence rate in our community has decreased, but hepatitis C is the emerging disease ^(2, 3). It is one of the major causes of chronic hepatitis, cirrhosis and hepatocellular carcinoma, after hepatitis B. Control of HCV infection is an important public health concern because the majority of infections do not resolve but lead to chronic infection ^(2, 4). Epidemiology and routes of transmission of hepatitis has changed since 18 years before. As the sensitivity of HCV screening tests had increased, new viral infection transmittable through blood products has been virtually eliminated in developed countries and had decreased in developing countries ⁽⁵⁾.

HCV can be easily transmitted through blood products and infected syringes, and infection rates are typically high among intravenous drug users (IDUs) ⁽⁶⁻⁹⁾. IDUs are at high risk of acquiring parenterally transmitted diseases especially HIV and HCV infections ⁽¹⁰⁾. Injection drug use now is responsible for at least more than 60% of new cases of HCV infection worldwide. Because of sharing contaminated needles and other equipments used in injection, use of shooting galleries, cocaine use, unsafe sexual activities, and sharing the shaving equipments, IDUs constitute one of the most important groups at risk of being infected with HCV ^(11, 12) and it has been identified as the most common viral infection affecting IDUs ⁽¹⁰⁾. Rates of anti-HCV prevalence among IDUs vary by region,

but exceed 20% in IDUs in the world. In some countries such as India, Pakistan, Indonesia, and Thailand, the prevalence of anti-HCV among the IDUs is at least 90%. The HCV infection in Pakistan has expanded from IDUs to general population and it alarms other countries to understand the risk factors for transmission of infection and to stop it as soon as possible ⁽¹³⁾. The risk of acquiring the hepatitis C with 80% of young IDUs infected is within the first year ⁽¹⁴⁾. HCV is estimated to be about 10 times more infectious than HIV, per unit of blood required, and therefore, requires less exposure than HIV to reach high prevalence. In accordance with the results of many researches, the prevalence of HCV is higher than the prevalence of HIV in IDUs.

There is enough evidence to support that imprisonment and more specifically syringe sharing in prison may be an important risk factor for HIV and HCV infections ^(11, 15-18). Injecting drug use and syringe sharing in prisons are common among IDUs ^(15, 19-21). Syringe sharing in prison is strongly and independently associated with HIV and HCV infections ^(11, 15). This provides further evidence that prisons are places where IDUs who continue to inject are at high risk of HIV and HCV infections ^(11, 15). In prisons, syringes tend to be used by many individuals. Thus, the risk of syringe contamination by these viruses is much higher in prisons than outside where syringes are usually shared with only one or two other peoples ⁽¹⁹⁾. In most prisons, it is not possible to entirely prevent the injection use of illicit drugs. The lack of access to new injecting equipment in the majority of prisons results in

prisons effectively acting as an incubator for the hepatitis C epidemic. However, injection with contaminated equipment could be substantially reduced if sterile injection equipment is available. Pilot projects which provided sterile injection equipment in prisons (via syringe vending machines) showed no any adverse effects such as increased injecting drug use or offences against prison personnel ⁽¹¹⁾. The good opportunities in prison to contact large number of IDUs over longer periods should not be missed. There should be specific activities to repeatedly counsel imprisoned IDUs on the risks of parenterally transmitted infections.

A range of prevention measures for IDUs has been implemented including syringe exchange programs, syringe vending machines, increased outreach efforts, and access to methadone maintenance treatment (MMT). Many studies have shown the lower levels of current syringe sharing among IDUs on MMT ^(22, 23). Other risk factors such as tattooing in prisons are important in transmission of HIV and HCV infection ^(15, 16, 24, 25). Educating prisoners about this important potential route for transmission of HIV and HCV is important. Syringe exchange and distribution is the primary HCV prevention strategy targeting IDUs, although evidence of risk reduction impact is stronger for HIV ^(26, 27) and there is only modest evidence of impact regarding HCV ^(23, 28, 29). High efficient of transmission of HCV infection and potential for transmission via contaminated injecting equipment other than needles and syringes, such as filters and spoons are responsible for this difference ^(7, 30, 31). The emphasis by some programs on needles and syringes as disease vectors to the exclusion of other equipment may also contribute to HCV spread. Meanwhile, there is a growing epidemiological evidence based on the risk factors associated with HCV transmission. We need to develop new ways to fill the knowledge gap regarding HCV prevention.

Despite the growing evidence that hepatitis C is an urgent public health issue, few countries have developed strategic national responses to address the hepatitis C epidemics within their populations. Since people who inject or have injected illicit drugs are the main group infected in almost all local epidemics ⁽¹⁰⁾, hepatitis C responses, where they do exist, have largely focused on harm reduction. Although significant advances have been made in preventing HIV infection amongst IDUs with harm reduction programs, both prevalence and incidence of hepatitis C remains high amongst IDUs ⁽³²⁻³⁴⁾. Unfortunately, no national study for declaration of

prevalence of hepatitis C in IDUs exists in our region and Iran. The data are from some cross-sectional studies in IDUs or as case control studies in blood donors or population-base studies would clarify the importance of IDUs as the main cause of hepatitis C in our region now. We need a surveillance system to follow the prevalence and incidence of infection in IDUs in Iran.

The inability of any country, even those with established national hepatitis C policies, to prevent large numbers of new infections, has led some to question the effectiveness of harm reduction in relation to hepatitis C prevention ⁽³⁵⁾. The questions have been addressed correctly, because we do not know why the HCV infection is high in IDUs but the HIV is decreasing ⁽³⁶⁾. Harm reduction can work effectively only if it is genuinely supported by an enabling policy and legislative environment ⁽³⁷⁾. Actually, failure of harm reduction in prevention of hepatitis C is related to the little support and fund to provide the full range and amount of equipment necessary to support effective harm reduction. It is necessary to change the governmental policy to implement comprehensive harm reduction strategies in IDUs.

In Iran, the harm reduction program has been accepted by the high level authorities in the government and we adapted it to our religious and traditional culture, but sometimes there are some barriers regarding expansion of these services especially in female patients with high risk sexual behaviors. Due to some limitation in referring the female IDUs to DIC (drop-in center), the 9th cabinet of Iranian government established DICs specific for women, but sometimes there is some resistance accusing us of agreeing with this high risk behavior in our country. DICs should be available for high risk groups and should be supportive for them. The police should be far from these centers. If people fear being questioned by police, they may choose not to access the program. Fortunately, police in Iran are very cooperative regarding this issue.

However, as long as people who use drugs are criminalized, marginalized, stigmatized and isolated by the existing system, hepatitis C prevention and harm reduction strategies will be far from high effectiveness. Discrimination and stigmatization will increase their marginalization and thus will limit their capacity to engage proactively on health issues such as hepatitis C ⁽³⁷⁾. Stigma and discrimination in daily lives of IDUs is routine, and the result is poor treatment, no treatment or abusive treatment in the hands of health, legal and social services. We should encourage the health care workers to support

the patients more and not to claim them that you are responsible for your acquiring the infection⁽³⁸⁾. There is an important question in this case, what is the role of community? Why is there a large socioeconomic status of people? And what is the responsibility of government and the community in this regard. The language should change and the approach should be supportive.

Peer-based approaches are the cornerstone in control of infection in the community and prisons. Peers are likely to be nonjudgmental and supportive; participants tend to feel more comfortable and those they trust for the patients. Peers are also the best-placed people to engage other drug users on hepatitis C risk and prevention, since they are often present when people are injecting. People who inject drugs are very effective when it comes to passing on information to their peers. The illicit drugs scene is based on the daily maintenance of extensive peer networks, information sharing, looking out for each other and helping each other to survive. Educating IDUs by peers is very informative and efficient. Encouraging the IDUs to be clean and to learn more from each other is effective, too⁽³⁷⁾. If we are serious about responding to the global hepatitis C epidemic, not only must we ensure that people who use or have used illicit drugs are not discriminated against citizens, but we must also adopt language, attitudes, values, approaches and structures to help them to educate each other, support each other and speak for themselves⁽³⁷⁾.

We need better strategies to control hepatitis C in IVDs in our community⁽³⁹⁾. Despite extensive harm reduction programs in Iran and other countries, unfortunately HCV infection continues to spread among IDUs, but HIV does not, partly because the prevalence of hepatitis C virus has been high among injecting drug users in the world. Harm reduction program alone is not enough! Transmission of hepatitis C is more efficient than HIV. It may be transmitted between injecting drug users on equipment other than needle and syringes⁽⁴⁰⁻⁴²⁾. The routine approaches to control HIV in IDUs is not to share needles and syringes and it is effective, but may be inadequate to control HCV, and other strategies must be scrutinized, such as encouraging injecting drug users to use their drugs in ways other than injecting (on methadone or traditional drugs such as opium); more intense concentration on hygiene practices including handwashing; and education and support of injecting drug users to avoid sharing any equipment associated with injecting. The role of peer groups in education of IDUs to control infection is important. When a new prisoner enters the prison, the old

prisoners are teaching him to adapt himself to the new condition and sometimes teach them illegal behaviors. We should establish peer groups in the prisons for correct education of new prisoners.

I believe that one of the important approaches for prevention of the infection in the community is more diagnosis of the high risk group and treatment the treatable patients to eliminate the infection decreasing its incidence rate. However, current illicit drug use may act as a barrier to beginning the treatment for HCV infection⁽⁴³⁾. Reportedly, the effects of illicit drugs lead to mood and anxiety disorders, cognitive deficits, temperament disorders, and personality vulnerabilities, which contribute to unreliable, non-adherent behavior, unsafe sex, disinhibition and poor judgment⁽⁴³⁻⁴⁵⁾. I agree with some studies that have revealed an increased risk of negative side effects from HCV treatment in current users, poorer adherence to treatment than non-users, more likely to discontinue treatment or have their doses reduced leading to poorer therapeutic outcomes, more drink alcohol at higher rates which reduces the efficacy of interferon, and increased risk of reinfection after treatment⁽⁴⁶⁻⁴⁸⁾, but there are new data indicating that current injecting drug use during treatment for HCV infection may not be as problematic as some commentators have reported, especially when social support is available^(45, 48). Do not forget the social, insurance and family support of patients. Imam Khomeini (Founder of I.R.Iran) sends us a message that saving the addicted patient is parallel to saving the community. We should encourage the establishment of non-political non-governmental organizations and groups to support the patients more. The length of lifetime injection and total length of incarcerations are the important variables for acquiring the infection to a greater extent. It is better to release the patients from prison and support them in the community to be free of drug by peer groups. Among prevention interventions, MMT is playing a key role inside prisons in Iran and being progressively expanded in recent years. Health systems today increasingly come into contact with illicit drug users seeking testing and treatment for blood-borne viral infections. The problem should not be ignored by politicians in their strategic plan to control these infections.

References

1. Brown RS, Jr., Gaglio PJ. Scope of worldwide hepatitis C problem. *Liver Transpl* 2003; **9**: S10-3.
2. Alavian SM, Adibi P, Zali MR. Hepatitis C virus in Iran: Epidemiology of an emerging infection. *Arch Iranian Med* 2005; **8**: 84-90.

3. Alavian S, M, Fallahian F, Bagheri-Lankarani K. The Changing Epidemiology of Viral Hepatitis B in Iran. *J Gastrointest Liver Dis* 2007; **16**: 403-6.
4. Hwang SJ, Lee SD, Lu RH, Chu CW, Wu JC, Lai ST, *et al*. Hepatitis C viral genotype influences the clinical outcome of patients with acute posttransfusion hepatitis C. *J Med Virol* 2001; **65**: 505-9.
5. Donahue JG, Munoz A, Ness PM, Brown DE, Jr., Yawn DH, McAllister HA, Jr., *et al*. The declining risk of post-transfusion hepatitis C virus infection. *N Engl J Med* 1992; **327**: 369-73.
6. De Carli G, Puro V, Ippolito G. Risk of hepatitis C virus transmission following percutaneous exposure in healthcare workers. *Infection* 2003; **31**: 22-7.
7. Thorpe LE, Ouellet LJ, Hershow R, Bailey SL, Williams IT, Williamson J, *et al*. Risk of hepatitis C virus infection among young adult injection drug users who share injection equipment. *Am J Epidemiol* 2002; **155**: 645-53.
8. Zhou F, Ma ZE, Hu W, Feng ZL, Chen KL, Qin GM, *et al*. Study on the relationship between hepatitis C virus infection and sharing injection equipment, sexual behavior among injecting drug users (in Chinese). *Zhonghua Liu Xing Bing Xue Za Zhi* 2004; **25**: 329-32.
9. Vidal-Trecan GM, Varescon-Pousson I, Gagniere B, Tcherny-Lessenot S, Madariaga E, Boissonnas A. Association between first injection risk behaviors and hepatitis C seropositivity among injecting drug users. *Ann Med Interne* 2002; **153**: 219-25.
10. Aceijas C, Rhodes T. Global estimates of prevalence of HCV infection among injecting drug users. *Int J Drug Policy* 2007; **18**: 352-8.
11. Stark K, Bienzle U, Vonk R, Guggenmoos-Holzmann I. History of syringe sharing in prison and risk of hepatitis B virus, hepatitis C virus, and human immunodeficiency virus infection among injecting drug users in Berlin. *Int J Epidemiol* 1997; **26**: 1359-66.
12. Alavian SM, Gholami B, Masarrat S. Hepatitis C risk factors in Iranian volunteer blood donors: A case-control study. *J Gastroenterol Hepatol* 2002; **17**: 1092-7.
13. Alavian SM, Fallahian F. Comparison of Seroepidemiology and Transmission Modes of Viral Hepatitis C in Iran and Pakistan. *Hep Mon* 2008; **8**: 51-9.
14. Garfein RS, Vlahov D, Galai N, Doherty MC, Nelson KE. Viral infections in short-term injection drug users: the prevalence of the hepatitis C, hepatitis B, human immunodeficiency, and human T-lymphotropic viruses. *Am J Public Health* 1996; **86**: 655-61.
15. Zamani S, Ichikawa S, Nassirimanesh B, Vazirian M, Ichikawa K, Gouya MM, *et al*. Prevalence and correlates of hepatitis C virus infection among injecting drug users in Tehran. *Int J Drug Policy* 2007; **18**: 359-63.
16. Zali MR, Aghazadeh R, Nowroozi A. Anti-HCV antibody among Iranian IV drug users: is it a serious problem? *Arch Iran Med* 2001; **4**: 115-9.
17. Alizadeh AHM, Alavian SM, Jafari K, Yazdi N. Prevalence of hepatitis C virus infection and its related risk factors in drug abuser prisoners in Hamedan-Iran. *World J Gastroenterol* 2005; **11**: 4085-9.
18. Taylor A, Goldberg D, Frischer M, Emslie J, Green S, McKeganey N. Transmission of HIV in prison. *Evidence of risk*. *BMJ* 1993; **307**: 623.
19. Muller R, Stark A, Guggenmoos-Holzmann I, Wirth D, Bienzle U. Imprisonment: a risk factor for HIV infection counteracting education and prevention programmes for intravenous drug users. *AIDS* 1995; **9**: 183-90.
20. Carvell ALM, Hart GJ. Risk behaviours for HIV infection among drug users in prison. *Br Med J* 1990; **300**: 1383-85.
21. Covell RG, Frischer M, Taylor A. Prison experience of injecting drug users in Glasgow. *Drug Alcohol Depend* 1993; **32**: 9-14.
22. Stark K, Muller R, Bienzle U, Guggenmoos-Holzmann I. Methadone maintenance treatment and HIV risk-taking behaviour among injecting drug users in Berlin. *J Epidemiol Community Health* 1996; **50**: 534-7.
23. Crofts N, Nigro L, Oman K, Stevenson E, Sherman J. Methadone maintenance and hepatitis C virus infection among injecting drug users. *Addiction* 1997; **92**: 999-1005.
24. Samuel MC, Doherty PM, Bulterys M, Jenison SA. Association between heroin use, needle sharing and tattoos received in prison with hepatitis B and C positivity among street-recruited injecting drug users in New Mexico, USA. *Epidemiol Infect* 2001; **127**: 475-84.
25. Hellard ME, Hocking JS, Crofts N. The prevalence and the risk behaviours associated with the transmission of hepatitis C virus in Australian correctional facilities. *Epidemiol Infect* 2004; **132**: 409-15.
26. Hagan H, Des Jarlais DC. HIV and HCV infection among injecting drug users. *Mt Sinai J Med* 2000; **67**: 423-8.
27. Hagan H, Thiede H, Des Jarlais DC. HIV/hepatitis C virus coinfection in drug users: Risk behaviors and prevention. *AIDS* 2005; **19**: S199-207.
28. Rezza G, Sagliocca L, Zaccarelli M, Nespoli M, Siconolfi M, Baldassarre C. Incidence rate and risk factors for HCV seroconversion among injecting drug users in an area with low HIV seroprevalence. *Scand J Infect Dis* 1996; **28**: 27-9.
29. Thiede H, Hagan H, Murrill CS. Methadone treatment and HIV and hepatitis B and C risk reduction among injectors in the Seattle area. *J Urban Health* 2000; **77**: 331-45.
30. Hagan H, Thiede H, Weiss NS, Hopkins SG, Duchin JS, Alexander ER. Sharing of drug preparation equipment as a risk factor for hepatitis C. *Am J Public Health* 2001; **91**: 42-6.
31. Hahn JA, Page-Shafer K, Lum PJ, Bourgois P, Stein E, Evans JL, *et al*. Hepatitis C virus seroconversion among young injection drug users: relationships and risks. *J Infect Dis* 2002; **186**: 1558-64.
32. Judd A, Hickman M, Jones S, McDonald T, Parry JV, Stimson GV, *et al*. Incidence of hepatitis C virus and HIV among new injecting drug users in London: prospective cohort study. *BMJ* 2005; **330**: 24-5.
33. Judd A, Hutchinson S, Wadd S, Hickman M, Taylor A, Jones S, *et al*. Prevalence of, and risk factors for, hepatitis C virus infection among recent initiates to injecting in London and Glasgow: cross sectional analysis. *J Viral Hepat* 2005; **12**: 655-62.
34. Maher L, Li J, Jalaludin B, Chant KG, Kaldor JM. High hepatitis C incidence in new injecting drug users: a policy failure? *Aust N Z J Public Health* 2007; **31**: 30-5.
35. Hagan H, Des Jarlais DC, Stern R, Lelutiu-Weinberger C, Scheinmann R, Strauss S, *et al*. HCV synthesis project: preliminary analyses of HCV prevalence in relation to age and duration of injection. *Int J Drug Policy* 2007; **18**: 341-51.
36. Mateu-Gelabert P, Treloar C, Calatayud VA, Sandoval M, Zurian JC, Maher L, *et al*. How can hepatitis C be prevented in the long term? *Int J Drug Policy* 2007; **18**: 338-40.
37. Madden A, Cavalieri W. Hepatitis C prevention and true harm reduction. *Int J Drug Policy* 2007; **18**: 335-7.
38. Paterson BL, Backmund M, Hirsch G, Yim C. The depiction of stigmatization in research about hepatitis C. *Int J Drug Policy* 2007; **18**: 364-73.
39. Crofts N, Caruana S, Bowden S, Kerger M. Minimising harm from hepatitis C virus needs better strategies. *BMJ* 2000; **321**: 899.
40. Crofts N, Jolley D, Kaldor J, van Beek I, Wodak A.

- Epidemiology of hepatitis C virus infection among injecting drug users in Australia. *J Epidemiol Community Health* 1997; **51**: 692-7.
41. van Beek I, Dwyer R, Dore GJ, Luo K, Kaldor JM. Infection with HIV and hepatitis C virus among injecting drug users in a prevention setting: retrospective cohort study. *BMJ* 1998; **317**: 433-7.
 42. Coutinho RA. HIV and hepatitis C among injecting drug users- Success in preventing HIV has not been mirrored for hepatitis C. *BMJ* 1998; **317**: 424-5.
 43. Hopwood M, Treloar C. The drugs that dare not speak their name: Injecting and other illicit drug use during treatment for hepatitis C infection. *Int J Drug Policy* 2007; **18**: 374-80.
 44. Avants SK, Margolin A, Warburton LA, Hawkins KA, Shi J. Predictors of nonadherence to HIV-related medication regimens during methadone stabilization. *Am J Addict* 2001; **10**: 69-78.
 45. Scheft H, Fontenette DC. Psychiatric barriers to readiness for treatment for hepatitis C Virus (HCV) infection among injection drug users: clinical experience of an addiction psychiatrist in the HIV-HCV coinfection clinic of a public health hospital. *Clin Infect Dis* 2005; **40**: S292-6.
 46. Dalgard O. Follow-up studies of treatment for hepatitis C virus infection among injection drug users. *Clin Infect Dis* 2005; **40**: S336-8.
 47. Jowett SL, Agarwal K, Smith BC, Craig W, Hewett M, Bassendine DR, *et al.* Managing chronic hepatitis C acquired through intravenous drug use. *QJM* 2001; **94**: 153-8.
 48. Robaey G, Van Vlierberghe H, Mathei C, Van Ranst M, Bruckers L, Buntinx F. Similar compliance and effect of treatment in chronic hepatitis C resulting from intravenous drug use in comparison with other infection causes. *Eur J Gastroenterol Hepatol* 2006; **18**: 159-66.