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Summary Statement Title:

Primary prevention interventions for hepatitis C among injecting drug users: Evidence and implications for public health

Review Quality Rating: 6 (moderate)

Review on which this summary statement is based:
Wright, N.M.J., & Tompkins, C.N.E. (2006). **A review of the evidence for the effectiveness of primary prevention interventions for Hepatitis C among injecting drug users.** *Harm Reduction Journal*, *3*(27). doi:10.1186/1477-7517-3-27.

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This is a summary statement written to condense the work of the authors of this systematic review, referenced above. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

Review content summary

A systematic review was undertaken to investigate the effectiveness of primary prevention interventions to reduce the incidence or prevalence of hepatitis C virus (HCV). Authors included intervention or observational studies that described a primary prevention intervention targeting injecting drug users (IDUs). Eighteen observational studies met inclusion criteria. Findings indicate that these interventions have led to a reduction in human immunodeficiency virus (HIV) incidence, but have been less effective at reducing HCV incidence. Needle exchange programs and methadone maintenance treatment are only marginally effective at reducing HCV incidence. There is limited evidence evaluating the effectiveness of behavioural interventions, bleach disinfectants, and drug consumption rooms. Many interventions have been shown to be cost-effective due to their significant positive impact on HIV prevalence.

Comments on this review's methodology

This review is of moderate methodological strength. The authors a formed clear, focused research question, and used appropriate inclusion criteria to select primary studies. They conducted a comprehensive search which included searching several health and psychological electronic databases and internet sources; scanning references lists; hand searching relevant journals; and consulting experts to identify grey literature. The search strategy covered an adequate number of years. The level of evidence of the primary studies was clearly outlined. The methodological quality of observational studies was assessed using the following criteria: sampling methods, use of a control group, potential impact of and control for confounders, and loss to follow-up. This assessment was not transparent. Authors deemed it inappropriate to conduct a meta-analysis because no intervention trials were identified. Results were reported narratively. Methods used to compare results across studies are unclear.

Why is this issue of interest to public health?

HCV is a global and national public health problem.[1, 2] It is estimated that 3% of the global population, or 170 million persons, are infected with HCV.[1, 2] In Canada, estimates range from 0.8% -1% of the total population, or 250,000–315,000 persons.[1] Healthcare costs associated with HCV were estimated at $500 million per annum in Canada in 2004, and are now, in 2010, estimated to have reached $1 billion.[1] HCV may cause severe hepatic complications.[2] If left untreated, the infection becomes chronic in 50 - 85% of individuals; 10 - 20% of infected persons develop liver cirrhosis within 10–20 years of infection, and 5-10% of those with cirrhosis develop liver cancer.[1] While a number of risk factors have been identified, intravenous drug use is known as the major mode of HCV transmission.[3, 4] Thus, primary prevention interventions that successfully reduce rates of hepatitis C virus (HCV) among injection drug users are needed.

Evidence and implications

Evidence points are not in order of the strength of the evidence.

What's the evidence?	Implications for practice and policy
1. Needle exchange (11 observational studies) 1.1. Needle exchange programs appear to be effective in reducing the prevalence of HCV 1.1.1. Participants in needle exchange programs had lower rates of anti-HCV than those who were	**1. Needle exchange** 1.1. Needle exchange should be included in public health programs that aim to reduce the prevalence of HCV. 1.2. Even when these programs are effective in

not (at least for certain age groups) (6 studies) 1.1.2. Needle exchange programs were not effective in reducing the incidence and prevalence of HCV (2 studies) 1.1.3. One study showed that non use of needle exchange programs resulted in a 7 fold increased risk of anti-HCV 1.1.4. Statistical significance was not reported in one study. 1.1.5. One study had insufficient power to assess change.	reducing the prevalence of HCV, rates still remain high. Therefore, 1.2.1. additional interventions may be required 1.2.2. rigorous program evaluation and high quality research should be conducted 1.2.3. surveillance of HCV rates should continue
2. Opiate replacement therapy (3 observational studies) 2.1. In this review methadone therapy was used in all studies included in this category 2.1.1. There was no difference in the likelihood of HCV seroconversion between participants receiving oral replacement therapy compared to those who did not	**2. Opiate replacement therapy** 2.1. Methadone therapy should not be used as a strategy aimed at the prevention of HCV
3. Behavioural programs (3 observational studies) 3.1. Based on psychological theory and delivered at either an individual or group level, these programs aim to increase self efficacy and perceptions of needed behaviour change. These harm reduction programs included “outreach workers”, “counsellors”, or “advice”. In all included studies, these programs were delivered in combination with other interventions. 3.1.1. In two studies, program participants experienced greater reductions in HCV compared to non- participants 3.1.2. In one study, program participants were no more or less likely to experience HCV seroconversion as compared with non-participants. However, these program participants experienced greater reductions in HIV after the inclusion of other interventions	**3. Behavioural programs** 3.1. Behavioural interventions should not be implemented as the sole intervention in public health programs aimed to prevent HCV 3.2. Multi-faceted programs that include behavioural interventions should undergo rigorous evaluation 3.3. Additional high quality research should be undertaken to add to the body of knowledge of what works in this area.
4. Bleach distribution (1 study) 4.1. Bleach distribution involves providing IDUs with bleach in order to effectively clean their injection equipment 4.1.1. In one case control study, participants who received bleach were no more or less likely to have lower rates of seroconversion than those not receiving this intervention.	**4. Bleach distribution** 4.1. At this point, bleach distribution should not be used as the sole strategy in programs for the prevention of HCV. 4.2. Given the lack of research in this area and the insufficient power of the one included study, 4.2.1. Additional high quality research studies are required. 4.2.2. Rigorous evaluations should be conducted on programs that include bleach distribution 4.2.3. Outcomes other than HCV, such as HIV, should be included in this research
5. Drug consumption rooms (1 observational study) 5.1. These rooms, also referred to as supervised injecting rooms or medically supervised injecting centres, are legally sanctioned facilities with hygienic and low-risk conditions. They are supervised by trained health staff and designed to reduce the adverse health and social consequences associated with IDU 5.1.1. The time series study specifically addressing HCV outcomes was underpowered to detect statistically significant treatment effects	**5. Drug consumption rooms** 5.1. Rigorous program evaluation and high quality research studies are required to determine the effectiveness of drug consumption rooms in preventing HCV.
6. Methodological issues with primary studies 6.1. Lack of intervention studies and no randomized controlled trials identified 6.2. Insufficient power in the identified studies	**6. Program evaluation and research** 6.1. Rigorous program evaluation and high quality research studies should be conducted to determine the effectiveness of these and other interventions in preventing HCV.
7. Cost benefit or cost-effectiveness information **7.1.** The cost-effectiveness of needle exchange programs was reported in this review based on 2 studies. Needle exchange programs were reported to be cost effective strategies for the reduction of HCV and HIV.	**7. Cost benefit or cost-effectiveness information** 7.1. Needle exchange programs may help to contain costs related o HCV and HIV

General Implications

- Of all interventions included in this review, needle exchange programs currently hold the most promise thus far for the prevention of HCV.
- Needle exchange programs were the most frequently assessed strategies aimed at the prevention of HCV.
- Rigorous program evaluations and high quality research is required

Legend: CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk
***please see the health-evidence.ca glossary of terms (found under 'How to Use This Site') for definitions*

References used to outline issue

1. Fischer, B., Haydon, E., Jurgen, R., Krajden, M., & Reimer, J. (2004). Injection drug use and the hepatitis C virus: Considerations for a targeted treatment approach – the case study of Canada. *Journal of Urban Health, 81*(3), 428-447.
2. Wright, N.M.J., & Tompkins, C.N.E. (2006). A review of the evidence for the effectiveness of primary prevention interventions for Hepatitis C among injecting drug users. *Harm Reduction Journal, 3*(27). doi:10.1186/1477-7517-3-27.
3. Des Jarlais, D.C., & Schuchat, A. (2001). Hepatitis C among drug users: Deja vu all over again? *American Journal of Public Health, 91*(1), 1-2.
4. Miller, C.L., Kerr, T., Fischer, B., Zhang, R., & Wood E. (2008). Methamphetamine injection independently predicts hepatitis C infection among street-involved youth in a Canadian setting. *Journal of Adolescent Health*, *44*(3), 302-304.

Other quality reviews on this topic

- Ndiaye, S.M., Hopkins, D.P., Shefer, A.M., Hinman, A.R., Briss, P.A., Rodewald, L., & Willis, B. (2005). Interventions to improve influenza, pneumococcal polysaccharide, and hepatitis B vaccination coverage among high-risk adults: A systematic review. *American Journal of Preventive Medicine,* 5 Suppl, 248-279.
- Elliott, L., Orr, L., Watson, L., & Jackson, A. (2005). Secondary prevention interventions for young drug users: A systematic review of the evidence*. Adolescence, 157*, 1-22.

Related links

- Centers for Disease Control and Preventions http://www.cdc.gov/
- Health Canada http://www.hc-sc.gc.ca/index-eng.php
- National Collaborating Centre for Infectious Diseases http://www.nccid.ca/en/home

Suggested Citation

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