



HHS Public Access

Author manuscript

Int J Drug Policy. Author manuscript; available in PMC 2022 April 01.

Published in final edited form as:

Int J Drug Policy. 2021 April ; 90: 103056. doi:10.1016/j.drugpo.2020.103056.

Examining the Gender Composition of Drug Injecting Initiation Events: A Mixed Methods Investigation of Three North American Contexts

S.A. Meyers^{1,2}, C. Rafful³, M. L. Mittal^{2,4}, L. R. Smith², J. Tirado-Muñoz², S. Jain⁵, X. Sun⁵, R. S. Garfein², S. A. Strathdee², K. DeBeck^{6,7}, K. Hayashi^{6,8}, R. McNeil⁹, M. J. Milloy^{6,10}, M. Olding⁶, A. Guise¹¹, D. Werb^{2,12}, A.I. Scheim¹³

¹School of Social Work, College of Health and Human Services, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182, USA;

²Division of Infectious Diseases and Global Public Health, Department of Medicine, University of California San Diego, 9500 Gilman Drive, La Jolla, CA 92093, USA;

³Facultad de Psicología, Universidad Nacional Autónoma de México, University City, Coyoacán, 04510, Mexico City, Mexico;

⁴Facultad de Medicina, Universidad Xochicalco, Rampa Yumalinda 4850, Colonia Chapultepec Alamar C.P. 22540, Tijuana, Baja California, Mexico;

⁵Department of Family Medicine and Public Health, University of California San Diego, 9500 Gilman Drive, La Jolla, CA 92093, USA;

⁶British Columbia Centre on Substance Use, 400-1045 Howe Street, Vancouver, BC, V6Z 2A9 Canada;

⁷School of Public Policy, Simon Fraser University, 8888 University Drive, Burnaby, BC, V5A 1S6 Canada;

⁸Faculty of Health Sciences, Simon Fraser University, 8888 University Drive, Burnaby, BC, V5A 1S6 Canada;

⁹School of Medicine, Yale, 333 Cedar Street, New Haven, CT, 06510, USA;

¹⁰Department of Medicine, University of British Columbia, 2775 Laurel Street, Vancouver, BC, V5Z 1M9 Canada;

¹¹Addison House, Guy's Hospital, King's College London, Strand, London WC2R 2LS, UK;

¹²Centre for Urban Health Solutions, St. Michael's Hospital, 30 Bond Street, Toronto, ON, M5B 1W8 Canada;

Corresponding Author: Ayden I. Scheim, PhD, Assistant Professor, School of Public Health, Department of Epidemiology and Biostatistics, 3215 Market Street, Nesbit Hall, Philadelphia, PA 19104, drasheim@gmail.com.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conflict of Interest

The authors declare that they have no conflicts of interest.

¹³Department of Epidemiology and Biostatistics, School of Public Health, Drexel University, 3215 Market Street, Philadelphia, PA 19104, USA

Abstract

Background: Gender influences the health and social risks faced by individuals initiating drug injecting. Using mixed methods across three settings in North American, we investigated the gender composition of injection initiation events and the gendered risk environments in which they occurred.

Methods: The *PReventing Injecting by Modifying Existing Responses* (PRIMER) study pooled data from three prospective community-recruited cohorts of people who inject drugs (PWID) in San Diego, USA, Vancouver, Canada, and Tijuana, Mexico. A qualitative subsample provided narrative data on their experiences of, and the contexts for, injection initiation events. Guided by Rhodes' risk environment framework, we examined the gender composition of initiation events stratified by city, and analyzed qualitative data using abductive thematic analyses.

Results: Among 2,622 PWID (Tijuana: $n = 531$; San Diego: $n = 352$; Vancouver: $n = 1,739$), 112 (4.3%) reported providing initiation assistance to injection-naïve individuals in the previous six months. The proportion of gender concordant (e.g., male-male) initiation pairs varied, ($\chi^2 = 10.32$, $p < 0.001$) with greater than expected concordance among pairs in Tijuana compared with those in Vancouver or San Diego. Sixty-one interviews provided context for the discrepancy across sites by highlighting the gendered injection initiation risk environments of prison/jail detention in Tijuana, intimate partnerships in San Diego, and overdose risk in Vancouver.

Conclusions: These results highlight how gender influences injection initiation events within spatial, social, and economic risk environments, and how this influence varies across settings. These findings can inform interventions to reduce the risk of injection initiation and related harms.

Keywords

Gender; Injection Drug Use; Risk Environment; San Diego, USA; Tijuana, Mexico; Vancouver, Canada

1. Background

The current overdose crisis is a pressing public health concern across North America. In 2018 there were 67,367 overdose deaths in the United States, representing 20.7 deaths per 100,000, and nearly half of which involved synthetic opioids like fentanyl (Hedegaard et al., 2020; Wilson et al., 2020). Similarly, in British Columbia, Canada, there were 19.9 deaths per 100,000 in 2019 related to opioid overdose alone, 85% of which involved synthetic opioids like fentanyl (British Columbia Coroners Service, 2019; Special Advisory Committee on the Epidemic of Opioid Overdoses, 2020a). In Mexico, according to the most recent available data, there were 378 overdose deaths reported in 2015–2016 (Goodman-Meza, Medina-Mora, Landovitz, Shoptaw, & Werb, 2019). However, northern Mexico, including Tijuana, has since reported increasing contamination of the heroin supply with fentanyl (Fleiz et al., 2019).

Injection drug use (IDU) is a key risk factor for overdose, especially given the emergence of high potency synthetic opioids, like fentanyl, within the illicit drug supply (Centers for Disease Control and Prevention, 2019; National Institute of Drug Abuse, 2018). Given the elevated overdose risks faced by people who inject drugs (PWID) residing in the United States, Canada, and northern regions of Mexico, and the importance of regional contexts in understanding harms related to the opioid epidemic (Unick & Ciccarone, 2017), comparative research across these settings is needed.

PWID are also disproportionately affected by blood-borne pathogens such as HIV and Hepatitis C virus (HCV) and are at greatest risk of infection within the first three years after initiating IDU (Garfein et al., 1998; Goldsamt et al., 2011). This could be due, in part, to the reliance of novice PWID on more experienced PWID to help them learn the skills necessary to inject, their sharing of drug preparation equipment with those PWID assisting them, the vulnerability of novice PWID, particularly marginalized women, to punitive policing and policies related to IDU, and the vulnerability of women to intimate partner violence within injection-related relationships (El-Bassel, Gilbert, Wu, Go, & Hill, 2005; Garfein et al., 1998; Global Commission on Drug Policy, 2012; Goldenberg et al., 2020; Goldsamt et al., 2011; Li et al., 2014; Werb et al., 2018). Given that novice PWID are particularly vulnerable to IDU-related harms in the few years following initiation, experts have recommended focusing prevention efforts upstream, towards the prevention of transitions to drug injecting (Vlahov, Fuller, Ompad, Galea, & Jarlais, 2004; Werb et al., 2018; Werb, et al., 2013).

1.1 Transitions into Injection Drug Use

PWID play an important role in IDU initiation processes, with 74–100% reporting receiving guidance, education, and/or physical assistance from more experienced PWID during their transition into drug injecting (Gicquelais et al., n.d.; Bluthenthal, Wenger, Chu, Quinn, Thing, & Kral, 2010; Werb et al., 2013; Werb et al., 2016). PWID are provided IDU initiation assistance from a variety of people including casual acquaintances, intimate partners, friends, relatives, persons who sell drugs, and strangers (Guise, Horyniak, Melo, McNeil, & Werb, 2017). Furthermore, data indicate that gender shapes these relationships, with women who inject drugs (WWID) being more likely to have been assisted in initiation by a male sexual partner/spouse and men who inject drugs (MWID) more likely to have been assisted by a casual acquaintance (Doherty et al., 2000; Frajzyngier et al., 2007; Guise et al., 2018). A global investigation of gendered IDU risk has found that women were also more likely to report continued dependence on their intimate partner for IDU assistance after initiation and difficulty in obtaining sterile injection equipment (Zahnow et al., 2018). Despite the identification of these global gendered risks, differential risk based on gender in IDU initiation processes are also context-specific (Meyers et al., 2018). For example, among a sample of PWID in Tijuana, Mexico, men were found to be significantly more likely to have provided IDU initiation assistance compared to women, though this association was not found among PWID in San Diego, United States or Vancouver, Canada (Meyers et al., 2018).

1.2 Gendered Power Dynamics in IDU Initiation Events

Additionally, scientific literature across contexts has illustrated how gendered power dynamics shape injection initiation processes. For example, an investigation of gender dynamics within PWID intimate partnerships in New York city revealed that reasons for providing IDU initiation assistance included the desire of one partner to share the drug use experience and pleasure, to increase intimacy and/or relationship satisfaction, and to counteract a partner's increasing tolerance and/or the economic cost of drug use (Guise et al., 2018; Simmons et al., 2012). Qualitative narratives from studies in New York, United States and Leeds, United Kingdom have also highlighted IDU initiation experiences during which women were coerced or forced to inject, through both the economic pressures of substance use and, more rarely, through violence (Simmons et al., 2012; Wright et al., 2007). These accounts of forced or coerced initiation of women suggest unique gendered emotional and physical vulnerability to IDU initiation, though it is noteworthy that other accounts also demonstrate women's active pursuit of being initiated into IDU (Goldenberg et al., 2012; Meyers et al., 2019; Small, Fast, Krusi, Wood, & Kerr, 2009). In general, however, it has been observed that there is a lack of research focusing on the gender-specific risks surrounding the process of IDU initiation (Auerbach & Smith, 2015; Collins, McNeil, et al., 2019), and a concomitant need for conceptually-driven investigations of the gendered contexts and pathways of entry into drug injecting (Guise, Horyniak, Melo, McNeil, & Werb, 2017).

1.3 IDU Risk in the San Diego, USA-Tijuana, Mexico Region

The San Diego-Tijuana region is a key node along a drug trafficking corridor that supplies methamphetamine, heroin, and cocaine (Brouwer, Case, et al., 2006; US Department of Justice Drug Enforcement Administration, 2015), from Mexico to the United States and into Canada (Ciccarone, 2017; Dibble, 2017; United States Department of Justice Drug Enforcement Agency, 2018). The cities of San Diego, United States and Tijuana, Mexico form an international, metropolitan region that is home to a large binational population of PWID that have been found to have elevated HIV and HCV prevalence (Brouwer, Strathdee, et al., 2006; Spradling et al., 2013) and high-risk IDU behaviors (Robertson et al., 2014; Spradling et al., 2013; Strathdee et al., 2005; Volkmann et al., 2012). Furthermore, interviews with PWID in San Diego revealed that a little over a quarter of the sample had traveled to Mexico to inject drugs, and that distributive needle sharing was positively associated with cross-border IDU (Volkmann et al., 2012). This context is one in which high risk behaviors and high levels of mobility are increasing risk of infection and overdose mortality for PWID, and further research is needed to understand the gendered risk environments that are productive of IDU initiation events within this region.

1.4 The Context of IDU Risk in Vancouver, Canada

Canada has recently experienced an increase in drug supply adulteration which places PWID at increased risk of overdose death (Mayer et al., 2018). For example, fentanyl and fentanyl-related analogues were found in 78% of the nearly 3,000 overdose deaths recorded for 2019 (Special Advisory Committee on the Epidemic of Opioid Overdoses, 2020b). Vancouver is the city most disproportionately affected by IDU-related morbidity and mortality in Canada

(British Columbia Centre for Disease Control, 2020). In response, the provincial government has implemented a wealth of harm reduction strategies ranging from needle exchange programs and providing access to sterile injection equipment to supervised injection facilities and overdose prevention sites (Kennedy et al., 2017; Wallace et al., 2019; Wood et al., 2007), which have been demonstrated to have reduced overdose mortality in a recent modelling study (Irvine et al., 2019). Notably, Vancouver's women-only supervised consumption site, SisterSpace, opened in 2017 and provides a harm reduction space in which women feel safe from the gendered stigma and violence they may encounter in other mixed-gender harm reduction services (Boyd et al., 2020; Collins et al., 2020). Given this convergence of the opioid overdose crisis and harm reduction strategies in Vancouver, it is important to understand how gender shapes experiences with IDU initiation in this context so that tailored prevention and harm reduction efforts can be developed. As such, Vancouver is an important sociocultural context in which to better understand the influence of gendered risk environments on IDU initiation processes.

1.5 The Current Study

The purpose of this mixed methods study is to characterize the gendered context for, and experiences of PWID in, transitions from non-IDU to IDU across contexts disproportionately impacted by IDU and related harms. More specifically, this paper seeks to further understand the gender composition of IDU initiation pairs (i.e., PWID assisters and IDU-naïve assistees) and how this is influenced by the risk environments in which they operate. This study has two chief aims: (1) to compare the gender composition of the population participating in IDU initiation across three North American contexts; San Diego, United States, Tijuana, Mexico, and Vancouver, Canada, and (2) to explore the gendered risk environments in which IDU initiation events occur across these contexts.

2. Methods

2.1 Conceptual Framework: The Risk Environment Framework

Rhodes' risk environment framework conceptualizes drug use and related harms as a product of the interaction between an individual's agency and a set of intersecting environments that constrain and enable their capacity to avoid IDU-related harms (Rhodes, 2009). It delineates factors within spatial (i.e., physical), social, economic, and policy environments that can serve to either ameliorate or exacerbate drug-related harms (Rhodes, 2009). It also acknowledges the potential for the interaction of risk environments at the micro, meso, and macro levels (Rhodes, 2009). The framework has been widely applied to explain HIV- and IDU-related risks among PWID (Melo et al., 2018; Ospina-Escobar et al., 2018; Rhodes et al., 2005; Strathdee et al., 2010), and has been combined with an intersectional lens to further explore how gendered inequities and gender power dynamics produce risk for people who use drugs (Collins, Boyd, et al., 2019). As such, the risk environment framework is well suited to investigate IDU initiation among PWID.

2.2 Study Characteristics

The current study was conducted as an extension of the *Preventing Injecting by Modifying Existing Responses* (PRIMER) is a multi-cohort study seeking to investigate whether

interventions to reduce HIV risk among PWID may be effective in preventing the initiation of others into IDU (Werb et al., 2016). PRIMER study methods have been previously described in full (Werb et al., 2016). Briefly, PRIMER includes quantitative data pooled beginning in August 2014 and qualitative beginning in September 2016 from existing community-recruited open prospective cohort studies of PWID including the *Study of Tuberculosis, AIDS, and Hepatitis C Risk* (STahr II) cohort (San Diego, US), the *Proyecto El Cuete IV* (ECIV) cohort (Tijuana, Mexico), and the two linked *Vancouver Drug Users Study* (VDUS)/*AIDS Care Cohort to evaluate Exposure to Survival Services* (ACCESS) cohorts (Vancouver, Canada). All of these cohort studies sought to investigate HIV risk behaviors among people who use drugs, including PWID, living in urban settings, and ECIV and STahr II were specifically designed as a linked binational study mechanism with survey items that are highly comparable (Robertson et al., 2014). PRIMER questionnaires collected data on the involvement of PWID in providing IDU initiation assistance, including participants' experiences providing IDU initiation assistance to others and the characteristics of the people they provided IDU initiation assistance to. With respect to the present study, which sought to provide a granular-level analysis of the gendered context for, and experiences of PWID in, transitions from non-IDU to IDU, eligibility was restricted to individuals who reported IDU in the 30 days prior to baseline, were a resident of their respective city and planned to remain in the area for at least 24 months, and were fluent in either English or Spanish.

Additionally, based on quantitative reports of providing IDU initiation assistance, medication assisted treatment (MAT) enrollment, and a history of incarceration, a purposive sample of participants that met the aforementioned PRIMER inclusion criteria was recruited for semi-structured qualitative interviews in San Diego, USA (STahr II), Tijuana, Mexico (ECIV), and Vancouver, Canada (VDUS/ACCESS). To identify the unique social norms and stigmas associated with helping others to inject, a sub-sample of participants who did not report assisting others was also included in STahr II and ECIV qualitative samples. All participants gave informed consent and received USD\$25 (CAD\$40 in Vancouver) compensation for their time and travel costs for the quantitative interviews and USD\$25 (CAD\$40 in Vancouver) for the qualitative interviews. PRIMER, STahr II and ECIV received approval from the University of California, San Diego Institutional Review Board (IRB) and VDUS/ACCESS received approval from the Research Ethics Board of the University of British Columbia and Providence Health Care. ECIV also received approval from the Universidad Xochicalco Ethics Committee.

2.3 Quantitative Measures

Composite variables were created to construct the outcomes of interest: the gender composition of IDU initiation pairs reported by PWID participants and whether their participation in an IDU initiation was pair gender concordant (i.e., both the PWID participant [i.e. the assister] and the person to whom they provided IDU initiation assistance [i.e., the assistee] were of the same gender). This was done using a three-stage process. First, PWID participants were asked, "In the past six months, have you helped someone to inject who had never injected before?" If they endorsed the item, they were asked to indicate the gender(s) of those they provided assistance to. The response options for this item were:

male, female, and transgender, and participants were allowed to endorse more than one option given that they could have assisted multiple individuals in the past six months. Second, from this variable and from the self-reported gender of the participant, the gender composition of the pair participating in the initiation event was assessed, and the composite variable was created with the following categories: male assister and male assistee(s) (MM), male assister and female assistee(s) (MF), male assister and mixed gender assistees (MX), female assister and female assistee(s) (FF), female assister and male assistee(s) (FM), and female assister and mixed gender assistees (FX). Third, if the gender of the assister and the assistee were the same (i.e., MM or FF), the pair was designated as gender-concordant; conversely, if the genders of the pair were different (i.e., MF, MX, FM, or FX), the pair was designated as gender-discordant. Though the broader samples contained transgender individuals, none reported providing IDU initiation assistance in the past six months. The independent variable of interest for this analysis was defined as the site of participant recruitment (i.e., whether participants were from San Diego, Tijuana, or Vancouver).

2.4 Qualitative Data Collection

Qualitative interviews were initially undertaken as part of PRIMER (Werb et al., 2016). These in-depth qualitative interviews included open-ended questions and prompts to explore the relationships and contexts that influenced individuals' own, and their participation in others', IDU initiation events, as well as the perceived social norms and contexts that shaped their decisions to assist others. These interview protocols were also informed by a systematic review and meta-synthesis of previous research on injection initiation (Guise, Horyniak, et al., 2017). Data presented in this paper were extracted from these interviews and focus on participants' involvement in others' IDU initiation events to inform the quantitative data on participants' provision of IDU initiation assistance. The qualitative interviews collected data on a range of topics related to the process of IDU initiation; this paper will, however, focus on the gendered themes that emerged in participants' accounts of providing IDU initiation assistance.

All interviews were conducted by social science researchers with previous qualitative research experience with communities of people who use drugs. The interviews took place in offices that were familiar to study participants in either San Diego for STAHR II participants, Tijuana for ECIV participants, or Vancouver for VDUS/ACCESS participants. Interviewers explored these questions while allowing participants to elaborate on topics in their own words. Additionally, interviewers did not probe further on interview topics if verbal or non-verbal cues indicated an unwillingness to discuss the subjects raised or if contradictions emerged in their accounts. The interviews lasted one hour, on average, but ranged from 20 to 90 minutes in length. All interviews were transcribed and translated to English when needed. All names presented herein are pseudonyms to preserve participant confidentiality.

2.5 Analyses

The present analysis used an explanatory sequential mixed-methods design (QUAN → qual), in which an initial quantitative analysis phase informed, and was followed by, a second qualitative analysis phase (Cresswell & Plano Clark, 2017). This second qualitative

phase sought to further explore the findings of the initial quantitative phase using data from previously conducted qualitative interviews. Data from both the quantitative and qualitative analyses were then subsequently integrated to evaluate the gender composition of pairs participating in IDU initiation events and the contexts in which they operate. This study did so to establish complementarity through the use of different methods to address different parts of the phenomenon of interest - specifically, the gendered contexts for the provision of IDU initiation assistance (Greene et al., 1989).

2.5.1 Quantitative Analysis—Descriptive statistics were generated for all variables of interest across the STAHR II, ECIV, and VDUS/ACCESS cohorts separately, as well as for the pooled sample combining the three cohorts. Chi-square analyses and Fisher's exact tests were conducted assessing the relationship between cohort location (i.e., San Diego, Vancouver, or Tijuana) and IDU initiation pair type, as well as between cohort location and gender concordance. All quantitative analyses were conducted with SAS® OnDemand for Academics software.

2.5.2 Qualitative Analysis—All the in-depth qualitative interviews were originally coded and analyzed thematically by a team of social scientists as part of PRIMER. The present analysis built upon the initial coding by developing additional codes in response to the quantitative findings, and by drawing on existing concepts from the risk environments of the events being investigated (i.e., the spatial, social, and economic environments of providing IDU initiation assistance). Subsequently, we employed an abductive approach to develop themes from our qualitative data. An abductive approach involves producing speculative theoretical impressions in response to unexpected qualitative findings, and subsequently refining these emergent theories by systematically analyzing the variation in responses across the study (Tavory & Timmermans, 2014). As such, we developed themes from the data, informed by the aforementioned coding phase and the risk environment framework, and iteratively refined them through multiple coding stages (Tavory & Timmermans, 2014).

Results

3.1 Quantitative Results

As shown in Table 1, a total of 2,625 PWID across the three cohorts provided responses to questions regarding the provision of injection initiation assistance, with 354 (13.5%) participants in San Diego, 531 (20.2%) in Tijuana, and 1,740 (66.3%) in Vancouver. Overall, 1,693 (64.5%) identified as male, 924 (35.2%) identified as female, 5 (0.2%) participants identified as transgender, and 3 (0.1%) declined to provide data on gender. A total of 112 (4.3%) participants reported having provided IDU initiation assistance within the past six months, with similar proportions reporting providing assistance in San Diego (5.1%, $n=18$), Tijuana (4.3%, $n=23$), and Vancouver (4.1%, $n=71$) ($p > 0.05$). Among this subsample, 34 (30.4%) were female, 76 (67.9%) were male, and two participants (1.8%) declined to provide data on their gender.

One hundred and ten participants (98.2%) reported on the gender(s) of the individual(s) to whom they recently (within the past six months) provided injection initiation assistance. The

largest proportion of IDU initiation pair type ($n = 39$; 35.5%) consisted of male participants who reported providing assistance to other males (MM). Additionally, 27 (24.5%) male participants provided initiation assistance to females (MF), 17 (15.5%) female participants assisted males (FM), 10 (9.1%) female participants reported providing assistance to females (FF), 10 (9.1%) male participants assisted individuals of both genders (MX), and 7 (6.3%) female participants assisted individuals of both genders.

Frequencies of IDU initiation gender pair types, and of gender concordance between assisters and assistees within these pairs, were analyzed across cohort location. As shown in Table 2, there were significant differences in IDU initiation pair type across location. Specifically, the proportion of MM pairs (69.6%) was significantly larger, and the proportion of MF pairs (4.3%) was significantly smaller in Tijuana compared to San Diego (MM = 29.4%; MF = 35.2%) or Vancouver ([MM = 25.7%; MF = 28.6%] $p = 0.025$). As shown in Table 3, there was also a significantly larger proportion of gender concordant pairs (MM and FF) in Tijuana (73.9%) compared with San Diego (41.2%) or Vancouver (35.7%; $p = 0.006$).

3.2 Qualitative Results

Sixty-one qualitative interviews were conducted among racially and ethnically diverse PRIMER participants (San Diego: $n = 21$, Tijuana: $n = 21$, and Vancouver $n = 19$) (Guise et al., 2018; Maria L. Mittal et al., 2019; Olding et al., 2019). The present qualitative analysis sought to contextualize the quantitative differences in the proportions of MM and gender concordant initiation pairs when comparing cities. We analyzed participant narratives to understand how spatial, social, and economic risk environments produced the gender composition of IDU initiation events, across sites.

3.21 The Spatial Risk Environment: Few participant accounts highlighted the role of gendered spatial risk environments (i.e., specific physical locations that shape the risk of IDU assistance provision) in providing IDU initiation assistance. Three participants (one male and two females), however, recounted providing IDU initiation assistance within the context of jail or prison, where gender concordance is mandated:

“... a girl that was [female name], right? That girl, well her boyfriend dumped her, left her there in jail. Paid her bail and he left, and that girl said she wanted to use drugs, because I saw her crying and crying, and I said, ‘this will calm you, you’ll see.’ So I injected her. And then she was all over me. All day.”

(Nancy, 39, Tijuana)

Israel: “...I met this youngster that I injected him for the first time...He lied to me and said that he had fixed before, and it was just like me, he wanted to fit in.”

Interviewer: “This was in the jail still?”

Israel: “Yeah.”

(Israel, 44, Tijuana)

Incarceration is a key risk environment for increased syringe sharing and HIV transmission (Rhodes et al., 2005; W. Small & McNeil, 2018). These narratives highlight that the

enforced gender concordance of jails and prisons also facilitates IDU initiation events. Additionally, though the provision of injection initiation assistance was motivated by a desire to provide emotional comfort for Nancy, and through the assistee's desire to "fit in" in Israel's account, these motivations were shaped and constrained by the physical location of jail or prison. Similarly, in accounting for his own initiation into IDU, Israel described a desire to regulate his own emotions within the physical constraints of jail after a having a difficult day in court as a motivator for seeking initiation assistance. This indicates that, within the spatial constraint of carceral environments, IDU initiation assistance is used as a tool to build social support and to ameliorate negative emotions. Further, both participants described a reluctance for providing injection initiation assistance to others in their interviews, thereby highlighting how the constraints of incarceration can supersede social norms prohibiting helping others to inject for the first time (Guise et al., 2018).

Of note, narratives reflecting on providing IDU initiation assistance within prison/jail, though limited in nature, only emerged from the Tijuana sample. This could potentially help explain the significant differences in the level of gender concordance among 'assisters' and 'assistees' involved in IDU initiation events across the three study sites.

3.22 The Social Risk Environment

Intimate partnerships emerged as an important gendered social risk environment (i.e., the social relationships and influences that shape PWID's risk for providing injection initiation assistance). This was particularly the case for participants' provision of IDU initiation assistance in San Diego ($n = 6$; 28.6%) versus in Tijuana ($n = 4$; 19.0%) and in Vancouver ($n = 3$; 15.8%). Additionally, this theme appeared slightly more frequently in the narratives of women compared to men. Patricia's story recounting providing initiation assistance to an ex-husband exemplifies how heterosexual intimate partnerships can be a potential micro-level social risk environment that facilitates gender-discordant IDU initiation events:

"But uhm I ended up meeting someone else and getting married to somebody else that would beat me up a lot. And uhm I did the same thing to him but not as much, you know I gave him his first shot. After that it was every six months or so he would want to do another shot."

(Patricia, 54, San Diego)

For Patricia, it appears that her self-perceived vulnerability to gendered violence has contributed to her provision of IDU initiation assistance within the gendered risk environment of her relationships with men. In Patricia's narrative, she also recounted that a previous ex-husband had removed her children from her care and disappeared, which resulted in her own initiation into IDU in response to the emotional distress she experienced from this separation. She also recounted providing IDU initiation assistance to a prior intimate partner that she suspected of trying to take over her drug dealing business (Meyers et al., 2019). In that instance, Patricia provided an overly large dose in an effort to give him "a bad high" and to deter him from injecting further because he was physically abusive to her; though it is important to also note that she also reported taking care of him afterwards and that, outside of not wanting to inject again, he fully recovered. These experiences suggest that Patricia chose to provide initiation assistance to her intimate partners to

maintain relationship and resource stability, despite - and perhaps because of - the potential emotional, physical, and/or economic harm that she experienced within those very same relationships. Similar to past studies examining risk environments among PWID, the narratives from the women in our sample suggest a complex interplay between social and structural factors, and existing gender power dynamics (Meyers et al., 2019; Rhodes et al., 2017), that serve to create risk environments for providing IDU initiation assistance.

This theme was further illustrated through the following account from Martina, in which she details her provision of IDU initiation assistance within the social context of an intimate partnership:

“And that is why I ended up injecting him for the first time, I said, I’d rather do it and be checking on him than another person inject him and leave him alone. But honestly I did not like it, doing that was not really pleasant... but I saw that he kept saying that if I did not do it, I did not put it [inject him]... he was going to put it [inject] with other people, with whomever it was. He is the father of one of my children, and I see him now and I feel bad and seeing him like that, because, well I should have avoided it, but perhaps maybe I wouldn’t have been able to avoid it.”

(Martina, 38, Tijuana)

Due to being involved with an intimate partner that had not previously injected, Martina was presented with a request for initiation assistance. Similar to what has previously been found in literature examining the provision of IDU initiation assistance (Guise et al., 2018), Martina experienced a tension between the social norms against providing assistance and her concern for the well-being of her partner. The perceived inevitability of her partner’s initiation into IDU, and the fear of potential harm if he were to begin injecting with a stranger, subsequently led her to provide assistance as an act of caring. However, Martina’s narrative represents a minority of initiation events reported by participants in Tijuana, where 82.6% were gender-concordant. This suggests that alternate pathways to IDU initiation (i.e., not the context of intimate partnerships) are likely more common in Tijuana.

In Vancouver, however, a setting deeply affected by overdose mortality related to the injection of adulterated opioids, gender discordant IDU initiation events were more frequently reported within the social context of caring for others in the face of an opioid overdose crisis (e.g., providing IDU initiation assistance to help prevent overdose or other injection-related harms for others; $n = 8$; 42.1%), rather than in the context of intimate partnerships ($n = 3$; 15.8%). Additionally, it is important to note that while some participants from other settings also reported providing injection initiation assistance out of a desire to protect others from injection-related harms (e.g., Martina’s account above), or for other prosocial rationales (e.g., Arron’s account in Section 3.23), the frequency with which the theme of “caring for others” emerged in the narratives was greater among the Vancouver participants. For example, the narratives from Angela and Arthur below describe how providing IDU initiation assistance can be viewed as an act of kindness and protection given the ubiquity of fentanyl adulteration in the unregulated drug supply and the consequent dangers IDU-naïve individuals could be exposed to within this setting:

“Well, I got them to use in front of me, right, instead of using for somebody that doesn’t care about them. And I’d show them how to do it properly, and like all the fucking tricks of the trade and how you use, right? And clean needles.”

(Angela, 47, Vancouver)

“Because I know they want to get high and they can’t at the moment. So, [I] say okay I’m gonna help him and why not? And because it’s, it, makes it good karma I guess.”

(Arthur, 34, Vancouver)

Within the larger context of the ongoing opioid overdose crisis and the potential for HIV and HCV transmission, participants like Angela and Arthur view responding to requests for IDU initiation assistance as acts of “good karma.” In these processes, more experienced PWID can make sure that those seeking to initiate IDU do so with the appropriate dose, sterile equipment, in a setting where they can be monitored for signs of overdose, and with people who would not take advantage of them. Both men ($n = 3$) and women ($n = 5$) reported providing initiation assistance as an act of caring in this setting, and they also reported providing assistance to both men and women. In Tijuana, however, past research has highlighted the existence of traditional gender roles in which women may be proscribed from providing IDU initiation assistance and in which men are often viewed as the protectors and providers of women (Fragoso & Kashubeck, 2000; Meyers et al., 2019). This indicates that the need for caring within substance using social networks in light of the opioid overdose crisis, coupled with differing gender norms across contexts, could be contributing to the greater gender discordance in IDU initiation events seen within the quantitative data from Vancouver.

3.23 The Intertwining of Economic and Social Risk Environments

Eighteen interviewees (San Diego: $n = 9$ (42.9%), Tijuana: $n = 8$ (38.1%), Vancouver: $n = 1$ (5.3%)) highlighted the interplay of gendered social and economic risk environments (e.g., the combination of monetary, drug supply, and/or job-related factors with social relationships that shape the risk of providing injection initiation assistance) in potentiating IDU initiation events. For example, Aaron recounted growing up in family and gang environments in Tijuana where drug use and injecting were commonplace, so much so that he reported learning the skills necessary to inject through providing IDU assistance to his parents when he was a child. In addition to this social context, Aaron described his experience providing IDU initiation assistance to a fellow gang member within the context of an underground economy:

“Because I am a mobster. I live in that, I grew up in that. All my family feeds from that. We don’t sell drugs but we charge fees. I decide who sells and who doesn’t sell in my neighborhood...So, I remember, and he [the person he assisted] told me, ‘alright, teach me.’ ‘What do you want to learn? This is chiva, dude - heroin - chiva. You put it in the vein or you smoke it.’ And he says, ‘no, teach me how to inject it.’ ‘Oh, you want to be tecato [a heroin user]?’ ‘Yes. I want to know the feeling.’”

(Aaron, 30, Tijuana)

These economic and social environments, in which Aaron had an active role in his gang and had experience injecting, exposed him to requests for initiation assistance. In this context, the greater prevalence of MM initiation event types in Tijuana may, in part, be explained by the broader ordering by gender of economic environments related to drug selling, where the vast majority of participants are male (Ludwick et al., 2015; Reddon et al., 2019).

This is further exemplified by the following narrative from Julia, who recounts her experience providing IDU initiation assistance. Gendered social environments in which PWID encounter novice PWID, coupled with the economic constraints of substance use, create a risk environment which facilitates IDU initiation assistance:

“It just depends. If they get me when I’m withdrawing, Imma do it [provide initiation assistance] (laughs). You know what I mean? But if I got some in my pocket [substances/money], I’m not even going to bother. Everything is to the convenience of the, junkie, you could say.”

(Julia, 27, Tijuana)

Six (28.6%) other participants from Tijuana also discussed how the economic requirements of maintaining their substance use or their involvement in underground economies intertwined with their social risk environments to produce IDU initiation events. The social risk environments of same gender peers and/or family were most frequently reported intertwining with economic risk environments in Tijuana. This is in-line with past research that has found that transitions into IDU can be socially sanctioned, and in some cases initiated, by substance use-involved families (Guise, Andrew, Horniak, Danielle, Melo, Jason, McNeil, Ryan, Werb, 2017; Sherman et al., 2002). This combination of economic and gendered social risk environments with the aforementioned gendered expectation that men be providers may explain the greater proportion of gender-concordant IDU initiation events in Tijuana.

Nine (42.9%) participants from San Diego and one (5.3%) participant from Vancouver highlighted similar intersections between economic constraints and social risk environments. The social risk environments most commonly reported as intersecting with these economic risk environments, however, were intimate partnerships. This is apparent in Arron’s narrative, in which he recounts providing initiation assistance to three women, all of whom he dated and sold drugs to:

“I started scoring for them and they started like, um, they started buying my, my dope as well. So I didn’t, they were smoking at first and it took like a couple of weeks and and each individual I told, ‘You girls are wasting it’ and they said, ‘What do you mean we are wasting it?’, you know. ‘You never slam, you never use a needle.’ They were like, ‘No,’ and ever since I introduced them to a needle.”

(Arron, 34, San Diego)

Past literature has identified intimate partnerships as an important site of IDU initiation events, especially when partners are faced with the economic constraints of maintaining their own and their partner’s drug supply (Meyers et al., 2019; Simmons et al., 2012; Wright et al., 2007). Furthermore, existing research demonstrates that there are gender differences in

access to resources (e.g., money and drugs), and gendered divisions of labor in which men are often tasked with obtaining and controlling the substances used, within IDU-related heterosexual intimate partnerships (Meyers et al., 2019). The salience of these economic constraints within the social risk environment of intimate partnerships for participants in San Diego could therefore, in part, explain the greater proportion of gender-discordant IDU initiation pairs found in this context.

4. Discussion

We identified a significantly higher proportion of gender-discordant IDU initiation events in San Diego and Vancouver and a higher proportion of gender concordant pairs—specifically the MM pair type—in Tijuana. Qualitative data illustrated differing gendered spatial, social, and economic risk environments for the provision of IDU initiation assistance across these three settings. Past literature has reported on gendered roles within IDU initiation practices across settings, including women being more likely to share injection preparation equipment and to be initiated by an intimate partner or spouse (Doherty et al., 2000; Frajzyngier et al., 2007). We expand upon the existing research by exploring in granular detail the gender composition of IDU initiation events across three distinct sociocultural contexts in North America (i.e., San Diego, US, Tijuana, Mexico, and Vancouver, Canada).

Through this exploratory, secondary, mixed-methods analysis, we found that gender-discordant IDU initiation events (i.e., with ‘assisters’ and ‘assistees’ of different genders) were likely to occur within the micro-level social risk environment of intimate partnerships in San Diego, especially for women ‘assisters’, and in the meso-level social risk environment of the opioid overdose crisis in Vancouver, which participants report increases their desire to protect vulnerable novice PWID from harm. The spatial risk environment of jails/prisons and the intersection of disproportionately male economic and social risk environments were also identified as contributing to gender concordant IDU initiation events in Tijuana. This could be driven, in part, by conflicting local laws and drug policy reform within Tijuana, that ultimately result in the systematic, extrajudicial arrest of people who use drugs (Morales et al., 2018, 2020). This is in contrast with the drug policing and policy environments in California, USA and Vancouver, Canada, in which there have been efforts to decriminalize or reduce felony convictions for drug possession and to employ health- and social service-related interventions within the justice system (Elderbroom & Durnan, 2019; Garcia et al., 2019). The narratives from participants in San Diego also highlight the impact of economic instability felt by WWID, and the disproportionate influence of social support and intimate partners within IDU initiation processes. This dynamic interplay between economic and social risk environments within San Diego could be contributing to the higher prevalence of gender-discordant IDU initiation events. These findings can support the development of tailored, context-specific harm reduction and intervention programs. For example, existing interventions like Break the Cycle, an intervention that has been found to effectively target transitions into IDU through counselor-led training and education sessions for PWID, could be adapted to incorporate techniques from couple-based interventions targeting HIV and HCV risk behaviors (Des Jarlais et al., 2019; El-Bassel et al., 2014). For example, Project Connect II and Project Renaissance successfully employed techniques like technical skill and communication building, that may be of benefit when combined with Break the Cycle

intervention strategies for PWID in San Diego (Des Jarlais et al., 2019; El-Bassel et al., 2014). Given the increased vulnerability of WWUD to intimate partner violence, however, couple-based approaches may not always be the safest or most appropriate intervention techniques for WWID in these settings (Iverson et al., 2015). Due to the intertwining of economic risk environments with intimate partnerships for WWID in San Diego, and past literature demonstrating that having access to money or other financial resources is associated with a reduced risk of HIV-related risk behaviors for women, it is further recommended that economic empowerment interventions be employed to help ameliorate the economic constraints that produce injection related processes and risks for WWID in this geographic setting (Reed et al., 2016; Vyas & Watts, 2009).

The narratives suggest that the social risk environment of ‘caring for others’ in light of an ongoing opioid overdose crisis was an important contributing factor to the greater proportion of gender-discordant IDU initiation events in Vancouver. Similar to what has been found in the literature, the PWID in the current study had to weigh the potential for their assistee’s overdose against both the desire to protect individuals from beginning injecting and the social norms proscribing providing initiation assistance (Guise et al., 2018; Olding, Werb, Guise, Small, & McNeil, 2019). Given the ubiquity of fentanyl in Vancouver, however, the desire to protect others from harm outweighed the desire to avoid providing initiation assistance, and the social stigma that may accompany it. Though there was only a marginal gender difference in assisters found within these narratives (men: $n = 3$; women: $n = 5$), past research has highlighted the existence of gendered social norms that promote higher levels of prosocial behaviors (e.g., helping, caring, sharing, and guiding) among women and that women are more likely to report providing IDU initiation assistance to others in an effort prevent injury (Eagly, 2009; Simpson et al., 2020). This could indicate that the threat of overdose is so dire for PWID in Vancouver that it is disrupting gender norms surrounding prosocial behaviors, and moving initiation events from limited social groups like intimate partnerships or gender-concordant peer groups to broader more gender-discordant networks. As such, the opioid overdose epidemic and the social context of ‘caring for others’ within this sample may, in part, be contributing to the greater gender-discordant IDU initiation processes in this context. Given the impact of the opioid overdose epidemic in this context, and that the overdose crisis shapes gendered norms and constrains PWID’s choices surrounding providing injection initiation assistance across MWID and WWID in Vancouver, it is recommended that evidence-based treatments, like OAT, which have been associated with a reduced risk of providing injection initiation assistance (Mittal et al., 2019; Mittal et al., 2017), be scaled up and made gender-specific in this setting.

Lastly, there was greater gender concordance among ‘assisters’ and ‘assistees’ participating in IDU initiation events within Tijuana. Past research has demonstrated that policing practices in Tijuana are associated with greater secrecy on behalf of PWID to avoid harassment by law enforcement (Firestone Cruz et al., 2007), and that WWID in Tijuana are more likely to inject with trusted individuals within their own home (Firestone Cruz et al., 2007). Consequently, this could restrict women to injecting with other trusted women in their social networks, and limit opportunities for WWID to inject in more public spaces where they might engage in mixed-gender IDU initiation events. Consequently, this could restrict women to injecting with other trusted women in their social networks where WWID

have more autonomy over their injecting behavior (Smith et al., 2017), and limit opportunities for WWID to inject in more public spaces where they might engage in mixed-gender IDU initiation events. Additionally, past literature has indicated that traditional gender roles and greater moral sanctions for women engaging in IDU could be further restricting women's opportunities to engage in gender-discordant initiation processes (Meyers et al., 2019). This was further supported by the narratives depicting economic risk environments in Tijuana, with participants often reporting gender-concordant peers and family intertwining with their underground economy involvement. The differences in the social and economic risk environments across these locations may be further contributing to greater gender concordance within individuals participating in IDU initiation events in Tijuana compared to San Diego and Vancouver.

4.1 Limitations

This study has limitations typical of multi-site observational research. Non-probability sampling was used, and thus the sample may not be representative of the broader PWID population in each setting. We also note that the target population of interest is mobile and difficult to access, particularly in Tijuana (Beletsky et al., 2012; Firestone Cruz et al., 2007; Mehta et al., 2018). In addition, due to high levels of cross-border migration and drug use in the San Diego-Tijuana international metropolitan region (San Diego Association of Governments (SANDAG), 2019), some of the initiation events reported by San Diego participants may have occurred in Tijuana, and two of the qualitative injection initiation accounts from Tijuana participants occurred in the United States. Despite this, however, quantitative and qualitative data highlighted potential gendered differences in injection initiation provision across the San Diego and Tijuana cohorts. Additionally, small sample sizes served to limit statistical power and made multivariable analyses infeasible; however, the use of a mixed methods approach allowed for quantitative findings to be explored in greater depth through qualitative methods (Cresswell & Plano Clark, 2017). Further, the qualitative data were collected prior to the quantitative analysis with an interview guide not designed specifically to examine gender dynamics, limiting direct, in-depth exploration of the current study aim. Lastly, the subject of IDU initiation is highly stigmatized (Guise, Andrew, Horniak, Danielle, Melo, Jason, McNeil, Ryan, Werb, 2017), and the reliance on self-report within this study could therefore lead to underreporting of initiation behaviors, including the provision of initiation assistance. Despite this potential source of bias, however, there was still large enough effect sizes to detect significant associations between study location and IDU initiation pair types. Relatedly, it is possible that, due to differences in social norms across contexts, stigmatized behaviors such as providing IDU initiation assistance were differentially reported across sites, thereby limiting reports of injection initiation assistance provision on behalf of women from Tijuana. Furthermore, social desirability bias could have had differential impacts on the qualitative interview responses from women providing injection initiation assistance across locations. Experienced social science researchers, however, conducted the qualitative interviews in a non-judgmental manner to limit potential discomfort and social desirability bias. Lastly, the exploration of intimate partnerships as a potential social risk environment focused solely on heterosexual relationships. This was due to a paucity of sexual minority participants and corresponding

narratives depicting same sex intimate partnerships influencing the provision of injection initiation assistance.

4.2 Implications

These results indicate that the IDU initiation processes of PWID vary depending on gender and geo-cultural location (i.e., San Diego, Tijuana, or Vancouver). Programs to reduce the frequency of IDU initiation and its harms may use these findings to develop tailored outreach. This will likely require that existing interventions (such as Break the Cycle, (Des Jarlais et al., 2019; Werb et al., 2013)) adapt to address gender-, site-, and population-specific factors to ensure effectiveness. In addition, given the importance of intimate partnerships as a micro-level social risk environment for IDU initiation events, it is recommended that existing couple-based interventions that harness these partnerships as sites of care, support, and risk reduction be adapted to target IDU initiation across contexts (El-Bassel et al., 2014; El-Bassel, Shaw, Dasgupta, & Strathdee, 2014; Fraser, Treloar, Gendera, & Rance, 2017; Rance, Rhodes, Bryant, & Treloar, 2018). Finally, in order to effectively target transitions into drug injecting, it is recommended that interventions broaden their scope to target the meso- and macro-level spatial, social, and economic risk environments that shape IDU initiation events.

Acknowledgments:

We thank all study participants from the El Cuete IV STAHR II, and VDUS/ACCESS cohorts for their willingness to participate, and thank Jason Melo, Devesh Vashishtha, and all study staff for their support. El Cuete IV and Steffanie A. Strathdee are supported through US National Institute on Drug Abuse (NIDA) grant R37 DA019829. STAHR II was supported through NIDA grant R01DA031074. Dan Werb is supported by a NIDA Avenir Award for the PRIMER study (DP2- DA040256-01), by a New Investigator Award from the Canadian Institutes of Health Research (CIHR), and by an Early Researcher Award from the Ontario Ministry of Health and Long-Term Care. Stephanie Meyers is supported by US NIDA grant R01DA039950. Maria Luisa Mittal is supported by UC San Diego Center for AIDS Research (NIAID P30AI36214) and NIDA grants T32DA023356 and 3R01DA040648-02S1. Laramie Smith is supported by US NIDA grant K01 DA039767. Ayden Scheim and Claudia Rafful were supported by Canadian Institutes of Health Research Fellowships. The VDUS/ACCESS cohorts are supported by the NIDA (U01DA038886, U01DA021525) as well as in part thanks to funding from the Canada Research Chairs program through a Tier 1 Canada Research Chair in Inner City Medicine which supports Dr. Evan Wood, Executive Director of the BC Centre on Substance Use, and the Canadian Institutes of Health Research (CIHR) Canadian Research Initiative on Substance Misuse (SMN-139148). Kanna Hayashi holds the St. Paul's Hospital Chair in Substance Use Research and is supported by a CIHR New Investigator Award (MSH-141971), a Michael Smith Foundation for Health Research (MSFHR) Scholar Award, and the St. Paul's Foundation. Kora DeBeck is supported by a MSFHR / St. Paul's Hospital Foundation-Providence Health Care Career Scholar Award and a Canadian Institutes of Health Research New Investigator Award. ACCESS is supported by the US NIH (U01-DA021525). M-J Milloy is supported by the US NIH (U01-DA0251525), by a New Investigator award from CIHR and a Scholar Award from The Michael Smith Foundation for Health Research.

References

- Auerbach JD, & Smith LR (2015). Theoretical Foundations of Research Focused on HIV Prevention Among Substance-involved Women: A Review of Observational and Intervention Studies. *Journal of Acquired Immune Deficiency Syndromes* (1999), 69(Suppl 2), S146. 10.1097/QAI.0000000000000658 [PubMed: 25978481]
- Beletsky L, Lozada R, Gaines T, Abramovitz D, Staines H, Vera A, Rangel G, Arredondo J, & Strathdee SA (2012). Syringe Confiscation as an HIV Risk Factor: The Public Health Implications of Arbitrary Policing in Tijuana and Ciudad Juarez, Mexico. *Journal of Urban Health*, 90(2), 284–298. 10.1007/s11524-012-9741-3

- Boyd J, Lavalley J, Czechaczek S, Mayer S, Kerr T, Maher L, & McNeil R (2020). "Bed Bugs and Beyond": An ethnographic analysis of North America's first women-only supervised drug consumption site. *International Journal of Drug Policy*, 1–10. 10.1016/j.drugpo.2020.102733
- British Columbia Centre for Disease Control. (2020). *Illegal Drug Overdose Events. Overdose Response Reports*.
- British Columbia Coroners Service. (2019). *Illicit drug overdose deaths in BC January 1, 2009 - October 31, 2019*. <https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/statistical/illicit-drug.pdf>
- Brouwer KC, Case P, Ramos R, Magis-Rodríguez C, Bucardo J, Patterson TL, & Strathdee SA (2006). Trends in production, trafficking, and consumption of methamphetamine and cocaine in Mexico. *Substance Use and Misuse*, 41(5), 707–727. 10.1080/10826080500411478 [PubMed: 16603456]
- Brouwer KC, Strathdee SA, Magis-Rodríguez C, Bravo-García E, Gayet C, Patterson TL, Bertozzi SM, & Hogg RS (2006). Estimated numbers of men and women infected with HIV/AIDS in Tijuana, Mexico. *Journal of Urban Health*, 83(2), 299–307. 10.1007/s11524-005-9027-0 [PubMed: 16736378]
- Centers for Disease Control and Prevention (CDC). (2019). *Drug and Opioid-Involved Overdose Deaths - United States, 2013–2017. Morbidity and Mortality Weekly Report*, 67(5152), 1419–1427.
- Ciccarone D (2017). US Heroin in Transition: Supply Changes, Fentanyl Adulteration and Consequences. *International Journal of Drug Policy*, 46, 107–111. 10.1016/j.drugpo.2017.06.010. Editorial [PubMed: 28735776]
- Collins AB, Boyd J, Cooper HLF, & McNeil R (2019). The intersectional risk environment of people who use drugs. *Social Science & Medicine*, 234, 1–11. 10.1016/j.socscimed.2019.112384
- Collins AB, Boyd J, Hayashi K, Cooper HLF, Goldenberg S, & McNeil R (2020). Women's utilization of housing-based overdose prevention sites in Vancouver, Canada: An ethnographic study. *International Journal of Drug Policy*, 76, 1–9. 10.1016/j.drugpo.2019.102641
- Collins AB, Mcneil R, & Boyd J (2019). Gender and the overdose crisis in North America: Moving past gender-neutral approaches in the public health response. *International Journal of Drug Policy*, 69, 43–45. 10.1016/j.drugpo.2019.05.002 [PubMed: 31078907]
- Cresswell JW, & Plano Clark VL (2017). *Designing and Conducting Mixed Methods Research (Third)*. SAGE Publications, Inc.
- Des Jarlais D, Uuskula A, Talu A, Barnes DM, Raag M, Arasteh K, Org G, Demarest D, Feelemyer J, Berg H, & Tross S (2019). Implementing an Updated "Break the Cycle" Intervention to Reduce Initiating Persons into Injecting Drug Use in an Eastern European and a US "opioid epidemic" Setting. *AIDS and Behavior*. 10.1007/s10461-019-02467-y
- Dibble S (2017). Record fentanyl seizure by Mexican military was headed for Tijuana. *The San Diego Union-Tribune*.
- Doherty MC, Garfein RS, Monterroso E, Latkin C, & Vlahov D (2000). Gender differences in the initiation of injection drug use among young adults. *Journal of Urban Health : Bulletin of the New York Academy of Medicine*, 77(3), 396–414. 10.1007/BF02386749 [PubMed: 10976613]
- Eagly AH (2009). The His and Hers of Prosocial Behavior: An Examination of the Social Psychology of Gender. *American Psychologist*, 644–658.
- El-bassel N, Gilbert L, Terlikbayeva A, Beyrer C, Wu E, Chang M, Hunt T, Ismayilova L, Shaw A, Primbetova S, Rozental Y, & Zhussupov B (2014). Effects of a couple-based intervention to reduce risks for HIV, HCV, and STIs among drug-involved heterosexual couples in Kazakhstan: A randomized controlled trial. *Journal of Acquired Immune Deficiency Syndrome*, 67(2), 196–203. 10.1097/QAI.000000000000277. Effects
- El-Bassel N, Gilbert L, Wu E, Go H, & Hill J (2005). HIV and intimate partner violence among methadone-maintained women in New York City. *Social Science & Medicine*, 61(1), 171–183. 10.1016/j.socscimed.2004.11.035
- El-Bassel N, Shaw SA, Dasgupta A, & Strathdee SA (2014). People who inject drugs in intimate relationships: It takes two to combat HIV. *Current HIV/AIDS Reports*, 11(1), 45–51. 10.1007/s11904-013-0192-6. People [PubMed: 24477931]
- Elderbroom B, & Durnan J (2019). Reclassified: State-Drug Law Reforms to Reduce Felony Convictions and Increase Second Chances. *Federal Sentencing Reporter*, 31(3), 195–207.

- Firestone Cruz M, Matsios A, Ramos R, Case P, Brouwer KC, Ramos ME, Davila Fraga W, Latkin CA, Miller CL, & Strathdee SA (2007). NIH Public Access. *AIDS and Behavior*, 11(2), 253–262. 10.1038/jid.2014.371 [PubMed: 16865542]
- Fleiz C, Arredondo J, Chavez A, Pacheco L, Segovia LA, Villatoro JA, Cruz SL, Medina-Mora ME, & de la Fuente JR (2019). Fentanyl is used in Mexico's northern border: Current challenges for drug health policies. *Addiction*, 115, 778–781. 10.1111/add.14934
- Fragoso JM, & Kashubeck S (2000). Machismo, Gender Role Conflict, and Mental Health in Mexican Machismo, Gender Role Conflict, and Mental Health in Mexican American Men. *Psychology of Men & Masculinity*, 1(2), 87–97. 10.1037/1524-9220.1.2.87
- Frajzyngier V, Neaigus A, Gyarmathy VA, Miller M, & Friedman SR (2007). Gender differences in injection risk behaviors at the first injection episode. *Drug and Alcohol Dependence*, 89(2–3), 145–152. 10.1016/j.drugalcdep.2006.12.021 [PubMed: 17276623]
- Fraser S, Treloar C, Gendera S, & Rance J (2017). 'Affording' new approaches to couples who inject drugs: A novel fitpack design for hepatitis C prevention. *International Journal of Drug Policy*, 50, 19–35. 10.1016/j.drugpo.2017.07.001 [PubMed: 28982041]
- Garcia RA, Kenyon KH, Brolan CE, Coughlin J, & Guedes DD (2019). Court as a health intervention to advance Canada's achievement of the sustainable development goals: A multi-pronged analysis of Vancouver's Downtown Community Court. *Globalization and Health*, 15(80), 1–14. [PubMed: 30606214]
- Garfein RS, Doherty MC, Monterroso ER, Thomas DL, Nelson KE, & Vlahov D (1998). Prevalence and Incidence of Hepatitis C Virus Infection Among Young Adult Injection Drug Users. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 18. http://journals.lww.com/jaids/Fulltext/1998/02001/Prevalence_and_Incidence_of_Hepatitis_C_Virus.4.aspx
- Gicquelais RE, Werb D, Marks C, Ziegler C, Mehta SH, Genberg BL, & Scheim AI (n.d.). A systematic review of prevalence and correlates of providing and receiving assistance with the transition to injection drug use. *Epidemiologic Reviews*.
- Global Commission on Drug Policy. (2012). *The War on Drugs and HIV / AIDS How the Criminalization of Drug Use Fuels the Global Pandemic*.
- Goldenberg SM, Rangel G, Vera A, Patterson TL, Abramovitz D, Silverman JG, Raj A, & Strathdee SA (2012). Exploring the impact of underage sex work among female sex workers in two Mexico-U.S. border cities. *AIDS and Behavior*, 16(4), 969–981. 10.1007/s10461-011-0063-3.Exploring [PubMed: 22012147]
- Goldenberg S, Watt S, Braschel M, Hayashi K, Moreheart S, & Shannon K (2020). Police-related barriers to harm reduction linked to non-fatal overdose amongst sex workers who use drugs: Results of a community-based cohort in Metro Vancouver, Canada. *International Journal of Drug Policy*, 76, 1–8. 10.1016/j.drugpo.2019.102618
- Goldsamt LA, Harocopos A, Kobrak P, Jost JJ, & Clatts MC (2011). Circumstances, Pedagogy and Rationales for Injection Initiation Among New Drug Injectors. 35(3), 258–267. 10.1007/s10900-010-9231-z.Circumstances
- Goodman-meza D, Medina-mora ME, Landovitz RJ, Shoptaw S, & Werb D (2019). Where Is the Opioid Use Epidemic in Mexico? A Cautionary Tale for Policymakers South of the US - Mexico Border. 109(1), 73–82. 10.2105/AJPH.2018.304767
- Greene JC, Caracelli VJ, & Graham WF (1989). Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educational Evaluation and Policy Analysis*, 11(3), 255–274. 10.3102/01623737011003255
- Guise Andrew, Horniak Danielle, Melo Jason, McNeil Ryan, Werb Dan. (2017). The experience of initiating injection drug use and its social context: a qualitative systematic review and thematic synthesis. *Addiction*, 112(12), 2098–2111. [PubMed: 28734128]
- Guise A, Horyniak D, Melo J, McNeil R, & Werb D (2017a). The experience of initiating injection drug use and its social context: a qualitative systematic review and thematic synthesis. *Addiction*, 112(12), 2098–2111. 10.1111/add.13957 [PubMed: 28734128]
- Guise A, Horyniak D, Melo J, McNeil R, & Werb D (2017b). The experience of initiating injection drug use and its social context: a qualitative systematic review and thematic synthesis. *Addiction*, 112(12), 2098–2111. 10.1111/add.13957 [PubMed: 28734128]

- Guise A, Melo J, Mittal ML, Rafful C, Cuevas-Mota J, Davidson P, Garfein RS, & Werb D (2018). A fragmented code: The moral and structural context for providing assistance with injection drug use initiation in San Diego, USA. *International Journal of Drug Policy*, 55(June 2017), 51–60. 10.1016/j.drugpo.2018.02.009 [PubMed: 29524733]
- Hedegaard H, Miniño AM, & Warner M (2020). Drug Overdose Deaths in the United States, 1999 – 2018. *NCHS Data Brief*, 356, 1–8.
- Irvine MA, Kuo M, Buxton JA, Balshaw R, Otterstatter M, Macdougall L, Milloy M-J, Bharmal A, Henry B, Tyndall M, Coombs D, & Gilbert M (2019). Modelling the combined impact of interventions in averting deaths during a synthetic-opioid overdose epidemic. *Addiction*, 114(9), 1602–1613. [PubMed: 31166621]
- Iverson J, Page K, Madden A, & Maher L (2015). Implications for Prevention and Treatment. *Journal of Acquired Immune Deficiency Syndrome*, 69(0 1), 1–12. 10.1016/j.jchc.2010.03.003.Neurobiology
- Kennedy MC, Mcneil R, Milloy M-J, Dong H, Kerr T, & Hayashi K (2017). Residential eviction and exposure to violence among people who inject drugs in Vancouver, Canada. *International Journal of Drug Policy*, 41, 59–64. 10.1016/j.drugpo.2016.12.017.Residential [PubMed: 28104547]
- Li Y, Marshall CM, Rees HC, Nunez A, Ezeanolue EE, & Ehiri JE (2014). Intimate partner violence and HIV infection among women: A systematic review and meta-analysis. *Journal of the International AIDS Society*, 17, 1–12.
- Ludwick MD, Murphy S, & Sales P (2015). Savvy sellers: Dealing drugs, doing gender, and doing difference. *Substance Use and Misuse*, 50(6), 708–720. 10.3109/10826084.2015.978640.Savvy [PubMed: 26086305]
- Mayer S, Boyd J, Collins A, Kennedy MC, Fairbairn N, & McNeil R (2018). Characterizing fentanyl-related overdoses and implications for overdose response: Findings from a rapid ethnographic study in Vancouver, Canada. *Drug and Alcohol Dependence*, 193, 69–74. 10.1016/j.drugalcdep.2018.09.006.Characterizing [PubMed: 30343236]
- Mehta SR, Chaillon A, Gaines TL, Gonzalez-Zuniga PE, Stockman JK, Almanza-Reyes H, Chavez JR, Vera A, Wagner KD, Patterson TL, Scott B, Smith DM, & Strathdee SA (2018). Impact of Public Safety Policies on Human Immunodeficiency Virus Transmission Dynamics in Tijuana, Mexico. *Clinical Infectious Diseases*, 66, 758–764. 10.1093/cid/cix884 [PubMed: 29045592]
- Melo JS, Mittal ML, Horyniak D, Strathdee SA, & Werb D (2018). Injection Drug Use Trajectories Among Migrant Populations: A Narrative Review. *Substance Use and Misuse*, 53(9), 1558–1570. 10.1080/10826084.2017.1416404.Injection [PubMed: 29364762]
- Meyers SA, Scheim A, Jain S, Sun S, Milloy MJ, DeBeck K, Hayashi K, Garfein RS, & Werb D (2018). Gender differences in the provision of injection initiation assistance: A comparison of three North American cities. *Harm Reduction Journal*, (Under Rev
- Meyers SA, Smith LR, Mittal ML, Strathdee SA, Garfein RS, Guise A, Werb D, & Rafful C (2019). The role of gender and power dynamics in injection initiation events within intimate partnerships in the US-Mexico border region. *Culture, Health & Sexuality*, 1–16. 10.1080/13691058.2019.1651903
- Mittal Maria L., Guise A, Rafful C, Gonzalez-Zuniga P, Davidson P, & Vashishtha D (2019). “Another Person Was Going to Do It”: The Provision of Injection Drug Use Initiation Assistance in a High-Risk U.S.–Mexico Border Region. *Substance Use and Misuse*. 10.1080/10826084.2019.1648514
- Mittal María Luisa, Jain S, Sun S, DeBeck K, Milloy MJ, Hayashi K, Hadland SE, & Werb D (2019). Opioid agonist treatment and the process of injection drug use initiation. *Drug and Alcohol Dependence*, 197, 354–360. 10.1016/J.DRUGALCDEP.2018.12.018 [PubMed: 30922483]
- Mittal Maria Luisa, Vashishtha D, Sun S, Jain S, Cuevas-Mota J, Garfein R, Strathdee SA, & Werb D (2017). History of medication-assisted treatment and its association with initiating others into injection drug use in San Diego, CA. *Substance Abuse: Treatment, Prevention, and Policy*, 12(1), 1–5. 10.1186/s13011-017-0126-1
- Morales M, Baker P, Rafful C, Mittal ML, Rocha-Jimenez T, Clairguez E, Arredondo J, Cepeda JA, Strathdee SA, & Beletsky L (2020). Conflicting laws and priorities as drug policy implementation barriers: A qualitative analysis of police perspectives in Tijuana, Mexico. *Journal of Drug Policy Analysis*. 10.1515/jdpa-2018-0014

- Morales M, Rafful C, Gaines TL, Cepeda JA, Abramovitz D, Artamonova I, Baker P, Clairgue E, Mittal ML, Rocha-Jimenez T, Arredondo J, Kerr T, Bañuelos A, Strathdee SA, & Beletsky L (2018). Factors associated with extrajudicial arrest for syringe possession: Results of a department-wide survey of municipal police in Tijuana, Mexico. *BMC International Health and Human Rights*, 18(36), 1–10. [PubMed: 29325549]
- National Institute of Drug Abuse (NIDA). (2018). Opioid Overdose Crisis. <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis>
- Olding M, Werb D, Guise A, Small W, & Mcneil R (2019). Navigating social norms of injection initiation assistance during an overdose crisis: A qualitative study of the perspectives of people who inject drugs (PWID) in Vancouver, Canada. *International Journal of Drug Policy*, 69, 24–33. 10.1016/j.drugpo.2019.04.004 [PubMed: 31029914]
- Ospina-Escobar A, Magis-Rodríguez C, Juárez F, Werb D, Arredondo SB, Carreón R, Ramos ME, & Strathdee S (2018). Comparing risk environments for HIV among people who inject drugs from three cities in Northern Mexico. *Harm Reduction Journal*, 15(27), 1–11. [PubMed: 29304871]
- Rance J, Rhodes T, Bryant J, & Treloar C (2018). Practices of partnership : Negotiated safety among couples who inject drugs. 10.1177/1363459316660859
- Reddon H, Fast D, DeBeck K, Werb D, Hayashi K, Wood E, & Milloy M-J (2019). Prevalence and correlates of selling illicit cannabis among people who use drugs in Vancouver, Canada: A ten-year prospective cohort study. *International Journal of Drug Policy*, 69, 16–23. 10.1016/j.drugpo.2019.02.006 [PubMed: 31015080]
- Reed E, Donta B, Dasgupta A, Ghule M, Battala M, Nair S, Silverman J, Jadhav A, Palaye P, Saggurte N, Raj A, & Jolla L (2016). Access to Money and Relation to Women’s Use of Family Planning Methods among Young Married Women in Rural India. *Maternal Child Health Journal*, 20(6), 1203–1210. 10.1007/s10995-016-1921-4. Access [PubMed: 26971270]
- Rhodes T (2009). Risk environments and drug harms: A social science for harm reduction approach. *International Journal of Drug Policy*, 20(3), 193–201. 10.1016/j.drugpo.2008.10.003 [PubMed: 19147339]
- Rhodes T, Rance J, Fraser S, & Treloar C (2017). The intimate relationship as a site of social protection: Partnerships between people who inject drugs. *Social Science and Medicine*, 180, 125–134. 10.1016/j.socscimed.2017.03.012 [PubMed: 28343111]
- Rhodes T, Singer M, Bourgois P, Friedman SR, & Strathdee SA (2005). The social structural production of HIV risk among injecting drug users. 61, 1026–1044. 10.1016/j.socscimed.2004.12.024
- Bluthenthal Ricky N, Wenger Lynn, Chu Daniel, Quinn Brendan, Thing James, and Kral Alex H. (2010). Factors Associated with Initiating Someone into Illicit Drug Injection. *Human Development*, 45(6), 1654–1668. 10.1037/a0015862. Trajectories
- Robertson AM, Garfein RS, Wagner KD, Mehta SR, Magis-Rodríguez C, Cuevas-Mota J, Moreno-Zuniga PG, & Strathdee SA (2014). Evaluating the impact of Mexico’s drug policy reforms on people who inject drugs in Tijuana, B.C., Mexico, and San Diego, CA, United States: a binational mixed methods research agenda. *Harm Reduction Journal*, 11(1), 4. 10.1186/1477-7517-11-4 [PubMed: 24520885]
- San Diego Association of Governments (SANDAG). (2019). 2018 SAN DIEGO-BAJA CALIFORNIA BORDER CROSSING AND.
- Sherman SG, Smith L, Laney G, & Strathdee SA (2002). Social influences on the transition to injection drug use among young heroin sniffers: A qualitative analysis. *International Journal of Drug Policy*, 13(2), 113–120.
- Simmons J, Rajan S, & McMahon JM (2012). Retrospective accounts of injection initiation in intimate partnerships. *International Journal of Drug Policy*, 23(4), 303–311. 10.1016/j.drugpo.2012.01.009 [PubMed: 22398215]
- Simpson KA, Kral AH, Goldshear JL, Wenger L, Strike CS, & Bluthenthal RN (2020). Reasons for assisting with injection initiation: Results from a large survey of people who inject drugs in Los Angeles and San Francisco, California. *Drug and Alcohol Dependence*, 209, 1–7. 10.1016/j.drugalcdep.2020.107885

- Small W, & McNeil R (2018). Understanding the Risk Environment Surrounding Drug Use in Prisons: The Unique Contributions of Qualitative Research. In Stuart A & Rich JDJ (Eds.), *Drug Use in Prisoners: Epidemiology, Implications, and Policy Responses* (1st ed.).
- Small Will, Fast D, Krusi A, Wood E, & Kerr T (2009). Social influences upon injection initiation among street-involved youth in Vancouver, Canada: A qualitative study. *Substance Abuse: Treatment, Prevention, and Policy*, 4, 1–8. 10.1186/1747-597X-4-8
- Smith LR, Strathdee SA, Metzger D, & Latkin C (2017). Evaluating network-level predictors of behavior change among injection networks enrolled in the HPTN 037 randomized controlled trial. *Drug and Alcohol Dependence*, 175, 164–170. 10.1016/j.drugalcdep.2017.02.007.Evaluating [PubMed: 28433895]
- Special Advisory Committee on the Epidemic of Opioid Overdoses. (2020a). *Opioid-related harms in Canada*. Ottawa: Public Health Agency of Canada.
- Special Advisory Committee on the Epidemic of Opioid Overdoses. (2020b). *Opioid-related harms in Canada*.
- Spradling PR, Xing J, Phippard A, & Corte R (2013). Acute Viral Hepatitis in the United States - Mexico Border Region : Data from the Border Infectious Disease Surveillance (BIDS). 390–397. 10.1007/s10903-012-9604-8
- Strathdee SA, Fraga WD, Case P, Firestone M, Brouwer KC, Perez SG, Magis C, & Fraga MA (2005). “Vivo para consumirla y la consumo para vivir” [“I live to inject and inject to live”]: High-Risk Injection Behaviors in Tijuana, Mexico. *Journal of Urban Health*, 82(3), 58–73. 10.1016/j.jmolcel.2009.10.020.The [PubMed: 15738335]
- Strathdee SA, Hallett TB, Bobrova N, Rhodes T, Booth R, Abdool R, & Hankins CA (2010). HIV and risk environment for injecting drug users: the past, present, and future. *Lancet*, 376(9737), 268–284. 10.1016/S0140-6736(10)60743-X.HIV [PubMed: 20650523]
- Tavory I, & Timmermans S (2014). *Abductive Analysis: Theorizing Qualitative Research*. The University of Chicago Press.
- Unick G, & Ciccarone D (2017). US Regional and Demographic Differences in Prescription Opioid and Heroin-Related Overdose Hospitalizations. *International Journal of Drug Policy*, 46, 112–119. 10.1016/j.drugpo.2017.06.003.US [PubMed: 28688539]
- United States Department of Justice Drug Enforcement Agency. (2018). *2018 National Drug Threat Assessment*.
- US Department of Justice Drug Enforcement Administration. (2015). *2015 National Drug Threat Assessment Summary*. <https://www.dea.gov/docs/2015NDTARreport.pdf>
- Vlahov D, Fuller CM, Ompad DC, Galea S, & Des Jarlais DC. (2004). Updating the Infection Risk Reduction Hierarchy : Preventing Transition into Injection. *Journal of Urban Health : Bulletin of the New York Academy of Medicine*, 81(1), 14–19. [PubMed: 15047779]
- Volkman T, Shin SS, Garfein RS, Patterson TL, Pollini RA, Wagner KD, Artamanova I, & Strathdee SA (2012). Border crossing to inject drugs in Mexico among injection drug users in San Diego, California. *Journal of Immigrant and Minority Health*, 14(2), 281–286. 10.1007/s10903-011-9462-9 [PubMed: 21442300]
- Vyas S, & Watts C (2009). HOW DOES ECONOMIC EMPOWERMENT AFFECT WOMEN ‘ S RISK OF INTIMATE PARTNER VIOLENCE IN LOW AND MIDDLE INCOME COUNTRIES ? A SYSTEMATIC REVIEW OF PUBLISHED EVIDENCE y. *Journal of International Development*, 21, 577–602. 10.1002/jid
- Wallace B, Pagan F, & Pauly B (2019). The implementation of overdose prevention sites as a novel and nimble response during an illegal drug overdose public health emergency. *International Journal of Drug Policy*, 66, 64–72. 10.1016/j.drugpo.2019.01.017 [PubMed: 30708237]
- Werb Dan. (2018). Post-war prevention: Emerging frameworks to prevent drug use after the War on Drugs. *International AIDS Society*, 51, 160–164. 10.1016/j.drugpo.2017.06.012.Post-war
- Werb Dan, Bluthenthal RN, Kolla G, Strike C, Kral AH, Uuskula A, & Des Jarlais D (2018). Preventing Injection Drug use Initiation : State of the Evidence and Opportunities for the Future. *Journal of Urban Health*, 95, 91–98. 10.1007/s11524-017-0192-8 [PubMed: 28948444]

- Werb Dan, Buxton J, Shoveller J, Richardson C, Rowell G, & Wood E (2013). Interventions to prevent the initiation of injection drug use: A systematic review. *Drug and Alcohol Dependence*, 133(2), 669–676. 10.1016/j.drugalcdep.2013.08.017 [PubMed: 24055187]
- Werb Daniel, Garfein R, Kerr T, Davidson P, Roux P, Jauffret-Roustide M, Auriacombe M, Small W, & Strathdee SA (2016). A socio-structural approach to preventing injection drug use initiation: rationale for the PRIMER study. *Harm Reduction Journal*, 13(1), 25. 10.1186/s12954-016-0114-1 [PubMed: 27629248]
- Wilson N, Kariisa M, Seth P, Smith IV H, & Davis NL (2020). Drug and Opioid-Involved Overdose Deaths — United States, 2017–2018. *Morbidity and Mortality Weekly Report*, 69(11), 290–297. [PubMed: 32191688]
- Wood E, Lloyd-Smith E, Li K, Strathdee SA, Small W, Tyndall MW, Montaner JSG, & Kerr T (2007). Frequent Needle Exchange Use and HIV Incidence in Vancouver, Canada. *American Journal of Medicine*, 120(2), 172–179. 10.1016/j.amjmed.2006.02.030
- Wright NMJ, Tompkins CNE, & Sheard L (2007). Is peer injecting a form of intimate partner abuse? A qualitative study of the experiences of women drug users. *Health and Social Care in the Community*, 15(5), 417–425. 10.1111/j.1365-2524.2007.00700.x [PubMed: 17685987]
- Zahnaw R, Winstock AR, Maier LJ, Levy J, & Ferris J (2018). Injecting drug use : Gendered risk. *International Journal of Drug Policy*, 56, 81–91. 10.1016/j.drugpo.2018.03.01 [PubMed: 29614392]

Highlights

- We compared the gender composition of injection initiation events across contexts.
- A greater proportion of injection initiation events were gender concordant in Tijuana.
- Prisons and jails may contribute to gender concordant initiation events in Tijuana.
- Intimate partnerships may contribute to gender discordant events in San Diego.
- Caring for others in an overdose crisis may explain the discordance in Vancouver.

Table 1.

Injection initiation assistance provision and gender among people who inject drugs in San Diego, USA, Tijuana, Mexico, and Vancouver, Canada ($n = 2,622$)

<i>Categorical Variables</i>	Overall <i>n</i>(%)	San Diego <i>n</i>(%)	Tijuana <i>n</i>(%)	Vancouver <i>n</i>(%)
Helped Someone Initiate Injection (Past 6 Months)				
Yes	112(4.3)	18(5.1)	23(4.3)	71(4.1)
No	2,510(95.7)	334(94.9)	508(95.7)	1668(95.9)
Gender				
Male	1,693(64.6)	249(70.7)	326(61.4)	1118(64.3)
Female	924(35.2)	98(27.8)	205(38.6)	621(35.7)
Transgender	5(0.2)	5(1.5)	0	0
Total	2,622	352	531	1,739

Table 2.

Fisher's exact test of cohort and the gender composition of injection initiation events among people who reported recent injection initiation in San Diego, USA, Tijuana, Mexico, and Vancouver, Canada, $p = .025$.

Events	Site			Total
	SD Frequency (Column %)	TJ Frequency (Column %)	Vancouver Frequency (Column %)	
MM	5 (29.4)	16 (69.6)	18 (25.7)	39
MF	6 (35.2)	1 (4.3)	20 (28.6)	27
MX	2 (11.8)	2 (8.7)	6 (8.7)	10
FF	2 (11.8)	1 (4.3)	7 (10)	10
FM	2 (11.8)	3 (13.1)	12 (17)	17
FX	0 (0)	0 (0)	7 (10)	7
Total	17	23	70	110

MM = male assister, male assistee; MF = male assister, male assistee; MX = male assister, mixed gender assistees; FF = female assister, female assistee; FM = female assister, male assistee, FX = female assister, mixed gender assistees.

Table 3.

Chi-square analysis of cohort and gender concordance of injection initiation events among people who reported recent injection initiation in San Diego, USA, Tijuana, Mexico, and Vancouver, Canada, $\chi^2(2) = 10.32, p < .001$.

Events	Site			Total
	SD Frequency (Column %)	TJ Frequency (Column %)	Vancouver Frequency (Column %)	
Concordant	7 (41.2)	17 (73.9)	25 (35.7)	49
Discordant	10 (58.8)	6 (26.1)	45 (64.3)	61
Total	17	23	70	110

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript