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Social Context and Perspectives of Non-Medical Prescription Opioid Use Among Young Adults in Rhode Island: A Qualitative Study

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Abstract

Background and Objectives—This pilot study examined the context of nonmedical prescription opioid (NMPO) use and related risk behaviors among young adults in Rhode Island, a New England region with markedly high prevalence of NMPO use and overdose mortality.

Methods—We conducted semi-structured interviews ($n = 13$) with young adults (18–29 year-olds) who reported current or recent NMPO use. We also conducted focus groups (two groups, $n = 14$ total) with professional service providers recruited from service organizations. Data were audio-recorded, transcribed, and key themes were analyzed.

Results—Participants discussed high levels of access to prescription opioids for nonmedical use via prescriptions originally provided to family and friends. The contexts described by participants included social environments such as parties, in which mixing opiates with benzodiazepines, alcohol or other types of drugs, and incidents of unintentional overdose were reported. Participants attributed risk for overdose to individual-level factors (eg, users who “couldn’t handle it”), rather than contextual factors, and described negative reactions to being labeled as an “addict” or “addicted.” Professional service providers had first-hand experience with young adults in treatment settings, yet limited exposure to young adults who were treatment-naïve.

Conclusions—Young adult NMPO users described social settings where polysubstance use and pill use were common, and highlighted an aversion to being labeled as having a substance use disorder.

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

Scientific Significance—To reduce harms of NMPO use among young adults, interventions should address the social context in which drug use and risk behaviors occur.

BACKGROUND AND OBJECTIVES

Nonmedical prescription opioid (NMPO) use is a major public health issue in the United States (US). Here and elsewhere NMPO use is broadly defined as intentional use of prescription opioids not as directed by a physician.¹ In 2011 the White House named NMPO use a “drug abuse crisis,” and declared it the top drug problem in the country.² In the same year, the Center for Disease Control (CDC) declared that overdose deaths as a result of NMPO use in the US had “reached epidemic levels.”³ The New England region, and the state of Rhode Island in particular, ranks among the highest areas for NMPO use and has one of the highest opioid overdose mortality rates in the country.^{4,5} Central to mitigating the crisis in Rhode Island is a growing need to understand the epidemic and enhance intervention options among hard-to-reach populations such as young adult NMPO users.

Young adults are the largest population of NMPO users, yet they are an understudied population whose drug-taking environment and patterns of drug use may differ greatly from those of other adults.^{6,7} Data suggest that young adults (aged 18–29 years) experience early initiation of prescription opioid misuse and are at high risk for transitioning to injection drug use and heroin use.^{8–10} Previous qualitative studies have shown young adults conceptualize their drug use differently and have different paths to initiating NMPO use than older generations, a factor to consider when faced with a public health crisis that spans generations.^{11–13} As a result, young adult NMPO users are at increasingly high risk of adverse health outcomes, such as rising rates of unintentional overdose, transition to heroin use, and acquiring hepatitis C (HCV) or HIV infection.^{11,12,14–17} Thus, understanding the context and perspectives of NMPO use among young adults may help to inform programs and policies designed to reduce negative health impacts (such as accidental overdose or transition to opioid dependence) for young adult NMPO users and persons in their social networks.

Previous studies have contributed to understanding young adult motivations for NMPO use, initiation and transition to injection drug use, as well as overdose experiences and risk reduction practices among young adults.^{13,18–24} However, these studies have been conducted outside of the New England region, primarily New York City, San Francisco, Los Angeles, Philadelphia, Ohio, and Florida. To our knowledge no studies have examined the context and perspective of NMPO use among young adults in New England, a region where Rhode Island and nearby states are struggling with an opioid and overdose crisis.

The risk environment framework, originally described by Rhodes and colleagues in relation to HIV-risk factors, has been used extensively to describe the social, environmental, and structural determinants of substance use and related harms among PWID.^{25,26} The risk environment framework posits that substance use is strongly influenced by factors operating within the social and macro-social environment. It also offers suggestions for addressing the *micro-environmental* (eg, physical location, peer groups) and *macro-environmental* factors (eg, regional drug trade, state drug policies) of the drug using environment, and the different

environmental domains (ie, physical, social, economic, and policy) affecting drug use and risk behaviors.²⁷ Here, we adapt this model to describe the context in which young adult NMPO use occurs, and demonstrate the importance of understanding how contextual and social factors affect the NMPO-using risk environment among young adults. We focus specifically on *micro-contextual factors* affecting the social domain, such as young adult social networks, group norms, and access to prescription opioids.

This qualitative study examines the social context of NMPO use among young adults to better understand the characteristics of use, factors associated with risk behavior, and perceptions of NMPO use as it relates to the public health crisis in Rhode Island. The primary goal was to elucidate the physical and social factors of the risk-environment in which NMPO use occurs, and how they contribute to adverse health outcomes (eg, accidental overdose or transitioning to heroin) for young adult users. Second, given previous studies showing the many NMPO users are not reached by harm reduction and addiction treatment services,^{11,12} we sought to examine perceptions of young adult prescription opioid misuse held by service providers, and solicited their experiences working with the study population.

METHODS

Participants for this pilot study included two target populations: young adult NMPO users ($n = 13$) and professional service providers ($n = 14$) capable of describing the physical and social environment of young adult NMPO use in Rhode Island, with the purpose of informing the development of a larger mixed-method research study. The study consisted of individual interviews with NMPO users ($n = 13$) and focus groups with professional service providers (two groups, $n = 14$), each lasting approximately 1 hour. The individual interviews and semi-structured focus groups were conducted from July to December of 2014. All participants provided written informed consent and were compensated \$20 USD for their time. The Brown University Institutional Review Board approved the study.

Participant Recruitment

Individual interviews were conducted with 13 young adults (aged 18–29 years) who reported recent (ie, within 6 months) NMPO use, recruited through convenience sampling using online classifieds (eg, www.craigslist.org), posters, and by word of mouth. Participants were screened over the phone for eligibility. Interviews were conducted in-person, either at our facility or in a semi-private location designated by the participant.

Service providers with experience working with young adults who use prescription opioids non-medically were recruited from organizations in Rhode Island. Professional service providers represented HIV prevention organizations (HIV/HCV testers), needle exchange programs (outreach workers), local drug treatment centers (eg, methadone clinic staff), emergency medical technicians (EMTs), a youth advocacy organization, and the Rhode Island Department of Health. These 14 participants were recruited through targeted outreach, and attended one of two focus groups at our research facility.

Data Collection

A semi-structured interview guide was used to collect data from participants on the context of young adult NMPO use, and risk behaviors such as accidental overdose or transition to opioid dependence. An investigator experienced with focus group moderation facilitated the group discussions. Individual interview participants were asked the same questions as the focus group participants. Development of the interview guide was informed by a review of previously published research.^{11,19,28} To elicit different perspectives on the same epidemic, both the young adult NMPO users and professional service providers were asked to describe their experiences and perspectives associated with using prescription opioids, or working with young adults using prescription opioids. To direct the questions, research staff defined key terms during the screening process, and again at the start of each interview or focus group. Key terms included the definition of NMPO behaviors, the age range for young adults, and the types of prescription pills that qualify as opioids. The research team also used visual cue cards to for the discussion of opioids, adapted from the National Survey on Drug Use and Health “pill cards”, which contained names and images of specific classes of pills.²⁹

Questions focused on the physical and regional environment as they pertained to young adults, such as, “*What are your general impressions about the prevalence of non-medical use of prescription opioids (e.g., codeine, oxycodone, Vicodin) among young adults in Rhode Island?*” and a follow up question pertaining to prescription opioids, “*Do you think prescription drugs are becoming more common among youth in Rhode Island, particularly compared to other illegal substances, such as cocaine?*”

Other questions focused on the health needs among young adults, “*What are the most common health and medical needs experienced by young adults who use prescription drugs non-medically?*” Follow-up questions focused specifically on risk behavior in the social environment: “*What risk behaviors are young people talking about?*”

Data Analysis

Data were audio-recorded and transcribed by two members of the research team, who then coded the transcripts. The transcripts were analyzed using QSR-NVivo software, by identifying keywords across all transcripts, and identifying repeating themes among participants. The “risk environment” framework was used to codify and classify the themes that emerged from the transcripts. A third member of the research team reviewed the transcripts and verified the final themes.

RESULTS

Basic demographics (age, gender, and race) were collected for the 13 individual interviews with young NMPO users. There were five women and eight men; nine respondents identified as having Caucasian/white racial identity and four identified as multi-racial. The mean age was 24 years old. Detailed demographics were not collected from the focus groups with professional service providers.

Patterns of NMPO use were not explicitly asked of young adult participants during the interviews; however, this information was disclosed over the course of each interview. The 13 young adult interview participants generally characterized their use by describing the context(s) and frequency of their nonmedical opioid use. Three participants described primarily using alone with low to moderate amounts of prescription opioids (eg, one pill per day), seven participants described using with friends or at parties with higher amounts (eg, “a handful of pills”) and/or mixing with benzodiazepine pills and alcohol, and three participants self-identified as “addicts”, described by the participants as having a higher opioid tolerance and daily use (regardless of social context).

RISK NORMS

The most frequently described risk norms among young adults included mixing opioid and benzodiazepine pills to get high.

“Mixing opiates with Xanax or Klonopin is highly dangerous. While they feel real good, it’s very dangerous. [Mixing pills] was definitely a known [risk]; most people knew or had been told about it. A lot of people didn’t take it to heart, they just wanted to get whatever high they could (age 26 male, Caucasian, i10).”

Unintentional overdose was mentioned often, and largely attributed to individual choices and behaviors, such as mixing alcohol or benzodiazepines with opioid pills:

“If someone overdoses, people just think ‘oh well he couldn’t handle it because he was having a bad night.’ People don’t call 911 because they think ‘he’s just perc’d out, leave him alone’...they think, “it was scary but I’m okay now,“ [and the] solution is to do another drug in order to shake off effects of previous drug (age 24, male, multi-racial, i9).”

“My friend just recently died. We don’t even know if he overdosed (accidentally) or if he overdosed (intentionally)... Yeah he was a wild kid, he was just partying (age 19, male, Caucasian, i15).”

SOCIAL RISK ENVIRONMENT: PARTIES AND POLYSUBSTANCE USE

Within the social risk environment, young adults described their NMPO use as alongside (or instead of) alcohol and marijuana use in their teens and early twenties.

Participants were asked to reflect on the social environment in which they typically use prescription opioids non-medically. Multiple participants described social settings such as parties, as an environment in which poly-prescription drug use occurs:

“[There are] lots of parties and random pills. Almost an epidemic in Rhode Island, honestly...They take a whole bunch of crushed pills, put it on their tongue, let it dissolve. Sniff it. Put it into a blunt with weed (smoke it). When they’re on the pills... It doesn’t look good when they’re done; you ever see those drug commercials where the kids are flat on the couch? That’s the best analogy I can think of. Loud music, people moving around, and people are still on the couches laid out. I’ve seen [overdose] 3–4 times because people are taking it with alcohol as

well. People will drink a whole bottle, do this, do that, get really messed up. Parties are just a giant experiment. (age 24, male, multi-racial, i9).”

“It’s super popular. . . pill parties are huge. Everyone brings pills—throw them into a bowl and eat them like chips—Pill parties end when everyone is so high. It gets really bad. People get too high to function and someone throws up, especially when mixing pills (age 19, female, multi-racial, i14).”

“A lot of people [party] because of social reasons, because of social attachments, they think that if they don’t smoke [weed], or don’t drink and whatever [use pills], they might not seem the same to the friends that they have. That’s definitely a big part of it (age 24, male, multi-racial, i1).”

PHYSICAL RISK ENVIRONMENT: ACCESS TO PRESCRIPTION OPIOIDS

Easy access to prescription opioids was reported among all respondents. When participants were asked which prescription opioids were most common among young adults in the region, Vicodin[®] and Percocet[®] were mentioned by 10 of the 13 young adult participants, Oxycontin[®] and hydrocodone were mentioned by 8 of the 13 participants. As a comparison, methadone, and codeine were mentioned by only four of the participants.

The descriptions of close proximity and easy access to prescription opioids, such as through family members, friends, or at parties was a prominent theme of the physical risk environment that influenced participant’s first use of prescription opioids non-medically.

“People get them from parents, or friends’ parents. It starts as early as parents have [pills] in the house. Kids will use pills as early as they start drinking, like 15 or 16 (age 29, female, Caucasian, i11).”

“When I started messing around with drugs in middle school and high school, you raid your parents’ medicine cabinet, it’s easiest. Word will get around about what you can get high on. It’s easier to get than alcohol when you are underage. It’s easier to get painkillers (age 28, female, Caucasian, i12).”

“A lot does start with the prescription. I don’t hear a lot of people buying pills on the street. There is just so much available that you don’t really have to look far (female service provider, FG2).”

Other respondents felt that prescription opioids and other pills were readily available from just about anywhere in Rhode Island:

“You can get them from anybody. A lot of people sell drugs. Most people usually just steal them, from anybody (age 19, male, Caucasian, i15).”

“Social networks contribute to the increase. Hard to grasp how big it is. . . it trafficks through social media because it’s easier to get in touch with people (age 24, male, multi-racial, i1).”

“I find it more available to find than marijuana. Now it’s starting so much younger. . . I’ve had friends, say you want an Oxy 80 mg, my buddy paid \$80 per pill (\$1 a mg), and he’s taking 3–4 pills a day. (male service provider, FG2).”

YOUNG ADULTS' RECOMMENDATIONS FOR SERVICE PROVIDERS

Young adult participants offered suggestions for engaging with young adult NMPO users. Participants cautioned against use of the word “addiction,” and emphasized the importance of confidentiality and approach.

“You can’t give the impression that you make the determination of their addiction for them. No suggestions of being an addict. If I catch even a hint of judgment or talking down to, I am done. Shut-off (age 28, female, Caucasian, i12).”

“If you use the word ‘addiction,’ people don’t want to admit that. Confidentiality is paramount (age 29, female, Caucasian i11).”

Some participants emphasized addressing whole peer groups. Participants suggested they did not want to be singled out for their behaviors.

“Newcomers wouldn’t be comfortable saying, ‘I only do this because my boyfriend does it’. Education can be a big deterrent. No scary facts. Don’t make them feel stupid for their decisions (age 19, female, multi-racial, i14).”

“If you’re hanging out with people, you’re doing it because they’re doing it. By the time they’re doing this stuff, they have done other stuff before. They do it either way, but they’re just trying to have fun with their friends (age 19, male, Caucasian, i15).”

PROFESSIONAL SERVICE PROVIDER CHARACTERIZATION OF YOUNG ADULT NMPO USERS

Professional service providers in the focus groups characterized their interactions with young adults as occurring “late in the spectrum” of drug use, primarily with those who identify as an addict. Young adults who were not engaged in treatment were characterized as being unconcerned with the risks of NMPO use (eg, opioid dependence), or being in denial about what types of behavior constitutes NMPO use.

“I don’t think they recognize it. They say, ‘yeah I took some Vicodin, so what? [Then] I had a beer, it was great.’ They don’t see that necessarily as abuse (female service provider, FG1).”

“A lot of people who are sort-of on the lower-end of the nonmedical substance abuse [spectrum], a lot of them don’t consider themselves to be abusing substances. Or they would see something like [a report on young adult NMPO use] come out and think, ‘that doesn’t have anything to do with me’ (female service provider, FG1).”

There were suggestions from some service providers that young adult NMPO users may not be concerned about health risks or addiction when using prescription opioids with friends.

“Younger people tend to have a little more sense of invincibility. Lower perceived risk of actual fatality and harm (female service provider, FG2).”

“The people who are just taking what they can get, they might take a couple Xanax, Klonopin, stuff like that. You’re not going to see an addiction happen like you do with an opiate. You start doing that with some Oxy’s; it can become a problem a lot quicker than they thought. They thought they were just having fun (male service provider, FG2).”

Other service providers described how the progression from prescription opioids to heroin is common enough that young adults knew of the risks.

“People under the age of 30 are in detox/treatment services for opiates (versus alcohol or cocaine). People start with pills and move to heroin due to cost or availability (male service provider, FG1).”

“They know that once they progress from prescription pills that heroin is right around the corner, and that’s trouble (female service provider, FG1).”

“Year one, their tolerance is building, it’s off and on. Year two they start having problems...Then by year three it’s, ‘Uh, something’s wrong.’ Then maybe by year four they are actually getting treatment. By the time they get through their denial, they realize ‘I have a serious problem here’ (male service provider, FG1).”

DISCUSSION

Our results highlight social and environmental factors that shape NMPO use among young people. Although all participants called attention to the wide availability of prescription opioids (contributing to high opioid use among young adults in Rhode Island), professional service providers reported limited opportunities to engage young adult NMPO users who were not seeking treatment or other services. In contrast, young adult participants reported a spectrum of experimental, semi-regular, and very frequent NMPO use, often occurring in indoor social environments (e.g., “partying” or “pill parties”). The social contexts described by participants included mixing opiates with benzodiazepines, alcohol or other types of drugs, and some incidents of experiencing or witnessing unintentional overdose. Finally, youth highlighted the peer-based nature of NMPO use, and cautioned against interventions that individualize and pathologize opioid misuse (ie, use of the term “addict”).

A primary implication of the risk environment framework is that behavioral and public health interventions should also target the *context* in which the drug use behaviors occur, not simply the behaviors themselves.^{25,30} One recent qualitative study involving 70 young adults in New York City found that prescription opioids are normalized in young people’s social networks, particularly to “intensify” the experience of relaxing or hanging out with friends.³¹ Collectively, these and our results suggest that clinicians, harm reduction providers, and policymakers should be cognizant of the social meanings ascribed to prescription opioid misuse among young adults in addition to individual motivations for NMPO use. Additionally, studies have suggested that interventions seeking to prevent the harms of opioid misuse must begin during the teen years when experimentation with opioid misuse first begins, well before first heroin use.^{28,32,33} Results from this study support this literature by highlighting key factors shaping risk among young adults (eg, easy access to

prescription opioids), but also suggest opportunities for reducing drug-related harms within the context of the risk environment (eg, partying).^{27,28}

Structural interventions specific to young adults and their social networks are commonly used for risk behaviors related to youth tobacco use, alcohol binge drinking, or music festivals.^{34–37} Other research suggests that public health interventions are most effective with young adults when they capitalize on social influence, peer-led harm reduction or social/popular media campaigns.^{38–40} For example, one environmental intervention that could be adapted for young NMPO users, generically named “On-Site Pill Testing”, was designed specifically for synthetic drug use in recreational settings (ie, raves or music festivals), in response to an increase in harmful effects of pills being sold as ecstasy.³⁹ To our knowledge, no peer-reviewed studies have evaluated interventions to address risk behaviors within the social context and risk norms of emerging poly-substance parties among young adults.

Previous research has shown that environmental and/or structural interventions maximize the opportunity for widespread risk reduction and behavior change, rather than focusing on individual interventions targeted at specific subgroups.^{27,41} As our research suggests, young adult NMPO users may not identify with the larger population of opioid dependent persons (ie, “addicts”) at risk for negative health outcomes such as accidental overdose or transition to heroin use. Additionally, young adult NMPO users are not engaging with community-based service providers until they enter substance use disorder treatment, as reported in previous studies.¹³ Therefore, interventions should focus on addressing the social context in which NMPO use and related risks occur, particularly among youth who are not treatment seeking.

In order to better understand young adult NMPO use and to inform effective public health responses, additional research is needed. Increased qualitative and quantitative analysis of the risk environment should continue as a means of understanding the multi-level dynamics driving this public health crisis among young adults. Additionally, there is an urgent need for understanding the trajectories and typologies of prescription opioid use among youth and young adults, and how NMPO use is tied to future to heroin use and other harmful health outcomes.

STUDY LIMITATIONS

While interview data are rich with narrative detail, the study conclusions should be interpreted within the context of several important limitations. First, our results are limited by the small sample size of our pilot study. A larger and more in-depth qualitative study is needed to confirm these findings. Moreover, our study was conducted during a relatively short period of time (July to December 2014). Therefore, we were not able to examine the effect of the complex legal, policy, and structural environment and its influence on patterns of NMPO use among young adults. Given how quickly the opioid epidemic is changing in New England, our results may not necessarily represent more contemporary experiences of NMPO use among youth in this setting. Another limitation of our study is that we focused on the immediate micro-social context in which NMPO use takes place. As such, we did not

ask participants to describe other social contexts and pressures (eg, workplace, family, and academic environments) that shape prescription opioid misuse. Next, social desirability bias may have prevented some participants from fully disclosing high-risk behaviors. We attempted to mitigate socially desirable reporting by ensuring confidentiality. Finally, we did not inquire directly about individuals' own NMPO use, but about NMPO use generally among young adults in their social networks. We did not ask participants to report specific overdose incidents and the context in which they occurred. Thus, we were unable to determine the role that context may have played in shaping risks for responses to an overdose. Nonetheless, participants shared personal experiences with NMPO use and overdose incidents.

CONCLUSIONS AND SCIENTIFIC SIGNIFICANCE

In conclusion, these findings offer insight to the social and physical context of young adult NMPO use, and highlight the critical need for addressing the context of risk behaviors as a means for reducing negative health outcomes, such as accidental overdose or transition to opioid dependence, among this key population. Failure to address the risk behaviors of young adults misusing opioids in these contexts will likely result in an escalated public health crisis, as this population represents the majority of NMPO users. The risk environment framework provides an opportunity to structure a comprehensive response to the NMPO public health crisis facing specific states such as Rhode Island, and the New England region in general, particularly in light of evidence to suggest that many young adults who engage in NMPO use are not reached by traditional harm reduction services.⁴²

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References

1. Blanco C, Alderson D, Ogburn E, et al. Changes in the prevalence of non-medical prescription drug use and drug use disorders in the United States: 1991–1992 and 2001–2002. *Drug Alcohol Depend.* 2007; 90:252–260. [PubMed: 17513069]
2. Office of National Drug Control Policy. *Epidemic: Responding to America's Prescription Drug Abuse Crisis.* 2011.
3. Centers for Disease Control. Announcements: Release of Issue Brief: Unintentional Drug Poisoning in the United States (Reprinted from MMWR, vol 59, pg 300, 2010). *Jama-J Am Med Assoc.* 2010; 303:1476.
4. Green TC, Donnelly EF. Preventable death: Accidental drug overdose in Rhode Island. *Med Health R I.* 2011; 94:341–343. [PubMed: 22204098]
5. Yokell MA, Green TC, Bowman S, et al. Opioid overdose prevention and naloxone distribution in Rhode Island. *Med Health R I.* 2011; 94:240–242. [PubMed: 21913619]
6. Boyd CJ, Teter Christian J, West Brady T, et al. Non-medical use of prescription analgesics: A three-year national longitudinal study. *J Addict Dis.* 2009; 28:232–242. [PubMed: 20155592]
7. Center for Behavioral Health Statistics and Quality. 2014 National Survey on Drug Use and Health: Detailed Tables. Substance Abuse and Mental Health Services Administration; 2015.

8. Jones CM, Logan J, Gladden RM, et al. Vital Signs: Demographic and Substance Use Trends Among Heroin Users—United States, 2002–2013. *Morbidity and Mortality Weekly Report*. 2015; 26:719–725.
9. Johnson KM, Fibbi M, Langer D, et al. Prescription drug misuse and risk behaviors among young injection drug users. *J Psychoactive Drugs*. 2013; 45:112–121. [PubMed: 23908999]
10. Jones CM. Heroin use and heroin use risk behaviors among nonmedical users of prescription opioid pain relievers—United States, 2002–2004 and 2008–2010. *Drug Alcohol Depend*. 2013; 132:95–100. [PubMed: 23410617]
11. Mars SG, Bourgois P, Karandinos G, et al. Every ‘never’ I ever said came true”: transitions from opioid pills to heroin injecting. *Int J Drug Policy*. 2014; 25:257–266. [PubMed: 24238956]
12. Frank D, Mateu-Gelabert P, Guarino H, et al. High risk and little knowledge: Overdose experiences and knowledge among young adult nonmedical prescription opioid users. *Int J Drug Policy*. 2015; 26:84–91. [PubMed: 25151334]
13. Krug A, Hildebrand M, Sun N. “We don’t need services. We have no problems”: Exploring the experiences of young people who inject drugs in accessing harm reduction services. *J Int AIDS Soc*. 2015; 18:19442. [PubMed: 25724510]
14. Chen, L., Hedegaard, H., Warner, M. NCHS Data Brief no 166. Hyattsville, MD: National Center for Health Statistics; 2014. Drug-Poisoning deaths involving opioid analgesics: United States, 1999–2011.
15. Zibbell J, Iqbal K, Patel R, et al. Increases in hepatitis C virus infection related to injection drug use among persons aged ≤ 30 years—Kentucky, Tennessee, Virginia, and West Virginia, 2006–2012. *MMWR Morb Mortal Wkly Rep*. 2015; 64:453–458. [PubMed: 25950251]
16. Centers for Disease Control. Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone—Indiana, 2015. *MMWR Morb Mortal Wkly Rep*. 2015; 64:443–444. [PubMed: 25928470]
17. Silva K, Kecojevic A, Lankenau SE. Perceived drug use functions and risk reduction practices among high-Risk nonmedical users of prescription drugs. *J Drug Issues*. 2013; 43:483–496. [PubMed: 25477621]
18. Lankenau SE, Kecojevic A, Silva K. Associations between prescription opioid injection and Hepatitis C virus among young injection drug users. *Drugs*. 2015; 22:35–42. [PubMed: 25598589]
19. Lankenau SE, Teti M, Silva K, et al. Patterns of prescription drug misuse among young injection drug users. *J Urban Health*. 2012; 89:1004–1016. [PubMed: 22684424]
20. Martins SS, Kim JH, Chen L, et al. Nonmedical prescription drug use among US young adults by educational attainment. *Soc Psychiatry Psychiatr Epidemiol*. 2014; 50:713–724. [PubMed: 25427665]
21. Neira-Leon M, Barrio G, Bravo MJ, et al. Infrequent opioid overdose risk reduction behaviours among young adult heroin users in cities with wide coverage of HIV prevention programmes. *Int J Drug Policy*. 2011; 22:16–25. [PubMed: 20800462]
22. Schragger SM, Kecojevic A, Silva K, et al. Correlates and consequences of opioid misuse among high-risk young adults. *J Addict*. 2014; 2014:156954. [PubMed: 25506462]
23. Bardhi F, Sifanek SJ, Johnson BD, et al. Pills, thrills and bellyaches: Case studies of prescription pill use and misuse among marijuana/blunt smoking middle class young women. *Contemp Drug Probl*. 2007; 34:53–101. [PubMed: 19081798]
24. Quintero G. Rx for a party: A qualitative analysis of recreational pharmaceutical use in a collegiate setting. *J Am Coll Health*. 2009; 58:64–70. [PubMed: 19592355]
25. Rhodes T, Singer M, Bourgois P, et al. The social structural production of HIV risk among injecting drug users. *Soc Sci Med*. 2005; 61:1026–1044. [PubMed: 15955404]
26. Strathdee SA, Hallett TB, Bobrova N, et al. HIV and risk environment for injecting drug users: The past, present, and future. *Lancet*. 2010; 376:268–284. [PubMed: 20650523]
27. Rhodes T. Risk environments and drug harms: A social science for harm reduction approach. *Int J Drug Policy*. 2009; 20:193–201. [PubMed: 19147339]
28. Lankenau SE, Teti M, Silva K, et al. Initiation into prescription opioid misuse amongst young injection drug users. *Int J Drug Policy*. 2012; 23:37–44. [PubMed: 21689917]

29. Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health. Rockville, MD: Substance Abuse & Mental Health Services Administration (SAMHSA); 2013.
30. Heimer R, Bray S, Burris S, et al. Structural interventions to improve opiate maintenance. *Int J Drug Policy*. 2002; 13:103–111.
31. LeClair A, Kelly BC, Pawson M, et al. Motivations for prescription drug misuse among young adults: Considering social and developmental contexts. *Drugs (Abingdon Engl)*. 2015; 22:208–216. [PubMed: 26709337]
32. Cerda M, Santaella J, Marshall BDL, et al. Nonmedical prescription opioid use in childhood and early adolescence predicts transitions to heroin use in young adulthood: A national study. *J Pediatr-Us*. 2015; 167:605.
33. Daniulaityte R, Falck R, Carlson RG. “I’m not afraid of those ones just ‘cause they’ve been prescribed”: perceptions of risk among illicit users of pharmaceutical opioids. *Int J Drug Policy*. 2012; 23:374–384. [PubMed: 22417823]
34. Wakefield M, Chaloupka F. Effectiveness of comprehensive tobacco control programmes in reducing teenage smoking in the USA. *Tobacco Control*. 2000; 9:177–186. [PubMed: 10841854]
35. Kreiner, HBR., Gollner, C., Lachout, S., et al. An Inventory of On-Site Pill Testing Interventions in the EU: European Monitoring Centre for Drugs and Drug Addiction. 2001.
36. Weitzman ER, Nelson TF, Wechsler H. Taking up binge drinking in college: The influences of person, social group, and environment. *J Adolesc Health*. 2003; 32:26–35. [PubMed: 12507798]
37. Borsari B, Carey KB. Peer influences on college drinking: A review of the research. *J Subst Abuse*. 2001; 13:391–424. [PubMed: 11775073]
38. Ferri M, Bo A. EMCDDA best practice promotion in europe: An internet based dissemination tool. *Adicciones*. 2013; 25:3–6. [PubMed: 23487273]
39. European Monitoring Centre for Drugs and Drug Addiction. Best Practice Portal: Best Practice in Drug Interventions. 2015. [accessed July 22 2015]
40. Quintero GA, Young KJ, Mier N, et al. Perceptions of drinking among hispanic college students: How qualitative research can inform the development of collegiate alcohol abuse prevention programs. *J Drug Educ*. 2005; 35:291–304. [PubMed: 16910241]
41. Blankenship KM, Bray SJ, Merson MH. Structural interventions in public health. *AIDS*. 2000; 14:S11–S21.
42. Merkinaitė S, Grund JP, Frimpong A. Young people and drugs: Next generation of harm reduction. *Int J Drug Policy*. 2010; 21:112–114. [PubMed: 20036526]