



HHS Public Access

Author manuscript

Int J Drug Policy. Author manuscript; available in PMC 2018 July 12.

Published in final edited form as:

Int J Drug Policy. 2018 January ; 51: 160–164. doi:10.1016/j.drugpo.2017.06.012.

Post-war prevention: Emerging frameworks to prevent drug use after the War on Drugs

Dan Werb^{a,b,*}

^aDivision of Global Public Health, University of California San Diego

^bCentre for Urban Health Solutions, St. Michael's Hospital, Toronto, Canada

Abstract

The prevention of drug use is one of the primary goals of the War on Drugs. However, despite investment in high-profile interventions such as social marketing campaigns and enforcement-based deterrence, these efforts have generally failed. With the emergence of novel policy frameworks to control and regulate drug use, a window of opportunity exists to test approaches to drug prevention that take into account existing evidence and the rights of individuals who use drugs. Specifically, there is a growing consensus that entry into drug use is a socially-defined event that individuals experience within particular socio-structural contexts. This understanding, coupled with a distinction between the value of preventing problematic drug use rather than all drug use, provides a useful framework within which to develop effective and rights-based approaches to drug prevention.

The global 'War on Drugs' has been predicated on the notion that supply-side interdiction, coupled with stigmatizing social marketing, can prevent individuals from using substances.¹ By creating a scarcity of supply and an accompanying public discourse that reinforces social norms protective against drug use, individuals would be less susceptible to experimentation with drugs, and less able to acquire them if they were interested. Viewed from the perspective that entry into drug use represents a homogeneous step-by-step process that can be disrupted via individual behavior change,² the approach of the War on Drugs represents an elegant and seemingly efficient means of drug use deterrence. However, as this policy approach has continued over decades, the massive research apparatus on substance use (ironically one of its most noteworthy unintended consequences) has increasingly problematized the conception of drug use initiation that the War on Drugs has popularized. Instead of a homogeneous phenomenon with a clearly defined 'before and after,' scientific evidence has instead described a complex set of pathways and varying socio-structural contexts that influence entry into substance use and individuals' subsequent drug-using careers.^{3–9} Experts have also increasingly sought to weigh the relative merits of efforts to prevent substance use in general against those that seek to delay or prevent entry into specific problematic forms of substance use. This commentary, while in no way an exhaustive review, seeks to highlight some historical approaches to drug prevention within

*Correspondence to: Dan Werb, PhD, Assistant Professor, Division of Global Public Health, University of California San Diego, University of California School of Medicine, 9500 Gilman Drive, La Jolla CA 92093-0507, dwerb@ucsd.edu, Tel: 858-205-8262.

the War on Drugs model and to identify emerging tensions and opportunities to effectively prevent problematic substance use when appropriate.

The increasing fragmentation of the global consensus on drug policy has ushered in a new era of policy-making among United Nations member states, with countries moving in diverging directions away from the global framework.¹⁰ Among the highest profile case studies are efforts to regulate cannabis at the national (e.g., Canada, Uruguay^{11,12}) and state (e.g., multiple US states¹³) levels. On the opposite end of the spectrum, mass campaigns of extra-judicial homicides ostensibly carried out to deter drug use and trafficking (e.g., Thailand, Philippines^{14,15}), as well as the use of torture and detention to ‘treat’ substance use disorders (e.g., Russia, China^{16–18}) represent extreme adaptations of the War on Drugs model, and which appear to be firmly entrenched in certain settings. The rapidity breadth of global drug policy change has been the subject of intense scrutiny. It has also overshadowed the emergence of increasingly sophisticated, rights- and evidence-based approaches to preventing problematic drug use, a key unmet goal of the War on Drugs.

One of the most visible approaches to drug use prevention within the War on Drugs model is the use of anti-drug public service announcements (PSAs) to deter youth. However, evidence has demonstrated that interventions seeking to prevent entry into drug use through social marketing are generally ineffective.¹⁹ This is because anti-drug PSAs generally seek to bolster protective social norms by highlighting the dangers - physical, mental and moral - that arise with the use of drugs, in line with classical approaches to deterrence.²⁰ This emphasis on fear-based deterrence, however, has been shown to negatively impact intentions to use drugs among PSA audiences.²¹ This may arise as a result of exaggerated depictions of the prevalence of drug use depicted in PSAs, which may then expose gaps in viewers’ experiential knowledge of drugs. This, in turn, may arouse curiosity among viewers to experiment with drug use and lead to a weakening of protective social norms against their use.²¹ The clear failure of such social marketing efforts, evidence in support of which has been generated by both independent experts¹⁹ and government agencies,^{22,23} belies a broader issue. Experts have posited that, because of the highly visible nature of these interventions, anti-drug social marketing interventions may have a secondary benefit in bolstering support for policies of drug criminalization through the mass media.²⁴ This phenomenon may explain their ongoing use despite their proven ineffectiveness.

While social marketing represents a demand-side drug prevention intervention, the use of criminal sanctions and drug law enforcement has been hypothesized to deter substance use initiation in multiple ways via supply-side approaches. For instance, experts have suggested that ‘enforcement swamping’ - in which an increase in the frequency of contact between drug law enforcement and individuals at risk of drug use - operates through a positive feedback mechanism wherein increased enforcement reduces the risk of drug use initiation.^{25,26} This is based on optimal control theory, a mathematical discipline that explores the efficient application of interventions on a system.²⁷ In the context of drug use, optimal control theory has been cited as a method to optimize the application of drug law enforcement, taking into account various stages of the epidemic-like expansion of drug use initiation across a vulnerable population.²⁵ Importantly, economic experts have concluded that its deterrent effect relies on its intensity (i.e., the amount of enforcement per individual)

rather than on its overall application across a drug market,²⁵ and that enforcement is likely to be much more effective as a prevention tool at the initial stages of a drug use epidemic.²⁸ Unfortunately, while mathematical models provide insight into the potential preventive impact of large-scale drug law enforcement, the lack of real-world policy experiments has hindered confirmation of this hypothesis.²⁵

Similarly, the deterrent effect of drug law enforcement is posited to prevent drug use initiation by limiting the availability of illegal drugs, thereby leading to a scarcity of supply and a concomitant increase in price. However, evidence that reduced availability is achievable in the long-term through the application of enforcement-based supply-side interventions is lacking. Similarly, very little data supports the hypothesis that drug law enforcement can achieve reductions in in the short-term. Australia's heroin 'drought' - a massive reduction in the country's heroin supply that significantly increased price and decreased availability - has been attributed by some to national law enforcement practices²⁹ (though data from other settings suggest that this phenomenon may have been caused by drug market patterns external to Australia³⁰), and represents one of the few observed examples of effective supply-side intervention. However, research suggests that while the heroin drought resulted in a reduction in heroin injection in Australia, this was likely offset by an increase in the use of methamphetamine and cocaine by injection among individuals formerly using heroin.³¹ Problematically, this shift towards cocaine injection in the wake of the heroin drought appears to have increased the risk of HCV incidence among Australian PWID.³²

Recently, supply-side interventions targeting non-illegal drug markets have relied on interventions other than drug law enforcement to reduce supply. For instance, the removal of OxyContin by Purdue Pharma and its replacement with a slow-acting, tamper-resistant formula (OxyNeo) in Canada is a 'classic' supply-side intervention on the pharmaceutical drug market.^{33,34} While this market has generally been considered largely distinct from the illegal drug market, the de-listing of OxyContin appears to be one of the most effective supply-side interventions undertaken since the War on Drugs, resulting in a massive disruption to the opioid supply on a scale unachievable through enforcement-based interdiction.³⁵ However, subsequent spikes in the prescription, illegal production and trafficking of fentanyl, a highly potent opioid, suggest that such market disruptions may be highly undesirable.^{36,37} This is because the overall use of opioids appears to have remained relatively stable, and declines in prescribing and use of OxyContin were offset by increases in fentanyl use, leading to a rapid increase in the incidence of opioid overdose fatalities attributable to this drug across North America.³⁶⁻⁴¹

These data suggest that supply-side interventions that produce large-scale market disruptions might nevertheless be limited in impacting population-level prevalence of use. This is consistent with previous research on the association between drug policy and prevalence.⁴² Further, it appears that such approaches, as demonstrated in both the Australian heroin drought and the North American opioid overdose crisis, are likely to cause a range of unintended negative consequences. Even when ineffective, a large body of evidence suggests that drug prevention via deterrence provides at best a marginal benefit in the form of reduced use, while being associated with a range of harms.⁴³⁻⁴⁵

The near-consensus regarding the ineffectiveness of supply-side prevention approaches has been coupled with a move away from the conceptualization of drug use initiation as a discrete binary phenomenon. Instead, drug-using careers are increasingly understood as a series of events taking place along individual trajectories within particular socio-structural contexts, consistent with life course theory.^{8,46–51} In this framing, initiation into drug use is understood as one among many socially-defined events. This has a number of implications for drug prevention. First, preventing entry into drug use must take into account the social context for individual decision-making. Indeed, the combination of the socio-structural environment in which an individual makes drug-using decisions,^{9,52} along with the presence of individual-level factors influencing the risk of drug use initiation, suggests that broad, general population drug prevention interventions are unlikely to be effective in addressing the many contexts and pathways by which individuals initiate drug use. This likely explains, at least in part, the ineffectiveness of population-based supply-side and social marketing interventions. Second, to be effective, drug prevention strategies likely require tailoring to specific forms of drug use, subpopulations at risk, socially-defined drug-related events, and socio-structural contexts. Third, and perhaps most importantly, the only way to meaningfully tailor drug prevention interventions is to engage directly with populations of people who use or are at risk of using drugs.

In the context of the War on Drugs, which produces criminal sanctions on behalf of the state and moral sanctions among the general public, meaningfully including people who use drugs (PWUD) in research on drug use faces severe challenges. Nevertheless, over the past decade, increasing efforts to overcome this challenge and ensure the ethical engagement of PWUD in research on a variety of drug-related issues have been undertaken, most notably in HIV prevention trials and harm reduction intervention development.^{53–58} Efforts to extend this approach to drug prevention have, however, been limited,⁵⁹ though the waning of the War on Drugs presents an opportunity.

The difficulty in involving PWUD in prevention work stems in large part to the fact that most people receive information regarding drug use from the mass media,²⁴ and that the prevailing media representation of PWUD is as a source of criminality and danger.^{60–63} This negative portrayal serves to undercut the presumed reliability of information from PWUD, thereby limiting their capacity to communicate educational and experiential information; consequently, this has led to the development of drug prevention interventions designed without meaningful input from affected communities or individuals at greatest risk. In the case of preventing entry into problematic drug use, this represents a critical barrier to effective programming, given the central role of PWUD as models of drug-using behavior, as sources of drug use expertise, and as initiators.^{4,64–73} Without their involvement, the multiple social contexts, pathways, and the subpopulations at risk of problematic drug use initiation are likely to remain largely hidden, thereby severely hampering prevention efforts. A related concern is that developing prevention programming without the inclusion of PWUD has the potential to replicate previous failed efforts relying on moral sanctioning to prevent entry into drug use. As standards for ethical engagement of PWUD are established and formalized in related fields (i.e., harm reduction intervention development and disease prevention trials), failing to establish similar standards for drug prevention would likely expand the already substantial gap in effectiveness between prevention work (shown to be

largely ineffective⁵⁹) and other modes of responding to problematic drug use, which have yielded a range of tangible improvements in health and social outcomes among PWUD.^{74–79} A secondary challenge is that, unlike the development of interventions to reduce drug-related harms, which can provide tangible health or social benefits for PWUD participating in such research (i.e., access to treatment for infectious disease, implementation of supervised injection facilities), few obvious advantages for PWUD involvement in drug prevention work exist. By contrast, if the history of drug prevention intervention development is taken as a guide, prevention research carries the non-trivial risk that any individuals who participate may inadvertently further stigmatizing PWUD as ‘social vectors’ of problematic substance use.

Recognizing this tension – between the goal of the ‘War on Drugs’ to prevent all drug use, and a harm reduction-based consideration of drug use as not inherently problematic – is essential to ensuring that prevention approaches are effective and appropriate. This requires an understanding of drug use that incorporates three foundational tenets: first, that most drug use is not inherently problematic;⁸⁰ second, that drug policies contribute disproportionately to the harms experienced by people who use drugs (particularly illegal ones);^{43,81–83} and third, that drug use is a legitimate source of individual expression and fulfillment outside of moral sanctioning.^{84,85} The implication here is that drug prevention must be understood as only one among a paradigm of potential responses, and that even when prevention interventions are shown to have a statistically significant impact on reducing drug-related harms, they may nevertheless fail to be the optimal mode of addressing harms that could otherwise be prevented via drug policy reform or the application of harm reduction interventions.

Despite these challenges and caveats, the changing drug policy space presents an opportunity to integrate multiple approaches in order to optimize drug prevention. This can be done by incorporating both the emerging conceptual framework around drug use initiation as a dynamic social process, and the perspectives of PWUD on rights-based approaches to prevention that take into account the variety of reasons for which individuals use drugs. This is needed to not only ensure that preventive interventions are effective, but also so that they do not inadvertently increase the harms experienced by PWUD as a result of intensified stigmatization through misguided prevention approaches, as has previously occurred.

Even though anti-illicit drug social marketing campaigns represent the most visible articulation of the War on Drugs, such campaigns have generally represented only a fraction of the total budgets allocated towards drug control.^{86–92} So, despite the presumption that the War on Drugs has sought to prevent entry into drug use, it has not meaningfully operationalized this end goal. As this set of policies is challenged by increasing interest in the regulation or decriminalization of drugs, a focus on prevention is emerging among some governments seeking to defend decisions to move away from drug criminalization, such as Canada, where legislation to regulate recreational cannabis use was explicitly introduced as a strategy to reduce youth availability and access.¹¹ This is unsurprising, given the few counterfactuals to drug criminalization that have been enacted, and ongoing concerns that policies of drug regulation and legalization reflect efforts to increase the use of drugs.⁹³ To

take advantage of the new playing field, policymakers should seek to move away from anti-drug PSAs and drug law enforcement as empty symbols of commitments to drug prevention, and invest resources in meaningfully incorporating preventive interventions into drug policy aims. The twin emergence of a coherent conceptual framework to understand drug use initiation, and a policy space in which PWUD can be understood as sources of education, provides a novel opportunity to do just that.

Acknowledgments

Dan Werb is supported via a National Institute of Drug Abuse Avenir Award DP2-DA040256-01 and a New Investigator Award from the Canadian Institutes of Health Research.

References

1. Suddath C. Time 2009A brief history of the War on Drugs.
2. Beck J. 100 Years of "Just Say No" Versus "Just Say Know" Reevaluating Drug Education Goals for the Coming Century. *Evaluation Review*. 1998; 22(1):15–45. [PubMed: 10183299]
3. Richardson CG, Edalati H. Application of a Brief Measure of Delay Discounting to Examine the Relationship Between Delay Discounting and the Initiation of Substance Use Among Adolescents. *Substance Use & Misuse*. 2016; 51(4):540–4. [PubMed: 26943476]
4. Richardson CG, Kwon J-Y, Ratner PA. Self-esteem and the initiation of substance use among adolescents. *Canadian journal of public health*. 2013; 104(1):e60–e3.
5. Degenhardt L, Coffey C, Moran P, Carlin JB, Patton GC. The predictors and consequences of adolescent amphetamine use: findings from the Victoria Adolescent Health Cohort Study. *Addiction*. 2007; 102(7):1076–84. [PubMed: 17567396]
6. Thombs DL. A retrospective study of DARE: substantive effects not detected in undergraduates. *Journal of Alcohol & Drug Education*. 2000; 46(1):27.
7. Wu L, Pilowsky DJ, Schlenger WE, Galvin DM. Misuse of methamphetamine and prescription stimulants among youths and young adults in the community. *Drug & Alcohol Dependence*. 2007; 89(2–3):195–205. [PubMed: 17257780]
8. Hser YI, Longshore D, Anglin MD. The life course perspective on drug use: A conceptual framework for understanding drug use trajectories. *Evaluation review*. 2007; 31(6):515. [PubMed: 17986706]
9. Rhodes T, Bivol S, Scutelnicuic O, Hunt N, Bernays S, Busza J. Narrating the social relations of initiating injecting drug use: Transitions in self and society. *International Journal of Drug Policy*. 2011; 22(6):445–54. [PubMed: 21903372]
10. Bewley-Taylor D, Jelsma M. UNGASS 2016: A Broken or Broad Consensus? UN summit cannot hide a growing divergence in the global drug policy landscape. *Policy*. 2016
11. Health Canada/Canada takes action to legalize and strictly regulate cannabis Ottawa: Government of Canada; 2017
12. Queirolo R, Boidi MF, Cruz JM. Cannabis clubs in Uruguay: The challenges of regulation. *International Journal of Drug Policy*. 2016; 34:41–8. [PubMed: 27475713]
13. Hall W, Lynskey M. Evaluating the public health impacts of legalizing recreational cannabis use in the United States. *Addiction*. 2016; 111(10):1764–73. [PubMed: 27082374]
14. Roberts M, Trace M, Klein A. Thailand's 'War on Drugs' London: Beckley Foundation; 2004
15. Williams S, Palmer E. Global focus: Will President Duterte face court for his bloody war on drugs? *LSJ: Law Society of NSW Journal*. 2016; (28):22.
16. WHO Regional Office for the Western Pacific Assessment of compulsory treatment of people who use drugs in Cambodia, China, Malaysia and Viet Nam: Application of selected human rights principles Geneva: World Health Organization; 2009
17. Elovich R, Drucker E. On drug treatment and social control: Russian narcology's great leap backwards. *Harm Reduction Journal*. 2008; 5(1):23. [PubMed: 18577225]

18. Utyasheva L. Russian Federation: Inhumane conditions in drug treatment facilities lead to tragedy. *HIV/AIDS Policy & Law Review*. 2007; 12(1):32–3.
19. Werb D, Mills EJ, DeBeck K, Kerr T, Montaner JSG, Wood E. The effectiveness of anti-illicit-drug public-service announcements: A systematic review and meta-analysis. *Journal of Epidemiology & Community Health*. 2011; 65:7.
20. Yamatani H, Feit M, Mann A. The Drug Abuse Prevention and Control Act of 1970: Retrospective assessments of disparate treatment and consequential impact. *Social Work in Public Health*. 2017:1–11.
21. Wagner CB, Sundar SS. The curiosity-arousing function of anti-drug ads. *Open Comm J*. 2008; 2:43–59.
22. GAOONDCP Media Campaign: Contractor's national evaluation did not find that the youth anti-drug media campaign was effective in reducing youth drug use Washington, D.C: Government Accountability Office; 2006
23. Orwin R, , Cadell D, , Chu A. , et al. Evaluation of the national youth anti-drug media campaign: 2004 report of findings Washington, D.C: National Institute on Drug Abuse; 2004
24. Blendon RJ, Young JT. The public and the war on illicit drugs. *JAMA*. 1998; 279(11):827. [PubMed: 9515986]
25. Caulkins JP. Drug Policy: Insights from mathematical analysis. *Operations Research and Health Care*. 2005:297–331.
26. Kleiman MA. Enforcement swamping: A positive-feedback mechanism in rates of illicit activity. *Mathematical and computer modelling*. 1993; 17(2):65–75.
27. Todorov E. Optimal control theory. Bayesian brain: Probabilistic approaches to neural coding. 2006:269–98.
28. Rydell CP, Caulkins JP, Everingham SE. Enforcement or Treatment? Modeling the relative efficacy of alternatives for controlling cocaine *Operations Research*. 1996; 44(5):687.
29. Weatherburn D, Jones C, Freeman K, Makkai T. Supply control and harm reduction: Lessons from the Australian heroin drought. *Addiction*. 2003; 98:83. [PubMed: 12492758]
30. Wood E, Stoltz J-A, Li K, Montaner JSG, Kerr T. Changes in Canadian heroin supply coinciding with the Australian heroin shortage. *Addiction*. 2006; 101(5):689–95. [PubMed: 16669902]
31. Day C, Degenhardt L, Hall W. Changes in the initiation of heroin use after a reduction in heroin supply. *Drug and Alcohol Review*. 2006; 25(4):307–13. [PubMed: 16854655]
32. Maher L, Li J, Jalaludin B, et al. Impact of a reduction in heroin availability on patterns of drug use, risk behaviour and incidence of hepatitis C virus infection in injecting drug users in New South Wales, Australia. *Drug and alcohol dependence*. 2007; 89(2):244–50. [PubMed: 17289299]
33. Diebel L. Critics allege OxyNEO was introduced in Canada because of impending patent expiry. *Toronto Star*. 2012
34. Di Costanzo M. The painful truth-RNs share their views on the switch from OxyContin to OxyNeo, and the delisting of a drug many clients have come to rely on. *Registered Nurse Journal-Registered Association of Ontario*. 2012; 24(3):12.
35. Fischer B, Jones W, Rehm J. Trends and changes in prescription opioid analgesic dispensing in Canada 2005–2012: An update with a focus on recent interventions. *BMC Health Services Research*. 2014; 14(1):90. [PubMed: 24572005]
36. Gomes T, Mamdani MM, Paterson JM, Dhalla IA, Juurlink DN. Trends in high-dose opioid prescribing in Canada. *Canadian Family Physician*. 2014; 60(9):826–32. [PubMed: 25217680]
37. Paperny AM. OxyContin's gone, but Canada's pill-popping problem is worse than ever. *Globalnews.ca*. 2014 Mar 13.
38. Gomes T, Mamdani MM, Dhalla IA, Cornish S, Paterson JM, Juurlink DN. The burden of premature opioid-related mortality. *Addiction*. 2014; 109(9):1482–8. [PubMed: 25041316]
39. Harris PA. The opioid epidemic: AMA's response. *American Family Physician*. 2016:06–15.
40. Rudd RA, Aleshire N, Zibbell JE, Matthew Gladden R. Increases in drug and opioid overdose deaths—United States, 2000–2014. *American Journal of Transplantation*. 2016; 16(4):1323–7.
41. Paulozzi LJ, Budnitz DS, Xi Y. Increasing deaths from opioid analgesics in the United States. *Pharmacoepidemiology and drug safety*. 2006; 15(9):618–27. [PubMed: 16862602]

42. Degenhardt L, Chiu W-T, Sampson N, et al. Toward a global view of alcohol, tobacco, cannabis, and cocaine use: Findings from the WHO World Mental Health Surveys. *PLOS Medicine*. 2008; 5(7):1053–67.
43. Wood E, Werb D, Kazatchkine M, et al. Vienna Declaration: A call for evidence-based drug policies. *The Lancet*. 2010; 6736(10):2.
44. Global Commission on Drug Policy Report of the Global Commission on Drug Policy Rio de Janeiro: Global Commission on Drug Policy; 2010
45. Global Commission on Drug Policy The War on Drugs and HIV/AIDS: How the criminalization of drug use fuels the global pandemic Rio de Janeiro: Global Commission on Drug Policy; 2012
46. Genberg BL, Gange SJ, Go VF, Celentano DD, Kirk GD, Mehta SH. Trajectories of injection drug use over 20 years (1988–2008) in Baltimore, Maryland. *American Journal of Epidemiology*. 2011; 173(7):829–36. [PubMed: 21320867]
47. Lee C-YS, Winters KC, Wall MM. Trajectories of substance use disorders in youth: Identifying and predicting group memberships. *Journal of Child & Adolescent Substance Abuse*. 2010; 19(2): 135–57. [PubMed: 20485542]
48. Raikhel E, , Garriott W. *Addiction trajectories* Duke University Press; 2013
49. Tucker JS, Ellickson PL, Orlando M, Martino SC, Klein DJ. Substance use trajectories from early adolescence to emerging adulthood: A comparison of smoking, binge drinking, and marijuana use. *Journal of Drug Issues*. 2005; 35(2):307–32.
50. Werb D. *Injection career trajectories among illicit drug users in Vancouver, Canada* Vancouver: University of British Columbia; 2013
51. Windle M, Wiesner M. Trajectories of marijuana use from adolescence to young adulthood: Predictors and outcomes. *Development and psychopathology*. 2004; 16(04):1007–27. [PubMed: 15704825]
52. Fast D, Small W, Krusi A, Wood E, Kerr T. ‘I guess my own fancy screwed me over’: Transitions in drug use and the context of choice among young people entrenched in an open drug scene. *BMC Public Health*. 2010; 10(1):10. [PubMed: 20064237]
53. Higgs P, Higgs P, Moore D, et al. Engagement, reciprocity and advocacy: Ethical harm reduction practice in research with injecting drug users. *Drug Alc Rev*. 2006; 25(5):419–23.
54. Paterson BL, Panessa C. Engagement as an ethical imperative in harm reduction involving at-risk youth. *International Journal of Drug Policy*. 2008; 19(1):24–32. [PubMed: 18164609]
55. Souleymanov R, Kuzmanovi D, Marshall Z, et al. The ethics of community-based research with people who use drugs: results of a scoping review. *BMC Medical Ethics*. 2016; 17(1):25. [PubMed: 27129927]
56. Arosteguy J, , Gutnick R, , Osmanov S, , Hankins C. Ethical engagement of people who inject drugs in HIV prevention trials World Health Organization & the Joint United Nations Programme on HIV/AIDS; 2011
57. Small W, Wood E, Tobin D, Rikley J, Lapushinsky D, Kerr T. The injection support team: A peer-driven program to address unsafe injecting in a Canadian setting. *Subst Use Misuse*. 2012; 47(5): 491–501. [PubMed: 22428817]
58. Watson TM, Strike C, Kolla G, et al. Design considerations for supervised consumption facilities (SCFs): Preferences for facilities where people can inject and smoke drugs. *International Journal of Drug Policy*. 2013; 24(2):156–63. [PubMed: 23085257]
59. Werb D, Buxton J, Shoveller J, Richardson C, Rowell G, Wood E. Interventions to prevent the initiation of injection drug use: A systematic review. *Drug and Alcohol Dependence*. 2013; 133(2): 669–76. [PubMed: 24055187]
60. Blood RW, Williams J, McCallum K. Representations of public risk: Illegal drugs in the Australian press. *Media International Australia incorporating Culture and Policy*. 2003; 108(1):82–100.
61. Taylor S. Outside the outsiders: Media representations of drug use. *Probation Journal*. 2008; 55(4): 369–87.
62. Coomber R, Morris C, Dunn L. How the media do drugs: Quality control and the reporting of drug issues in the UK print media. *Int J Drug Pol*. 2000; 11(3):217–25.
63. Elliott AJ, Chapman S. Heroin hell their own making ‘: construction of heroin users in the Australian press 1992–97. *Drug and Alcohol Review*. 2000; 19(2):191–201.

64. Bryant J, Bryant J, Treloar C, Bryant J, Treloar C. The gendered context of initiation to injecting drug use: Evidence for women as active initiates. *Drug and Alcohol Review*. 2007; 26(3):287–93. [PubMed: 17454018]
65. Chami G, Werb D, Feng C, DeBeck K, Kerr T, Wood E. Neighborhood of residence and risk of initiation into injection drug use among street-involved youth in a Canadian setting. *Drug & Alcohol Dependence*. 2013; 132(3):486–90. [PubMed: 23587537]
66. Crofts N, Louie R, Rosenthal D, Jolley D. The first hit: Circumstances surrounding initiation into injecting. *Addiction*. 1996; 91(8):1187–96. [PubMed: 8828246]
67. Draus PJ, Carlson RG. Needles in the haystacks: The social context of initiation to heroin injection in rural Ohio. *Substance Use & Misuse*. 2006; 41(8):1111–24. [PubMed: 16798679]
68. Eaves CS. Heroin use among female adolescents: the role of partner influence in path of initiation and route of administration. *The American journal of drug and alcohol abuse*. 2004; 30(1):21–38. [PubMed: 15083552]
69. Fuller CM, Borrell LN, Latkin CA, et al. Effects of race, neighborhood, and social network on age at initiation of injection drug use. *American Journal of Public Health*. 2005; 95:689–95. [PubMed: 15798131]
70. Fuller CM, Vlahov D, Latkin CA, Ompad DC, Celentano DD, Strathdee SA. Social circumstances of initiation of injection drug use and early shooting gallery attendance: Implications for HIV intervention among adolescent and young adult injection drug users. *J Acquir Immune Defic Syndr*. 2003; 32(1):86. [PubMed: 12514419]
71. Hunt N, Stillwell G, Taylor C, Griffiths P. Evaluation of a brief intervention to prevent initiation into injecting. *Drugs: Education, Prevention, and Policy*. 1998; 5(2):185–94.
72. Martin FS. Becoming vulnerable: Young women's accounts of initiation to injecting drug use. *Addiction Research & Theory*. 2010; 18(5):511–27.
73. Storr CL, Westergaard R, Anthony JC. Early onset inhalant use and risk for opiate initiation by young adulthood. *Drug and alcohol dependence*. 2005; 78(3):253–61. [PubMed: 15893156]
74. Wood E, Tyndall MW, Montaner JS, Kerr T. Summary of findings from the evaluation of a pilot medically supervised safer injecting facility. *CMAJ*. 2006; 175(11):1399. [PubMed: 17116909]
75. Amato L, Davoli M, Ferri M, Ali R. Methadone at tapered doses for the management of opioid withdrawal. *Cochrane Database Syst Rev*. 2002; (1):CD003409.
76. Mattick RP, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev*. 2009; (2):CD002209. [PubMed: 19588333]
77. Strang J, Groshkova T, Metrebian N. New heroin-assisted treatment: Recent evidence and current practices of supervised injectable heroin treatment in Europe and beyond Lisbon: European Monitoring Centre for Drugs and Drug Addiction; 2012
78. Fischer B, Oviedo-Joekes E, Blanken P, et al. Heroin-assisted treatment (HAT) a decade later: a brief update on science and politics. *Journal of Urban Health*. 2007; 84(4):552–62. [PubMed: 17562183]
79. Dubois-Arber F, Balthasar H, Huissoud T, et al. Trends in drug consumption and risk of transmission of HIV and hepatitis C virus among injecting drug users in Switzerland, 1993–2006. *Euro surveillance: European communicable disease bulletin*. 2008; 13(21):717–27.
80. Hart CL. Viewing addiction as a brain disease promotes social injustice. *Nature Human Behaviour*. 2017; 1:0055.
81. DeBeck K, Cheng T, Montaner JS, et al. HIV and the criminalisation of drug use among people who inject drugs: a systematic review. *Lancet HIV*. 2017
82. Rhodes T, Mikhailova L, Sarang A, et al. Situational factors influencing drug injecting, risk reduction and syringe exchange in Togliatti City, Russian Federation: a qualitative study of micro risk environment. *Soc Sci Med*. 2003; 57(1):39. [PubMed: 12753815]
83. Rhodes T, Wagner K, Strathdee SA, Shannon K, Davidson P, Bourgois P. Rethinking Social Epidemiology Springer; 2012 Structural violence and structural vulnerability within the risk environment: Theoretical and methodological perspectives for a social epidemiology of HIV risk among injection drug users and sex workers; 20530
84. Room R. Stigma, social inequality and alcohol and drug use. *Drug Alc Rev*. 2005; 24(2):143–55.

85. Keane H. Critiques of harm reduction, morality and the promise of human rights. *Int J Drug Pol.* 2003; 14(3):227–32.
86. ONDCP National Drug Control Budget, FY 2004 Budget Summary Washington, D.C: Office of National Drug Control Policy; 2004
87. ONDCP FY2008 Drug Control Budget Washington, D.C: Office of National Drug Control Policy; 2007
88. ONDCP FY2010 Budget Summary Washington, D.C: Office of National Drug Control Policy; 2009
89. ONDCP FY2011 Budget Summary Washington, D.C: Office of National Drug Control Policy; 2010
90. ONDCP. Budget and Performance 2012 (<http://www.whitehouse.gov/ondcp/annual-accounting-report2012>)
91. ONDCP FY. 2015 Budget and Performance Summary Washington, DC: United States Office of National Drug Control Policy; 2015
92. Government of Canada National Anti-Drug Strategy - Prevention Ottawa: Government of Canada; 2007
93. [accessed March 14 2017] Smart Approaches to Marijuana 2017 (<https://learnaboutsam.org/>)