



Published in final edited form as:

Int J Drug Policy. 2017 December ; 50: 56–63. doi:10.1016/j.drugpo.2017.09.009.

Assessing police officers' attitudes and legal knowledge on behaviors that impact HIV transmission among people who inject drugs

Javier A. Cepeda¹, Steffanie A. Strathdee¹, Jaime Arredondo¹, Maria L. Mittal^{1,2}, Teresita Rocha¹, Mario Morales¹, Erika Clairgue¹, Eliane Bustamante^{1,2}, Daniela Abramovitz¹, Irina Artamonova¹, Arnulfo Bañuelos³, Thomas Kerr⁴, Carlos L. Magis-Rodriguez⁵, and Leo Beletsky^{1,6}

¹University of California, San Diego, Department of Medicine, Division of Global Public Health, La Jolla CA

²Universidad Xochicalco, School of Medicine, Tijuana, Mexico

³Department of Planning and Special Projects, Secretaría de Seguridad Pública Municipal, Tijuana, Mexico

⁴University of British Columbia, Center of Excellence in HIV/AIDS, Vancouver, BC, Canada

⁵Centro Nacional para la Prevención y Control del VIH/SIDA, Ciudad de Mexico, Distrito Federal, Mexico

⁶School of Law and Bouvé College of Health Sciences, Northeastern University, Boston, MA

Abstract

Background—Policing practices such as syringe confiscation and arrest can act as important social-structural drivers of HIV risk among people who inject drugs (PWID). However, police referral to treatment and other services may improve the health of PWID. Little is known about the role of modifiable attitudinal and knowledge factors in shaping officer behavior. Using baseline findings from a police education program (PEP), we assessed relationships between drug policy knowledge and attitudes towards public health interventions with self-reported syringe confiscation, drug arrest, and service referral among street-level police in Tijuana, Mexico.

Methods—Between February, 2015 and May, 2016 we surveyed 1,319 police officers who reported syringe contact. The self-administered survey focused on attitudes, knowledge, and behaviors related to drug policy, public health, and occupational safety. We used ordinal logistic regression to model the odds of syringe confiscation, arrest for heroin possession, and referring PWID to health/social programs.

Results—The sample was mostly male (87%) and had at least a high school education (80%). In the last six months, a minority reported always/sometimes confiscating syringes (49%), arresting

someone for heroin possession (43%), and referring PWID to health and social programs (37%). Those reporting needlestick injuries (NSI) had 1.38 (95% CI: 1.02–1.87) higher odds of reporting syringe confiscation. Officers who had favorable views on laws that treat addiction as a public health issue had lower odds (aOR= 0.78; 95% CI: 0.59–1.03) of arresting PWID. Those agreeing that it was their role to refer PWID to health and social programs had higher odds of reporting such referrals (aOR: 3.32, 95% CI: 2.52–4.37). Legal knowledge was not associated with these practices.

Conclusion—Changing drug policy and knowledge may be insufficient in shifting police behavior. Modifying officers’ occupational risks and attitudes towards harm reduction interventions can facilitate efforts to align police practices with PWID health.

Introduction

People who inject drugs (PWID) interface with numerous social and structural factors that increase their vulnerability to bloodborne infections. Criminalization of injection drug use ensures the prominence of drug laws and their enforcement among such factors. Certain policing practices, including syringe confiscation and drug arrests have been shown to be acutely deleterious to the HIV “risk environment” of PWID (Rhodes, 2002). Such policing practices are especially pervasive in settings where drug use is highly criminalized and stigmatized (e.g. United States (Beletsky et al., 2014), Mexico (Pinedo et al., 2015; Pollini et al., 2008), Russia (Sarang et al., 2006), Ukraine (Izenberg et al., 2013), Vietnam (Ahmed et al., 2015), and Malaysia (Michalopoulos et al., 2016)). These are some of the same settings where HIV prevalence among PWID is much higher than in the general population. Conversely, police officers routinely come into contact with PWID, creating opportunities to engage law enforcement in health promotion and HIV risk reduction activities. For instance, police can and do provide this hard-to-reach population with information about and links into harm reduction programs and services (DeBeck et al., 2008; Silverman et al., 2012). Nonetheless, a number of barriers limit the potential of police activities to promote the health of PWID.

The public health importance of police interactions with PWID is especially relevant in Tijuana, Mexico, which has one of the largest PWID populations in the country. Tijuana shares one of the world’s busiest land border crossings with San Diego, California; correspondingly, transmission of blood-borne diseases there has been shown to be bidirectional (Brouwer et al., 2006; Mehta et al., 2015). Reflecting global trends, our research found syringe confiscation to be associated with 2.5 increased odds of HIV seropositivity among PWID (Beletsky et al., 2013a). Further, PWID who reported recent arrest were over twice as likely to report syringe sharing compared to PWID who had not been arrested (Pollini et al., 2008). These practices are likely drivers of localized HIV and hepatitis C virus (HCV) epidemics among PWID in Tijuana, with potential for rapid geographical diffusion through active north- and southward migration through the unique Tijuana – San Diego border gateway (Brouwer et al., 2006; Mehta et al., 2015; Strathdee and Magis-Rodriguez, 2008; Strathdee et al., 2012; White et al., 2007).

On the other hand, frequent police encounters can highlight the potential protective effects of policing on PWID health. In our ongoing research with a cohort of PWID in Tijuana, 76% reported a recent encounter with police (Gaines et al., 2015). Despite this, only 10% reported ever enrolling in a drug/alcohol rehabilitation program and only 3% reported ever receiving information about health or social programs from police officers. Similarly, only 2% reported ever being diverted to drug treatment services by police and a mere 0.3% reported ever being referred to syringe exchange or other health services (Beletsky et al., 2016). It is not clear if the low referral rate pertains to officers' limited knowledge, negative attitudes, or other factors, such as lack of viable service options.

Taking advantage of police contact to operationalize drug treatment uptake was one of the core elements of drug policy reforms enacted by the Mexican government in 2009. In the context of decriminalizing the possession of small amounts of drugs for personal use, this "narcomenudeo" reform amended the General Health Law to include mandated treatment diversion for habitual users (Russoniello, 2012). Prior research is inconclusive on whether legal reforms or department-level policy changes are capable of such harmonization. Limited supervision, lack of training, and broad enforcement discretion allows officers to continue to engage in practices that are not entirely consistent with formal rules (Beletsky et al., 2011b; Burris et al., 2004; Sabet, 2012). Clarifying the relationship between policy interventions and police practices targeting PWID is especially relevant in Mexico where syringe possession has never been criminalized, but unauthorized syringe confiscation by police remains a major driver of PWID disease risk (Beletsky et al., 2013a)

Amidst a growing focus on criminal law reform and police practices as a structural determinant of PWID health, there is a critical need for research on factors that may shape key behavioral outcomes among police. Despite the recognized epidemiological importance of syringe confiscation, drug arrests, and service referral practices, little is known about the relationship between officer demographics, policy knowledge and attitudinal measures on the one hand and key behavioral outcomes on the other. To close this gap, we analyzed baseline findings from "Proyecto Escudo" ("Project Shield"), a structural HIV prevention intervention that delivered training on occupational safety with legal and harm reduction content. We hypothesized that limited drug policy knowledge would be associated with increased frequency of syringe confiscation and drug arrest. Additionally, we hypothesized that supportive attitudes concerning harm reduction services would be associated with increased frequency of referral to health and social programs.

Methods

Study population

The *Secretaría de Seguridad Pública Municipal* in Tijuana (Municipal Ministry of Public Safety) is the largest police force in the state of Baja California and employs approximately 2100 active duty officers across 11 districts (Shirk et al., 2015). To become an officer, the individual must be at least 18 years of age, and as of 2009, must have possessed at least a high school education. Officers in Tijuana are among the most highly paid in the country (earning from \$800 – \$2,000 USD per month) with a moderate turnover (6.2% annually).

Based on the PWID-specific focus of this analysis, we included only those officers who reported any contact with syringes while carrying out their law enforcement duties.

Data collection

Study procedures have been described previously (Strathdee et al., 2015). Briefly, from February 2015 – May 2016, over 1,800 officers received a three-and-a-half-hour police educational program (PEP) that included the following training goals: 1) occupational safety related to needlestick injuries (NSI) and HIV 2) narcomenudeo drug reform and legality of syringe possession, and 3) drug pharmacology and harm reduction services. Participants self-administered a pre- and post-training survey that reviewed concepts discussed in the training, attitudes on harm reduction services, and frequency of behaviors in the past six months. The items included in the survey had been drawn from similar training evaluation initiatives in other settings (Beletsky et al., 2011a; Beletsky et al., 2013b). Survey questions were then piloted among senior level Tijuana police officers. We incorporated the officers' feedback in the final version of the instrument. The study protocol was approved by the UCSD and Universidad Xochicalco institutional review boards and all participants provided written informed consent.

Outcomes

Since we restricted the research to officers who had contact with syringes, we considered three self-reported policing behaviors to be directly relevant to PWID health risk: syringe confiscation, arrest for heroin possession, and referral of PWID to health/social programs. The frequency of these behaviors in the last six months was measured on a 4-point Likert scale ranging from “always”, “sometimes”, “rarely”, “never”.

Independent variables

In addition to sociodemographic variables (age, sex, educational level), district where most recently stationed, and history of NSI, the survey also prompted officers for information on their legal knowledge and attitudes related to harm reduction services. The two legal knowledge items of interest were: syringe possession, as defined by the response on the number of syringes that could be possessed legally (none, 2, 5, 15, unlimited), and the specific threshold amount of heroin decriminalized under the narcomenudeo drug law reform (none, 50 mg, 500 mg, 5 g). For both items, we considered legal knowledge on a gradient. For example, the highest level of knowledge was demonstrated by correctly identifying the technically-accurate answer (unlimited amount of syringes, 50 mg of heroin). However, we also considered partial conceptual knowledge reflecting some measure of understanding of the law, as determined by choosing a response other than “none” or “don't know” in addition to the correct technical answer. Thus, if an officer responded that 500 mg of heroin was allowed (even though the correct amount is 50 mg), this was reflective of the officer understanding drug decriminalization as a concept.

We also assessed whether officers' attitudes towards harm reduction services were associated with the self-reported behaviors of interest. These attitudinal measures captured to what extent officers agreed with statements that: 1) methadone reduces criminal activity, 2) syringe exchange programs (SEPs) increase police risk of occupational NSI, 3) laws

treating addiction as a public health problem make the job of officers easier, 4) people addicted to drugs do not care about their health 5) drug addiction is a disease and 6) it is the role of police to refer PWID to health and social services. Responses to measures were on a 3-point Likert scale, ranging from agree, neither agree nor disagree, and disagree. Statistical analyses

Due to the ordinal nature of the outcome, interpretation of odds ratios should be treated as the higher ordered categories versus the lower ordered categories (e.g. “always” versus the three lower ordered categories [“sometimes”, “rarely”, “never”] or “always/sometimes” versus the two other lower ordered categories, etc.). The Score Test was used to verify the proportional odds assumption and ensure that there were no violations in the final models. The variance inflation factor was used to check for multicollinearity. All multivariable ordinal logistic models adjusted for age, and current district of service. Due to a high proportion of missing responses for the number of years of policing experience (26%), we used age as a proxy in multivariable models. We considered covariates if they were associated with the outcome ($p < 0.10$). The Akaike Information Criterion (AIC) was used to compare and inform the final model selection.

Results

Overall, 1,806 officers received the training, however given its focus, our subsample consisted of 1,319 patrol officers who came into contact with syringes. Sociodemographics, recent policing behaviors, legal knowledge on syringe and heroin possession, and attitudes towards harm reduction services are presented in Table 1.

The median age of the sample was 38 (IQR: 32–43); they were mostly male (87%), and most (80%) had at least a high school education. In the last six months, nearly half (49%) reported (always/sometimes) confiscating syringes and 43% reported (always/sometimes) arresting someone for heroin possession. Correct legal knowledge at baseline was low, with 37% of officers believing it was completely illegal to carry syringes and 71% believing that no amount of heroin had been decriminalized. Knowledge on medication-assisted therapy (i.e. methadone) was similarly low, as only 30% of participants agreed that methadone access helps reduce community-level crime. Only 8% of officers disagreed that PWID do not care about their health. While 56% agreed that it was their role to refer PWID to health and social services, only 37.4% reported doing so (always/sometimes) within the last six months. Correlates of syringe confiscation

Older age (OR: 0.98, 95% CI: 0.97 – 0.99) and female sex (OR: 0.51, 95% CI: 0.38 – 0.68) were significantly and negatively associated with the odds of reporting a higher frequency of self-reported syringe confiscation (Table 2). Conversely, officers who had been stationed in *Zona Centro* (downtown district) had 3.50 (95% CI: 2.63 – 4.65) higher odds, of reporting syringe confiscation. Report of ever experiencing a NSI was also associated with higher levels (OR=1.36; 95% CI: 1.01 – 1.83) of syringe confiscation. Adjusted odds ratios did not change appreciably after including age, sex, district, history of NSI, and attitudes on addiction in a multivariable model.

Arrest for heroin possession

Similar to syringe confiscation, we found strong and significant negative associations between age and female sex and arrest for heroin possession in multivariable analysis (Table 3). Additionally, officers stationed in the downtown precinct *Zona Centro* district had three times higher odds (aOR = 3.06, 95% CI: 2.28 – 4.11) of arresting someone for heroin possession compared to officers not stationed in *Zona Centro*. The best fitting multivariable model also included several attitudinal measures. Officers who agreed with the statement “Laws that treat drug addiction as primarily a public health problem make the job of police easier” had 0.78 times (95% CI: 0.59 – 1.03) the odds of making arrests for heroin possession, as compared to their counterparts. Conversely, officers who neither agreed nor disagreed that drug addiction is a disease had 0.52 times (95% CI: 0.29– 0.94) the odds of making arrests for heroin possession.

Referral to health/social programs

Table 4 presents the unadjusted and adjusted odds ratios for variables found to be significantly associated with frequency of referral to health and social programs. Officers who had accurate technical knowledge on syringe possession laws had lower odds of referring PWID to health and social services (aOR: 0.79, 95% CI: 0.63 – 0.98). Additionally, we found a strong association between officers who agreed that it was their role to refer PWID to health and social services and actually referring PWID to health/social programs (aOR: 3.32, 95% CI: 2.52 – 4.37). Conversely, officers who disagreed that SEPs increase NSI risk among police officers had significantly lower odds of referring PWID to health and social programs (aOR: 0.76, 95% CI: 0.59 – 0.99).

Discussion

Our findings show low levels of knowledge regarding legal and public health issues among one of Mexico’s largest police forces. Indeed, 37% of officers incorrectly believed that carrying syringes was illegal—despite Mexican criminal law never censuring syringe possession. Similarly, less than 30% were aware that heroin had been decriminalized six years prior to the study. This echoes other research on the gaps in police knowledge of laws related to drugs and syringes (Banta-Green et al., 2013; Beletsky et al., 2005; Beletsky et al., 2012b). In view of clear shortcomings in dissemination of policy information to those charged with its enforcement, trainings and other communication modalities should marshal special attention and resources.

Nevertheless, contrary to our expectations, measures of legal knowledge assessed in this study were not associated with practices that correspond to these provisions. We found that correct knowledge of syringe possession policy was negatively associated with referral of PWID to services. However, knowledge on the syringe law did not appear protective against syringe confiscation and knowledge of heroin decriminalization did not appear protective against arrest for heroin possession. It is possible that police culture that encourages extrajudicial practices supersedes formal policy, irrespective of whether the officer was aware of the law—a finding that is bolstered by qualitative research from other settings (Beletsky et al., 2005). Additionally, based on unpublished in-depth interviews, officers in

Tijuana reported confusion about the jurisdictional relevance of the state laws governing drug and syringe possession. Indeed, municipal ordinances give officers broad authority to detain anyone they see as “encouraging vice” or consuming drugs or alcohol in public (Secretario de Gobierno Municipal del XVII Ayuntamiento de Tijuana, 2002). In this context, shifting incentives and performance metrics away from arrest and towards referral to care may be a strategy to consider, as legal knowledge may not be sufficient to align these policing practices with public health imperatives. We will determine if similar trends in arrest and syringe confiscation persist in our prospective cohort sample post-PEP.

Our findings have additional important implications. The significant positive relationship found between ever experiencing a NSI and syringe confiscation reinforces the need to mount training and other interventions that safeguard officer occupational safety. While we cannot establish temporality due to the cross-sectional nature of these data, if experiencing a NSI reinforces negative attitudes towards PWID and promotes syringe confiscation, then training officers on preventing NSI could serve a dual health benefit for both officers and PWID. We have reported similar findings in Baltimore, MD, where officers who had experienced a NSI and had received a PEP were less likely to change their attitudes towards better public health practice compared to officers who had never experienced a NSI (Beletsky et al., 2012a). This analysis affirms the rationale for conducting PEP that bundle occupational safety with public health content, since improved public safety among police can improve the HIV risk environment for PWID.

Several demographic correlates of behavioral outcomes are noteworthy. In our analyses, female respondents were significantly less likely to engage in both syringe confiscation and arrest for heroin possession. Such a pattern is consistent with previous research suggesting that women in policing are less likely to engage in use of force, weapons, and controlling behaviors, including searches and arrest (Bazley et al., 2007; Rabe-Hemp, 2008; Schuck and Rabe-Hemp, 2007). While department-wide police trainings should seek to increase public health education as a way to foster greater empathy with PWID, female officers may play a critical role in reducing detrimental extrajudicial practices that harm the health of PWID. Indeed, other global entities, including the U.S. Department of Justice, have recommended increasing the representation of female officers in an effort to improve community – law enforcement relations (Cople, 2017). We also found that older officers were significantly less likely to engage in syringe confiscation and arrest, but more likely to refer to health/ social programs. In past research, older officers expressed disillusionment with criminal justice tools to combat drug-related harms (Beletsky et al., 2005). Our findings reaffirm the possibility that, having understood the instrumental futility of arrest and incarceration, older police officers may be more open to alternative approaches.

In all our models, we found that officers currently stationed in *Zona Centro* were more likely to have confiscated syringes, arrested someone for heroin possession, and referred PWID to health/social programs. This locale, which includes Tijuana’s “red light district”, is a concentrated hotspot of drug activity (Gaines et al., 2015; Gaines et al., 2017). Because of this concentration, it may also present higher occupational risk for officers, including HIV risk (Kori et al., 2014). Indeed, this is a substantial occupational risk for police in Tijuana as 15% reported a lifetime history of NSI, several-fold higher than among officers in the United

States (Mittal et al., 2016). However many harm reduction programs, including SEPs are also sited in this district. Thus, future interventions on improving officer safety and facilitating officer referral to evidence-based addiction treatment and harm reduction services should be prioritized in this locale.

Reframing police as agents of public health outreach can function as a key component in drug policy reform efforts. The 2009 drug policy reforms that decriminalized small amounts of drugs for personal consumption in Mexico, recast drug use as a health problem and stipulated that police must refer PWID to drug treatment upon their third infraction. The reforms in Mexico were loosely modeled on the Portuguese framework, whereby minor drug possession was decriminalized in 2001 and the response strongly focused on referral to drug treatment rather than criminal punishment (Hughes and Stevens, 2010). However, poor drafting, insufficient operational planning, and flawed implementation of the reforms in Mexico underscore the need for additional interventions, such as PEPs to buttress these reforms. Furthermore, police continue to play an integral role in settings without decriminalization laws but with robust harm reduction infrastructure, such as safe injecting facilities. For example, police in Vancouver have supported the city's safe injecting facility, as evidenced by greater police referral of public injecting PWID to this site, in part, because of its benefit to the public order (DeBeck et al., 2008). Previous studies have documented shifts in police culture and attitudes towards health of PWID, particularly as a result of the evolving opioid overdose crisis (Green et al., 2013; Wagner et al., 2016). In our study, we found that officers who believed that it was their role to refer PWID to health and social services were significantly more likely to report doing so, suggesting a high degree of self-efficacy to engage in this behavior. While the construct of "health and social programs" is quite broad, we chose this expansive framing because Tijuana suffers from a paucity of services tailored to address the needs of PWID (Bazzi et al., 2016; Werb et al., 2015). Improving referral mechanisms will depend on the ability to increase the scale of high quality, low threshold evidence-based services in the city.

Some associations between attitudinal variables and outcomes in our multivariable models were contrary to our expectations. For instance, officer attitudinal ambivalence—rather than positive attitudes—was a significant correlate of self-reported behavior. Specifically, those who felt ambivalent about whether SEPs increase their risk of NSI were significantly less likely to report recent heroin arrest. Similarly, respondents who felt ambivalent about the characterization of drug addiction as a disease were less likely to confiscate syringes. It is possible that officers who do not report strong views on issues related to substance use and harm reduction are also more ambivalent towards elements of police culture that may drive harsh enforcement practices. This unanticipated relationship warrants further exploration in follow-up and ethnographic research.

Limitations

These data were based on self-report; thus, social desirability and recall bias may have led to an underreporting of extrajudicial behaviors or over-reporting of referral to health/social programs. However, surveys were self-administered and may have reduced the influence of social desirability since no interviewer was present. Additionally, behavioral data were

collected prior to the PEP, so officers who were not aware of the legality of their behaviors would still most likely have answered truthfully. While our original intention was to capture the behavioral outcomes more quantitatively, we received feedback from senior officers during the piloting of the survey to utilize an ordinal scale. Thus, there may be some imprecision and subjectivity with officers' response to these behaviors. Since these baseline data were cross-sectional, we cannot determine the temporality of officers' knowledge and attitudes on these practices. Lastly, we limited this to only patrol officers who reported some contact with syringes, however there may have been officers who underreported incidents with syringes. These findings may also not be generalizable to officers with other primary duties or officers who reported no contact with syringes due to personal preferences.

Conclusions

Modifying officer occupational risks and attitudes towards harm reduction interventions is an important element in efforts to align police practices with public health objectives. Our study highlights the need to improve officers' public health knowledge and attitudes since this may reduce the frequency of arrest and syringe confiscation and promote referral to health and social programs.

Acknowledgments

We thank all participants in the study. We acknowledge technical and logistical support from Dr. Efraim Patiño and Dr. Gudelia Rangel. This study was supported by Open Society Foundations Latin America Program grants OR2013-11352 & OR2014-18327, the National Institute on Drug Abuse (R01DA039073, R01DA037773, T32DA023356, K01DA043421), Fogarty International Center (R25TW009343 and D43TW008633) and UCSD CFAR International Pilot Grant from the National Institute of Allergy and Infectious Diseases (P30 AI036214). The funders had no role in the design of the study, data collection, analysis, interpretation of findings, writing of the manuscript, or submission of the paper for publication.

References

- Ahmed T, Long TN, Huong PT, Stewart DE. Drug injecting and HIV risk among injecting drug users in Hai Phong, Vietnam: a qualitative analysis. *BMC Public Health*. 2015; 15:32.doi: 10.1186/s12889-015-1404-3 [PubMed: 25631330]
- Banta-Green CJ, Beletsky L, Schoeppe JA, Coffin PO, Kuszler PC. Police officers' and paramedics' experiences with overdose and their knowledge and opinions of Washington State's drug overdose-naloxone-Good Samaritan law. *Journal of Urban Health*. 2013; 90(6):1102-1111. [PubMed: 23900788]
- Bazley TD, Lersch KM, Mieczkowski T. Officer force versus suspect resistance: A gendered analysis of patrol officers in an urban police department. *Journal of Criminal Justice*. 2007; 35(2):183-192. DOI: 10.1016/j.jcrimjus.2007.01.005
- Bazzi AR, Syvertsen JL, Rolon ML, Martinez G, Rangel G, Vera A, et al. Social and Structural Challenges to Drug Cessation Among Couples in Northern Mexico: Implications for Drug Treatment in Underserved Communities. *J Subst Abuse Treat*. 2016; 61:26-33. DOI: 10.1016/j.jsat.2015.08.007 [PubMed: 26470596]
- Beletsky L, Macalino GE, Burris S. Attitudes of police officers towards syringe access, occupational needle-sticks, and drug use: a qualitative study of one city police department in the United States. *International journal of drug policy*. 2005; 16(4):267-274.
- Beletsky L, Agrawal A, Moreau B, Kumar P, Weiss-Laxer N, Heimer R. Police training to align law enforcement and HIV prevention: preliminary evidence from the field. *Am J Public Health*. 2011a; 101(11):2012-2015. DOI: 10.2105/AJPH.2011.300254 [PubMed: 21940924]

- Beletsky L, Grau LE, White E, Bowman S, Heimer R. The roles of law, client race and program visibility in shaping police interference with the operation of US syringe exchange programs. *Addiction*. 2011b; 106(2):357–365. DOI: 10.1111/j.1360-0443.2010.03149.x [PubMed: 21054615]
- Beletsky, L., Sherman, S., Serio-Chapman, C., Smelyanskaya, M. 2012 Aligning Law Enforcement and Harm Reduction in Baltimore City. Paper presented at the 9th National Harm Reduction Conference; Portland, OR. 2012a Nov 15.
- Beletsky L, Thomas R, Smelyanskaya M, Artamonova I, Shumskaya N, Dooronbekova A, et al. Policy reform to shift the health and human rights environment for vulnerable groups: The case of Kyrgyzstan's Instruction 417 On August 14, 2013. In Volume 14, Number 2. *Health and Human rights*. 2012b; 14(2):2.
- Beletsky L, Lozada R, Gaines T, Abramovitz D, Staines H, Vera A, et al. Syringe confiscation as an HIV risk factor: the public health implications of arbitrary policing in Tijuana and Ciudad Juarez, Mexico. *Journal of Urban Health*. 2013a; 90(2):284–298. [PubMed: 22806453]
- Beletsky L, Thomas R, Shumskaya N, Artamonova I, Smelyanskaya M. Police education as a component of national HIV response: lessons from Kyrgyzstan. *Drug Alcohol Depend*. 2013b; 132(Suppl 1):S48–52. DOI: 10.1016/j.drugalcdep.2013.06.027 [PubMed: 23896307]
- Beletsky L, Heller D, Jenness SM, Neaigus A, Gelpi-Acosta C, Hagan H. Syringe access, syringe sharing, and police encounters among people who inject drugs in New York City: a community-level perspective. *Int J Drug Policy*. 2014; 25(1):105–111. DOI: 10.1016/j.drugpo.2013.06.005 [PubMed: 23916801]
- Beletsky L, Wagner KD, Arredondo J, Palinkas L, Magis Rodríguez C, Kalic N, et al. Implementing Mexico's "Narcomenudeo" drug law reform: A mixed methods assessment of early experiences among people who inject drugs. *Journal of Mixed Methods Research*. 2016; 10(4):384–401.
- Brouwer KC, Strathdee SA, Magis-Rodriguez C, Bravo-Garcia E, Gayet C, Patterson TL, et al. Estimated numbers of men and women infected with HIV/AIDS in Tijuana, Mexico. *J Urban Health*. 2006; 83(2):299–307. DOI: 10.1007/s11524-005-9027-0 [PubMed: 16736378]
- Burris S, Blankenship KM, Donoghoe M, Sherman S, Vernick JS, Case P, et al. Addressing the "risk environment" for injection drug users: the mysterious case of the missing cop. *Milbank Q*. 2004; 82(1):125–156. [PubMed: 15016246]
- Copple, JE. *Law Enforcement Recruitment in the 21st Century: Forum Proceedings*. Washington, D.C: Office of Community Oriented Policing Services, U.S. Department of Justice; 2017.
- DeBeck K, Wood E, Zhang R, Tyndall M, Montaner J, Kerr T. Police and public health partnerships: Evidence from the evaluation of Vancouver's supervised injection facility. *Substance abuse treatment, prevention, and policy*. 2008; 3(1):11.
- Gaines TL, Beletsky L, Arredondo J, Werb D, Rangel G, Vera A, et al. Examining the spatial distribution of law enforcement encounters among people who inject drugs after implementation of Mexico's drug policy reform. *J Urban Health*. 2015; 92(2):338–351. DOI: 10.1007/s11524-014-9907-2 [PubMed: 25300503]
- Gaines TL, Werb D, Arredondo J, Alaniz VM, Vilalta C, Beletsky L. The Spatial-Temporal Pattern of Policing Following a Drug Policy Reform: Triangulating Self-Reported Arrests With Official Crime Statistics. *Subst Use Misuse*. 2017; 52(2):214–222. DOI: 10.1080/10826084.2016.1223689 [PubMed: 27767367]
- Green TC, Zaller N, Palacios WR, Bowman SE, Ray M, Heimer R, et al. Law enforcement attitudes toward overdose prevention and response. *Drug Alcohol Depend*. 2013; 133(2):677–684. DOI: 10.1016/j.drugalcdep.2013.08.018 [PubMed: 24051061]
- Hughes CE, Stevens A. What can we learn from the Portuguese decriminalization of illicit drugs? *The British Journal of Criminology*. 2010; 50(6):999–1022.
- Izenberg JM, Bachireddy C, Soule M, Kiriazova T, Dvoryak S, Altice FL. High rates of police detention among recently released HIV-infected prisoners in Ukraine: implications for health outcomes. *Drug Alcohol Depend*. 2013; 133(1):154–160. DOI: 10.1016/j.drugalcdep.2013.05.018 [PubMed: 23769160]
- Kori N, Roth AM, Lozada R, Vera A, Brouwer KC. Correlates of injecting in an HIV incidence hotspot among substance users in Tijuana, Mexico. *Int J Drug Policy*. 2014; 25(3):525–532. DOI: 10.1016/j.drugpo.2013.12.005 [PubMed: 24418632]

- Mehta SR, Wertheim JO, Brouwer KC, Wagner KD, Chaillon A, Strathdee S, et al. HIV Transmission Networks in the San Diego-Tijuana Border Region. *EBioMedicine*. 2015; 2(10):1456–1463. DOI: 10.1016/j.ebiom.2015.07.024 [PubMed: 26629540]
- Michalopoulos LM, Jiwatram-Negron T, Choo MK, Kamarulzaman A, El-Bassel N. The association between psychosocial and structural-level stressors and HIV injection drug risk behavior among Malaysian fishermen: A cross-sectional study. *BMC Public Health*. 2016; 16:464.doi: 10.1186/s12889-016-3125-7 [PubMed: 27250497]
- Mittal ML, Beletsky L, Patino E, Abramovitz D, Rocha T, Arredondo J, et al. Prevalence and correlates of needle-stick injuries among active duty police officers in Tijuana, Mexico. *J Int AIDS Soc*. 2016; 19(4 Suppl 3):20874.doi: 10.7448/IAS.19.4.20874 [PubMed: 27435711]
- Pinedo M, Burgos JL, Zuniga ML, Perez R, Macera CA, Ojeda VD. Police Victimization Among Persons Who Inject Drugs Along the U.S.-Mexico Border. *J Stud Alcohol Drugs*. 2015; 76(5): 758–763. [PubMed: 26402356]
- Pollini RA, Brouwer KC, Lozada RM, Ramos R, Cruz MF, Magis-Rodriguez C, et al. Syringe possession arrests are associated with receptive syringe sharing in two Mexico-US border cities. *Addiction*. 2008; 103(1):101–108. DOI: 10.1111/j.1360-0443.2007.02051.x [PubMed: 18028520]
- Rabe-Hemp CE. Female officers and the ethic of care: Does officer gender impact police behaviors? *Journal of Criminal Justice*. 2008; 36(5):426–434.
- Rhodes T. The 'risk environment': a framework for understanding and reducing drug-related harm. *International journal of drug policy*. 2002; 13(2):85–94.
- Russoniello K. The devil (and drugs) in the details: Portugal's focus on public health as a model for decriminalization of drugs in Mexico. *Yale J Health Pol'y L & Ethics*. 2012; 12:371.
- Sabet, D. *Police reform in Mexico: informal politics and the challenge of institutional change*. Stanford University Press; 2012.
- Sarang A, Rhodes T, Platt L, Kirzhanova V, Shelkovnikova O, Volnov V, et al. Drug injecting and syringe use in the HIV risk environment of Russian penitentiary institutions: Qualitative study. *Addiction*. 2006; 101(12):1787–1796. DOI: 10.1111/j.1360-0443.2006.01617.x [PubMed: 17156178]
- Schuck AM, Rabe-Hemp C. Women police: The use of force by and against female officers. *Women & Criminal Justice*. 2007; 16(4):91–117.
- Secretario de Gobierno Municipal del XVII Ayuntamiento de Tijuana. Bando de Policia y Gobierno para el Municipio de Tijuana, Baja California. 2002. Retrieved from <http://www.ordenjuridico.gob.mx/Estatal/BAJACALIFORNIA/Municipios/Tijuana/TijuanaBando01.pdf>
- Shirk, DA., Suárez de Garay, ME., Rodríguez Ferreira, OJ. *Diagnóstico Integral de la Policía Municipal de Tijuana*. San Diego, CA: University of San Diego; 2015.
- Silverman B, Davis CS, Graff J, Bhatti U, Santos M, Beletsky L. Harmonizing disease prevention and police practice in the implementation of HIV prevention programs: Up-stream strategies from Wilmington, Delaware. *Harm Reduct J*. 2012; 9:17.doi: 10.1186/1477-7517-9-17 [PubMed: 22591836]
- Strathdee SA, Arredondo J, Rocha T, Abramovitz D, Rolon ML, Patino Mandujano E, et al. A police education programme to integrate occupational safety and HIV prevention: protocol for a modified stepped-wedge study design with parallel prospective cohorts to assess behavioural outcomes. *BMJ Open*. 2015; 5(8):e008958.doi: 10.1136/bmjopen-2015-008958
- Strathdee SA, Magis-Rodriguez C. Mexico's evolving HIV epidemic. *JAMA*. 2008; 300(5):571–573. DOI: 10.1001/jama.300.5.571 [PubMed: 18677029]
- Strathdee SA, Magis-Rodriguez C, Mays VM, Jimenez R, Patterson TL. The emerging HIV epidemic on the Mexico-U.S. border: an international case study characterizing the role of epidemiology in surveillance and response. *Ann Epidemiol*. 2012; 22(6):426–438. DOI: 10.1016/j.annepidem.2012.04.002 [PubMed: 22626001]
- Wagner KD, Bovet LJ, Haynes B, Joshua A, Davidson PJ. Training law enforcement to respond to opioid overdose with naloxone: Impact on knowledge, attitudes, and interactions with community members. *Drug Alcohol Depend*. 2016; 165:22–28. DOI: 10.1016/j.drugalcdep.2016.05.008 [PubMed: 27262898]

Werb D, Wagner KD, Beletsky L, Gonzalez-Zuniga P, Rangel G, Strathdee SA. Police bribery and access to methadone maintenance therapy within the context of drug policy reform in Tijuana, Mexico. *Drug Alcohol Depend.* 2015; 148:221–225. DOI: 10.1016/j.drugalcdep.2015.01.011 [PubMed: 25655577]

White EF, Garfein RS, Brouwer KC, Lozada R, Ramos R, Firestone-Cruz M, et al. Prevalence of hepatitis C virus and HIV infection among injection drug users in two Mexican cities bordering the U.S. *Salud Publica Mex.* 2007; 49(3):165–172. [PubMed: 17589770]

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Table 1

Baseline characteristics, behaviors, knowledge, and attitudes among those who came into contact with syringes (N=1,319)

Characteristic	N (%) or Median (IQR)
Officer Demographics	
Age	38 (32–43)
Male	1150 (87.4)
At least high school education	876 (79.9)
Number of years working as police	11.4 (8.6 – 18.3)
Currently stationed in <i>Zona Centro</i> (downtown district)	204 (15.6)
Policing Behaviors (past 6 months)	
Ever been stuck with a needle	171 (13.0)
Frequency of needle or syringe confiscation past 6 months	
Always	151 (11.5)
Sometimes	492 (37.4)
Rarely	376 (28.6)
Never	296 (22.5)
Frequency of arrest for heroin possession past 6 months	
Always	74 (5.6)
Sometimes	497 (37.8)
Rarely	340 (25.8)
Never	405 (30.8)
Frequency of referring PWID to social or health programs past 6 months	
Always	131 (10.0)
Sometimes	360 (27.4)
Rarely	284 (21.6)
Never	540 (41.1)
Legal Knowledge	
Syringe possession	
Incorrect none/don't know	485 (36.8)
Partial conceptual knowledge	139 (10.5)
Correct technical knowledge	695 (52.7)
Heroin possession	
Incorrect none/don't know	1174 (89.0)
Partial conceptual knowledge	40 (3.0)

Characteristic	N (%) or Median (IQR)
Correct technical knowledge	105 (8.0)
Attitudes on PWID Health and Services	
Methadone maintenance programs help reduce criminal activity (agree)	393 (30.2)
Syringe exchange programs increase risk of NSI among police (disagree)	274 (20.9)
Laws treating addiction as public health problem make policing easier (agree)	796 (60.5)
People addicted to drugs do not care about their health (disagree)	107 (8.1)
Drug addiction is a disease (agree)	1110 (85.5)
It is the role of police to refer PWID to health and social services (agree)	739 (56.2)

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Table 2

Correlates of Syringe Confiscation in past 6 months

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Officer Demographics				
Age	0.98 (0.97 – 0.99)	0.004	0.98 (0.97 – 0.99)	0.004
Male	Ref		Ref	
Female	0.51 (0.38 – 0.68)	<.001	0.50 (0.37 – 0.68)	<.001
At least high school education	Ref			
Did not complete high school education	0.82 (0.62 – 1.07)	0.139		
Number of years working as police	0.98 (0.97 – 0.99)	0.004		
Not stationed in <i>Zona Centro</i> district	Ref		Ref	
Stationed in <i>Zona Centro</i> District	3.50 (2.63 – 4.65)	<.001	3.60 (2.69 – 4.81)	<.001
Ever experienced needlestick injury				
No	Ref		Ref	
Yes	1.36 (1.01 – 1.83)	0.041	1.38 (1.02 – 1.87)	0.036
Legal Knowledge				
Syringe possession				
Incorrect none/don't know	Ref			
Partial conceptual knowledge	1.47 (1.04 – 2.07)	0.029		
Correct technical knowledge	1.04 (0.84 – 1.28)	0.721		
Heroin possession				
Incorrect none/don't know	Ref			
Partial conceptual knowledge	1.36 (0.76 – 2.41)	0.297		
Correct technical knowledge	1.03 (0.71 – 1.47)	0.896		
Attitudes on PWID Health and Services				

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Methadone maintenance programs help reduce criminal activity				
Disagree	Ref			
Neither agree nor disagree	0.91 (0.71 – 1.15)	0.414		
Agree	0.86 (0.67 – 1.11)	0.243		
Syringe exchange programs increase the risk of NSI among police				
Agree	Ref			
Neither agree nor disagree	0.78 (0.60 – 1.02)	0.066		
Disagree	0.86 (0.67 – 1.10)	0.233		
Laws treating addiction as a public health problem make policing easier				
Disagree	Ref			
Neither agree nor disagree	1.04 (0.76 – 1.42)	0.807		
Agree	0.85 (0.66 – 1.11)	0.232		
People addicted to drugs do not care about their health				
Agree	Ref			
Neither agree nor disagree	1.18 (0.87 – 1.60)	0.297		
Disagree	0.72 (0.51 – 1.04)	0.079		
Drug addiction is a disease				
Disagree	Ref			
Neither agree nor disagree	0.42 (0.24 – 1.27)	0.002	Ref	<.001
Agree	0.91 (0.65 – 1.27)	0.566	0.36 (0.20 – 0.64)	0.401
0.86 (0.61 – 1.22)				
It is the role of police to refer PWID to health and social services				
Disagree	Ref			
Neither agree nor disagree	1.31 (0.97 – 1.76)	0.487		
Agree	1.09 (0.85 – 1.40)	0.077		

Table 3

Correlates of arrest for heroin possession in past 6 months

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Officer Demographics				
Age	0.97 (0.96 – 0.98)	<.001	0.96 (0.95 – 0.98)	<.001
Male	Ref		Ref	
Female	0.53 (0.39 – 0.71)	<.001	0.46 (0.34 – 0.64)	<.001
At least high school education	Ref			
Did not complete high school education	0.77 (0.59 – 1.01)	0.056		
Number of years working as police	0.97 (0.95 – 0.98)	<.001		
Not stationed in <i>Zona Centro</i> district	Ref		Ref	
Stationed in <i>Zona Centro</i> District	3.07 (2.30 – 4.10)	<.001	3.06 (2.28 – 4.11)	<.001
Ever experienced needlestick injury				
No	Ref			
Yes	1.23 (0.92 – 1.65)	0.169		
Legal Knowledge				
Syringe possession				
Incorrect none/don't know	Ref			
Partial conceptual knowledge	1.39 (0.98 – 1.96)	0.065		
Correct technical knowledge	1.07 (0.87 – 1.33)	0.512		
Heroin possession				
Incorrect none/don't know	Ref			
Partial conceptual knowledge	1.39 (0.78 – 2.48)	0.267		
Correct technical knowledge	1.21 (0.84 – 1.75)	0.299		
Attitudes on PWID Health and Services				

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Methadone maintenance programs help reduce criminal activity				
Disagree	Ref			
Neither agree nor disagree	0.83 (0.63 – 1.05)	0.112		
Agree	0.81 (0.65 – 1.05)	0.122		
Syringe exchange programs increase the risk of NSI among police				
Agree	Ref		Ref	
Neither agree nor disagree	0.75 (0.57 – 0.97)	0.031	0.69 (0.52 – 0.91)	0.008
Disagree	0.93 (0.72 – 1.19)	0.548	0.83 (0.64 – 1.08)	0.163
Laws treating addiction as a public health problem make policing easier				
Disagree	Ref		Ref	
Neither agree nor disagree	0.92 (0.67 – 1.27)	0.620	0.95 (0.68 – 1.32)	0.744
Agree	0.73 (0.57 – 0.95)	0.021	0.78 (0.59 – 1.03)	0.078
People addicted to drugs do not care about their health				
Agree	Ref			
Neither agree nor disagree	1.03 (0.76 – 1.41)	0.829		
Disagree	0.74 (0.52 – 1.07)	0.111		
Drug addiction is a disease				
Disagree	Ref		Ref	
Neither agree nor disagree	0.58 (0.33 – 1.02)	0.058	0.52 (0.29 – 0.94)	0.029
Agree	1.06 (0.76 – 1.49)	0.726	1.03 (0.73 – 1.47)	0.852
It is the role of police to refer PWID to health and social services				
Disagree	Ref			
Neither agree nor disagree	1.25 (0.92 – 1.68)	0.150		
Agree	1.00 (0.78 – 1.29)	0.998		

Table 4

Correlates of referring PWID to health/social programs in past 6 months

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Officer Demographics				
Age	1.02 (1.01 – 1.03)	<.001	1.02 (1.00 – 1.03)	0.013
Male	Ref			
Female	0.73 (0.54 – 0.98)	0.039		
At least high school education	Ref			
Did not complete high school education	1.08 (0.82 – 1.41)	0.584		
Number of years working as police	1.02 (1.00 – 1.03)	0.035		
Not stationed in <i>Zona Centro</i> district	Ref		Ref	
Stationed in <i>Zona Centro</i> District	1.29 (0.98 – 1.69)	0.067	1.37 (1.04 – 1.81)	0.028
Ever experienced needlestick injury				
No	Ref		Ref	
Yes	1.33 (1.00 – 1.79)	0.054	1.30 (0.96 – 1.76)	0.085
Legal Knowledge				
Syringe possession				
Incorrect none/don't know	Ref		Ref	
Partial conceptual knowledge	1.21 (0.86 – 1.70)	0.285	1.27 (0.89 – 1.80)	0.184
Correct technical knowledge	0.72 (0.58 – 0.89)	0.002	0.79 (0.63 – 0.98)	0.033
Heroin possession				
Incorrect none/don't know	Ref			
Partial conceptual knowledge	1.38 (0.78 – 2.44)	0.268		
Correct technical knowledge	1.12 (0.78 – 1.60)	0.558		
Attitudes on PWID Health and Services				

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Methadone maintenance programs help reduce criminal activity				
Disagree	Ref			
Neither agree nor disagree	0.85 (0.67 – 1.08)	0.164		
Agree	1.20 (0.93 – 1.54)	0.188		
Syringe exchange programs increase the risk of NSI among police				
Agree	Ref		Ref	
Neither agree nor disagree	0.83 (0.64 – 1.09)	0.175	0.92 (0.70 – 1.21)	0.551
Disagree	0.71 (0.55 – 0.92)	0.008	0.76 (0.59 – 0.99)	0.043
Laws treating addiction as a public health problem make policing easier				
Disagree	Ref			
Neither agree nor disagree	1.15 (0.84 – 1.83)	0.377		
Agree	1.41 (1.08 – 1.83)	0.011		
People addicted to drugs do not care about their health				
Agree	Ref			
Neither agree nor disagree	1.15 (0.85 – 1.56)	0.371		
Disagree	0.92 (0.62 – 1.32)	0.641		
Drug addiction is a disease				
Disagree	Ref			
Neither agree nor disagree	0.65 (0.37 – 1.15)	0.139		
Agree	1.22 (0.87 – 1.72)	0.249		
It is the role of police to refer PWID to health and social services				
Disagree	Ref		Ref	
Neither agree nor disagree	1.66 (1.22 – 2.28)	0.002	1.68 (1.22 – 2.32)	0.002
Agree	3.39 (2.59 – 4.44)	<.001	3.32 (2.52 – 4.37)	<.001