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Witnessed overdoses and naloxone use among visitors to Rikers Island jails trained in overdose rescue

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HIGHLIGHTS

- A 6-month prospective study of NYC jail visitors to Rikers Island trained in naloxone.
- Of the 283 participants enrolled, 14% witnessed at least one overdose.
- Of the 283 participants enrolled, 10% administered naloxone at least once.
- The naloxone use is comparable to similar interventions for high-risk populations.
- Training jail visitors is effective at reaching a population at risk of overdose.

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ABSTRACT

With the opioid overdose mortality rates rising nationally, The New York City Department of Health and Mental Hygiene (NYC DOHMH) has worked to expand overdose rescue training (ORT) and naloxone distribution. This study sought to determine rates of overdose witnessing and naloxone use among overdose rescue-trained visitors to the NYC jails on Rikers Island. We conducted a six-month prospective study of visitors to NYC jails on Rikers Island who received ORT. We collected baseline characteristics of study participants, characteristics of overdose events, and responses to witnessed overdose events, including whether the victim was the incarcerated individual the participant was visiting on the day of training. Bivariate analyses compared baseline characteristics of participants who witnessed overdoses to those who did not, and of participants who used naloxone to those who did not. Overall, we enrolled 283 participants visiting NYC's Rikers Island jails into the study. Six months after enrollment, we reached 226 participants for follow-up by phone. 40 participants witnessed 70 overdose events, and 28 participants reported using naloxone. Of the 70 overdose events, three victims were the incarcerated individuals visited on the day of training; nine additional victims were recently released from jail and/or prison. Visitors to persons incarcerated at Rikers Island witness overdose events and are able to perform overdose rescues with naloxone. This intervention reaches a population that includes not only those recently released, but also other people who experienced overdose.

1. Introduction

Mortality rates from unintentional opioid overdose continue to increase across the United States. Between 2000 and 2014, the rate of opioid overdose deaths tripled (Wheeler, Jones, Gilbert, & Davidson, 2015). Opioid overdose deaths are preventable with a multi-pronged approach, including naloxone distribution to laypeople. Naloxone is an opioid antagonist medication that reverses the effect of opioid intoxication (overdose) and restores breathing. In New York State, opioid

overdose prevention programs, like overdose prevention programs in other jurisdictions, educate laypeople to recognize and respond to an overdose, including how to administer naloxone. Distribution of naloxone to laypeople at risk of overdose is cost-effective and reduces overdose mortality (Coffin & Sullivan, 2013; Gaston, Best, Manning, & Day, 2009; Sherman et al., 2008; Strang et al., 2008; Wagner et al., 2010; Walley et al., 2013). In the United States, there have been over 26,000 reversals reported and over 150,000 kits dispensed since 1996 (Wheeler et al., 2015).

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In order for naloxone distribution to reduce overdose mortality effectively, distribution to populations at highest risk of overdose should be prioritized. In many jurisdictions, including New York City (NYC), syringe exchange programs (SEPs) accomplish this goal by engaging and training people who actively use drugs to recognize and respond to an overdose, including how to administer naloxone. A meta-analysis of community naloxone trainings among people who use drugs reported naloxone use rates that ranged from 5 to 13% in the three months after naloxone receipt (McCauley, Aucott, & Matheson, 2015). NYC SEP participants trained to use naloxone reported higher rates; 25% used naloxone to reverse an overdose within 12 months of training (Siegler et al., 2017).

Following release from carceral settings, individuals are at risk of fatal overdose due to reduced opioid tolerance after a period of abstinence. In NYC, people with a recent history of incarceration are eight times more likely to die from drug-related causes in the two weeks after incarceration than non-incarcerated individuals (Lim et al., 2012). Similar findings are reported in other parts of the United States and internationally (Binswanger et al., 2007; Farrell & Marsden, 2008; Bird and Hutchinson, 2003; Stewart, Henderson, Hobbs, Ridout, & Knuiman, 2004; Merrall et al., 2010; Winter et al., 2015). Additionally, of the > 200,000 individuals released from NYC jails between 2011 and 2016, 36,000 (18%) had an opioid use disorder (unpublished data, Correctional Health Service, NYC Health and Hospitals).

In response to the high risk of overdose following incarceration, a number of programs dispense naloxone to formerly incarcerated persons upon re-entry. One program in Scotland found reductions in overdose mortality rates following the implementation of naloxone dispensing to people at prison discharge (Bird, Parmar, & Strang, 2015). In the U.S., programs in Rhode Island, California, Washington, New Mexico and New York State have begun to provide naloxone to releases (Beletsky et al., 2015).

In the NYC jail system, like other correctional systems, a number of logistical barriers have thus far precluded naloxone distribution to incarcerated people upon release. By training visitors, we sought to prevent fatal overdose among persons recently released from jail on Rikers Island, where approximately three-quarters of NYC's jails are located. Beginning in 2014, the New York City Health Department began a program to offer training to visitors in overdose recognition and naloxone administration prior to their jail visit. Those trained received a naloxone kit after their visit, as they exited the Rikers Island Central Visit Center.

To determine whether naloxone distribution to jail visitors would lead to overdose rescues among recently incarcerated people, we conducted a prospective study of: 1) the prevalence of witnessing overdose among jail visitors in the 6 months following the visit; 2) naloxone use rates by jail visitors; and 3) the proportion of naloxone administrations by jail visitors that were to individuals recently incarcerated at Rikers Island.

2. Methods

2.1. Sample and study enrollment

We conducted a prospective observational study of individuals visiting incarcerated persons at Rikers Island who completed overdose rescue training (ORT) and received naloxone. Participants were recruited by convenience sampling from the Rikers Island Central Visit Center during five consecutive days in August 2015. These represented all days available for visiting in a week (not every day is open and days are divided by last name of the individual being visited).

Upon entry into the Rikers Island Central Visit Center, program staff offered all visitors ORT, regardless of the sentencing status of the incarcerated person they were visiting, while they awaited transport to the individual jails in the complex. Staff invited individuals who agreed to be trained to participate in the study. Staff then obtained informed

verbal consent which included education about the study's risks and benefits as well as confidentiality and study procedures. All trained individuals received naloxone kits as they exited Rikers Island Central Visit Center, and after completing their visit to the incarcerated person.

Study participants included all individuals who 1) participated in ORT, 2) gave verbal consent to participate in the study, 3) provided demographic (age, race/ethnicity and gender) and contact information in either Spanish or English, and 4) received naloxone after their visit.

IRBs at the NYC DOHMH and NYC Health and Hospitals approved the study.

2.2. Overdose rescue training and naloxone dispensing

NYC Health Department employees or syringe-exchange outreach workers conducted ORT. ORT lasted from two to five minutes and included instruction on signs of opioid overdose, steps for responding to opioid overdose how to administer intranasal naloxone, and protections provided by the 911 Good Samaritan Law—a New York State law that protects individuals from prosecution when calling 911 in case of an overdose (Drug Policy Alliance, 2015). If time permitted, trainers also instructed participants in rescue breathing and overdose prevention tips. Due to restrictions on property permitted inside individual jail facilities, staff gave naloxone kits to trained visitors after their visit, as they exited the jail complex, often three to four hours after initial training. Each naloxone kit contained two doses of 1 mg/mL naloxone with two nasal adaptors, disposable gloves, an alcohol swab, instructions for use of the product, and a rescue breathing mask.

2.3. Follow up procedures

We asked study participants to provide at least one mechanism for follow up contact (phone number or email address) and a mailing address to receive incentives. Participants were reached by phone call or email to confirm contact information at one month and three months after enrollment. At six months, we administered a closed-ended survey by phone. Participants who agreed to be contacted via text message also received texts each month to maintain contact. At one, three, and six months, we attempted to reach participants by phone-call up to three times, and by email and post card if unsuccessful by phone.

2.4. Incentives

Following enrollment at the Central Visit Center, we gave participants round-trip subway cards valued at \$5.50. Participants received an additional subway card upon completion of the one-month check-in, two subway cards upon completion of the three month check in, and a \$20 gift card upon completion of the six-month follow-up survey. The maximum incentive was \$42.

2.5. Measures

We collected demographic information immediately following ORT. Demographic characteristics of study participants included age, gender, race/ethnicity, and borough of residence. The questions on the six-month survey included questions about witnessing overdose, use of naloxone, incarceration history of overdose victim, and relationship to overdose victim.

2.6. Outcomes

The three outcomes of interest were: (1) witnessing a drug overdose, (2) administering naloxone, and (3) whether the overdose victims were the individuals being visited at Rikers on the day of training.

2.6.1. Witnessing drug overdose

At six months, participants reported whether they had witnessed

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