J Urban Health (2017) 94:100–103
DOI 10.1007/s11524-016-0115-0

Occupational Safety in the Age of the Opioid Crisis: Needle Stick Injury among Baltimore Police

Javier A. Cepeda · Leo Beletsky · Anne Sawyer · Chris Serio-Chapman · Marina Smelyanskaya · Jennifer Han · Natanya Robinowitz · Susan G. Sherman

Published online: 19 January 2017

Abstract At a time of resurgence in injection drug use and injection-attributable infections, needle stick injury (NSI) risk and its correlates among police remain understudied. In the context of occupational safety training, a convenience sample of 771 Baltimore city police officers responded to a self-administered survey. Domains included NSI experience, protective behaviors, and attitudes towards syringe exchange programs. Sixty officers (8%) reported lifetime NSI. Officers identifying as Latino or other race were almost three times more likely (aOR 2.58, 95% CI 1.12–5.96) to have experienced NSI compared to whites, after adjusting for potential confounders. Findings highlight disparate burdens of NSIs among officers of color, elevating risk of hepatitis, HIV, and trauma. Training, equipment, and other measures to improve occupational safety are critical to attracting and safeguarding police, especially minority officers.

Keywords Needle stick injury · Police · People who inject drugs

J. A. Cepeda (✉) · L. Beletsky
Division of Global Public Health, University of California, San Diego, 9500 Gilman Drive, MC 0507, La Jolla, CA 92093, USA
e-mail: jacepeda@ucsd.edu

L. Beletsky
School of Law, Northeastern University, Boston, MA, USA

L. Beletsky
Bouvé College of Health Sciences, Northeastern University, Boston, MA, USA

A. Sawyer · C. Serio-Chapman · J. Han
Baltimore City Health Department, Baltimore, MD, USA

M. Smelyanskaya
Independent Consultant, Baltimore, MD, USA

N. Robinowitz
Behavioral Health System, Baltimore, MD, USA

S. G. Sherman
Department of Health, Behavior and Society, Johns Hopkins University, Baltimore, MD, USA

Introduction

Police officers face elevated risk of acquiring blood-borne diseases such as HIV and hepatitis C from accidental needle stick injuries (NSIs) [1–5]—one of the highest puncture injury risks among all occupations [6]. This can detrimentally impact recruitment, retention, occupational stress, and police-community relations. Federally mandated annual blood-borne pathogen training does not specifically address NSI prevention and response in many settings [3], so we conducted an occupational safety training among Baltimore police. This analysis evaluates correlates of NSI using pre-survey baseline data.

Methods

A convenience sample of 771 officers and cadets was recruited between September 2010 and March 2012. Trainings bundled occupational safety with legal and

programmatic elements of harm reduction initiatives serving people who inject drugs (PWID) [4, 7]. Participants self-administered a 13-item pre-training survey under ethical approval from Johns Hopkins University. SAS version 9.4 (SAS Institute, Cary, NC) was used to conduct multivariable logistic regression, which included variables significantly associated with NSIs in univariable analysis ($p < 0.05$).

Results

Among those who responded to history of NSI ($N = 734$), 8% reported lifetime NSI, with a rate of 58 NSI per 10,000 officer-years. More than one third (36%) had <2 years of experience, 35% 2–10 years, and 29% worked >10 years. Virtually, all agreed that NSIs were an important concern (98%), yet 75% still reported an intention to confiscate syringes from PWID, even when no arrest is made. Age and number of years working as an officer were strongly associated with NSI exposure (Table 1). Officers who were either older than 40 or had more than 10 years of experience were 5.57 (95% CI 2.63–11.82) and 8.91 (95% CI 3.38–23.53) times as likely to report an NSI compared to officers who were 21–30 years old and had <2 years of experience, respectively. In multivariable analysis, after adjusting for years of experience and age, being Latino or other race was

Table 1 Correlates of needle stick injury (NSI) among Baltimore police officers ($N = 734$)

	N[a] (%) ever experienced NSI	N[a] (%) never experienced NSI	OR (95% CI)	aOR (95% CI)
Sex				
Female	10 (8.1)	113 (91.9)	1.00	
Male	49 (8.1)	553 (91.9)	1.00 (0.49–2.03)	
Race				
White	20 (5.8)	327 (94.2)	1.00	1.00
Black	26 (9.5)	249 (90.6)	1.71 (0.93–3.13)	1.26 (0.66–2.39)
Latino and other	13 (13.3)	85 (86.7)	2.50 (1.20–5.23)*	2.58 (1.12–5.96)*
Age				
21–30	11 (3.0)	351 (97.0)	1.00	1.00
31–40	26 (12.1)	189 (87.9)	4.39 (2.12–9.08)***	2.42 (0.98–6.00)
>40	22 (14.9)	126 (85.1)	5.57 (2.63–11.82)***	2.64 (0.91–7.70)
Years on BPD				
<2 years	5 (2.1)	232 (97.9)	1.00	1.00
2–10 years	21 (9.3)	204 (90.7)	4.78 (1.77–12.90)**	3.17 (1.09–9.27)*
>10 years	29 (16.1)	151 (83.9)	8.91 (3.38–23.53)***	4.67 (1.38–15.86)*
Needle stick injuries are an important concern to me				
Disagree/strongly disagree	1 (9.1)	10 (90.9)	1.00	
Agree/strongly agree	59 (8.2)	661 (91.8)	0.89 (0.11–7.09)	
I would use needle stick-resistant gloves in routine searches if I had access to them				
Disagree/strongly disagree	4 (10.5)	34 (89.5)	1.00	
Agree/strongly agree	56 (8.1)	637 (94.9)	0.75 (0.26–2.18)	
If syringes are found during a search but the person is not arrested, I would confiscate them				
Disagree/strongly disagree	14 (7.8)	165 (92.2)	1.00	
Agree/strongly agree	45 (8.4)	491 (91.6)	1.08 (0.58–2.02)	
Access to clean needles through pharmacies or needle exchange increases the chances for me to get stuck with a used syringe				
Disagree/strongly disagree	31 (7.4)	388 (92.6)	1.00	
Agree/strongly agree	29 (9.4)	280 (90.6)	1.30 (0.77–2.20)	

[a] May not equal total due to missing values

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

significantly associated (aOR = 2.58; 95% CI 1.12–5.96) with NSI compared to white officers.

Discussion

Occupational NSI risk among police was high, with a twofold greater NSI risk among Baltimore police compared to another recent US-based study [5]. Racial disparity in NSI burden reflects disparities in other areas of occupational health and population health indicators, possibly signaling structural factors in policing practice distributing risk along a racial gradient. Such factors may include systematic differences in departmental staffing and deployment decisions. Since experiencing NSI results in anxiety and trauma, the rates of injuries observed here may contribute to burnout, poor job performance, and hinder recruiting a diverse police force [8]. Stress and trauma may potentiate the use of force and hamper communication, fraying police-community relations. Further research is needed to elucidate the relationship between NSI and racial disparities.

These findings may have limited generalizability because of its sampling and unique urban setting. Other limitations include lack of source testing directly after NSI exposure and other unmeasured NSI risk factors (e.g., fatigue, being understaffed). Self-reported data are subject to potential bias and it is possible that officers may have overreported their NSI experience as a signal of protest against harm reduction initiatives or for other reasons. However, we are doubtful our findings over-estimate NSI experience in this sample. Masculinity that characterizes police culture may in fact discourage officers from acknowledging occupational and other health issues, such as substance use disorder and mental health problems. Additionally, the training the officers received was billed as an occupational safety education program (rather than a harm reduction one) and syringe exchange programs, and policies were presented within an occupational safety context. Thus, if harm reduction information could encourage officers to overreport their NSI experience, that information would not have been presented until after the officers completed the pre-training survey, which served as the data source for this brief report. Despite these limitations, by establishing the background rate of NSI among Baltimore police, we lay the groundwork for further investigation on the reporting, post-exposure prophylaxis, and other sequelae of NSI events among police.

Addressing police concerns and safeguarding officers against occupational risk by equipping them with tools like needle stick-resistant gloves is imperative in view of the rapid growth of drug injection and injection-attributable infections in the context of the opioid crisis. Needle stick-resistant gloves are available but generally not issued to officers. Officers can purchase them as part of their equipment allowance; however, access to this equipment varies by department. In sum, occupational safety efforts present key opportunities to sensitize police to syringe access and other harm reduction programs designed to reduce infectious disease and substance use burden in the community.

Acknowledgements The authors gratefully acknowledge the contribution of the following: Baltimore City Health Department Needle Exchange Program (NEP) staff and volunteers; Baltimore City Department of Health Risk Reduction Services; Baltimore Police Department, and all participants in the study.

Authors' Contributions J.A.C and L.B led the conceptualization of the analysis and drafting of the manuscript. A.S, M.S, N.R, and J.H implemented the research and processed the data. J.A.C conducted all statistical analyses with input from L.B and S.S. All authors contributed to the writing of the article and approved the final version. J.A.C is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Funding Funding was provided by the Open Society Foundations Criminal Justice Fund and the Campaign for the New Drug Policy. J. A. Cepeda is supported by the National Institute on Drug Abuse (T32DA023356, PI: Strathdee) and Fogarty International Center (R25TW009343, PI: Cohen, Strathdee). L. Beletsky is also supported in part by National Institute of Drug Abuse awards number R01DA039073 (MPIs: Beletsky, Strathdee) and R37DA019829 (PI: Strathdee).

Compliance with Ethical Standards Participants self-administered a 13-item pre-training survey under ethical approval from Johns Hopkins University.

Disclaimer None

References

1. Lorentz J, Hill L, Samimi B. Occupational needlestick injuries in a metropolitan police force. *Am J Prev Med*. 2000; 18(2): 146–50.
2. Dunleavy K, Taylor A, Gow J, Cullen B, Roy K. Police officer anxiety after occupational blood and body fluid exposure. *Occup Med (Lond)*. 2012; 62(5): 382–4.
3. 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. *Int J Drug Policy*. 2005; 16(4): 267–74.
4. 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*. 2011; 101(11): 2012–5.
5. Davis CS, Johnston J, de Saxe Zerden L, Clark K, Castillo T, Childs R. Attitudes of North Carolina law enforcement officers toward syringe decriminalization. *Drug Alcohol Depend*. 2014; 144: 265–9.
6. Bureau of Labor Statistics. *Nonfatal Occupational Injuries and Illnesses Requiring Days away from Work, 2014*. Washington, DC: U.S. Department of Labor; 2015.
7. Davis CS, Beletsky L. Bundling occupational safety with harm reduction information as a feasible method for improving police receptiveness to syringe access programs: evidence from three U.S. cities. *Harm Reduction J.* 2009; 6: 16.
8. Gershon RR, Lin S, Li X. Work stress in aging police officers. *J Occup Environ Med*. 2002; 44(2): 160–7.