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Research paper

The extent of and factors associated with self-reported overdose and self-reported receipt of naloxone among people who inject drugs (PWID) in England, Wales and Northern Ireland

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ABSTRACT

Background: Overdose is a major cause of death among PWID, and for opioid overdoses naloxone administration can reduce harm. However, globally there is limited national level data on the extent of non-fatal overdose and naloxone uptake. The first national level data on the extent of self-reported overdose and self-reported receipt of naloxone among UK PWID, providing a baseline to monitor the impact of the recent policy change regarding naloxone availability, is presented.
Methods: Data on self-reported overdose and receipt of naloxone during the preceding year for 2013–2014 from a national survey of PWID was analysed. Participants who reported injecting during the preceding year were included.
Results: Participants (3850) were predominantly male (75%); mean age was 36 years. The most commonly injected drugs were: heroin (91%), crack (45%) and amphetamine (29%). 15% (591) reported overdosing during the preceding year. There were no differences in the proportion reporting overdose by age or gender, but overdose was more common among those who: injected multiple drugs; recently ceased addiction treatment; injected with used needles/syringes; ever had transactional sex; had used a sexual health clinic or emergency department and lived in Wales or Northern Ireland. Among those reporting an overdose during the preceding year, a third reported two to four overdoses and 7.5% five or more overdoses; half reported receiving naloxone. Those reporting naloxone receipt in the preceding year were more likely to: live in Wales or Northern Ireland; ever received used needles/syringes; ever been imprisoned; and *less* likely to have injected two drug types.
Conclusion: These data provide a baseline for monitoring the impact of the 2015 UK policy change to improve take-home naloxone access. Interventions tackling overdose should promote naloxone awareness and access, and target those who; are poly-drug injectors, have ceased treatment, share needles/syringes and whose drug use links to sexual activity.

Introduction

Overdose is a major cause of mortality among people who inject drugs (PWID), especially in those who inject opioids such as heroin (Pierce, Bird, Hickman, & Millar, 2015; Strang, 2015). The United Nations World Drug Report 2015 described the number of these premature deaths in drug users as "unacceptable" (United Nations Office on Drugs and Crime, 2015) because the majority are preventable through interventions such as long-term opioid substitution therapy and the use of opioid antagonists, such as naloxone.

In 2015, drug-induced overdose was the leading cause of injury-related death in the United States (US) (Hedegaard, Chen, & Warner, 2015), with the rate of fatal drug overdoses involving opioids doubling between 2000 to 2014 (Rudd, Aleshire, Zibbell, & Gladden, 2016) and the heroin overdose mortality rate nearly tripling between 2010 and 2013 (Hedegaard et al., 2015). Reported overdose deaths have also been increasing in other countries such as Australia (Roxburgh & Burns, 2015), and Canada. In Ontario, Canada, drug related overdose is the third leading cause of

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accidental death (Carter & Graham, 2013) with the rate of opioid-related deaths doubling between 1991 and 2010 (Gomes et al., 2014). The European Drug Report estimated that 3.4% of all deaths in Europeans aged 15–39 were due to drug overdoses in 2013, and opioids were found in 82% of fatal overdoses in Europe in 2014 (European Monitoring Centre for Drugs and Drug Addiction, 2015, 2016).

In 2015, there were 3288 registered drug-misuse deaths in the UK, with 81% (n = 2677) of these deaths mentioning an opioid. In recent years there been a marked increases in the number of drug-misuse deaths were an opioid is mentioned across the UK (with increases of 58% in England, 21% in Scotland, 23% in Wales and 47% in Northern Ireland between 2012 and 2015) (Advisory Council on the Misuse of Drugs, 2016). A national inquiry to investigate the causes of this rise concluded that the factors responsible were principally the availability and purity of heroin (Public Health England, 2016).

Naloxone is a powerful, yet relatively safe opioid-antagonist that temporarily blocks opioid receptors, thus reversing respiratory depression, sedation and hypotension caused by excess opioid ingestion (Hospira Inc., 2007; Strang & McDonald, 2016b).

In 2014 the World Health Organization (WHO) recommended that people likely to witness overdose (such as friends and family of people who use drugs, healthcare workers and police) should have access to naloxone and be trained in its administration (World Health Organization, 2014). A recent review of evaluations of Take-Home Naloxone (THN) programmes in the US, Canada, Germany and the UK, found that these significantly reduced heroin overdose mortality rates (Strang & McDonald, 2016a). As of September 2015, 43 US states had legalised naloxone access for peers (Davis & Carr, 2015), as well as New York state developing an opioid-overdose prevention and training program targeting all soon to be released inmates and parole officers (Zucker, Annucci, Stancliff, & Catania, 2015). Australia has recently become the second country (after Italy in 1995) to approve naloxone as an over-the-counter (OTC) drug (Australian Government Department of Health, 2015; Lenton, Dietze, & Jauncey, 2016; Strang & McDonald, 2016b) and a number of US states have also proposed this (Beheshti et al., 2015; Kim, Irwin, & Khoshnood, 2009).

In Scotland, as part of a National Naloxone Programme, THN kits have been provided to those at risk of overdose through Patient Group Direction (PGD) (Watt et al., 2014) and this was associated with a 36% reduction in opioid-related deaths following prison release (Bird, McAuley, Perry, & Hunter, 2016), although recently there has been evidence to suggest a decline in day-to-day naloxone carriage among PWID in Scotland (McAuley et al., 2016). In Wales, a national THN programme has issued over 10,500 THN kits since it was initiated in 2009, with one in ten reported to have been used in overdose events (Public Health Wales, 2016). In Northern Ireland, a THN programme has been available via drug treatment services from community addiction teams and in prisons since 2012. Work is currently ongoing to extend the provision of naloxone to other services, for example community outreach teams and needle exchange services (Shorter & Bingham, 2016).

In October 2015, UK regulations changed to allow naloxone to be supplied by drug treatment services (including prison and pharmacy based services) without a prescription. Previously it could only be prescribed either directly to a named patient or through a PGD. The supply of naloxone is not limited specifically to PWID at risk of overdose, and it can now be supplied to peers, friends and family of those at risk as well as people such as outreach workers (Public Health England, 2015b).

In the UK, there is currently limited national data on the extent of recent self-reported overdose and receipt of naloxone among PWID. To assess the impact of the recent change in legislation, national baseline data on the extent of overdoses and receipt of naloxone is needed. Using new data from a national survey of PWID in the UK (excluding Scotland) we: (a) examine the extent of reported overdoses nationally among PWID, (b) explore the factors associated with this, and (c) examine the extent of naloxone uptake among those who had reported overdose.

Material and methods

Recruitment and data

PWID at sentinel locations have been recruited into a voluntary unlinked-anonymous monitoring system since 1990. Methodological details of this system, a series of annual cross-sectional surveys, have been published previously (Hope et al., 2005; Sweeting et al., 2009). Briefly, agencies providing services to PWID (e.g. needle and syringe programmes [NSPs] and providers of addiction services such as opioid substitution therapy [OST]) invite clients who have ever injected a psychoactive drug to participate in the survey each year. These sentinel sites are located throughout the UK, except Scotland, and are selected so as to reflect both the geographic distribution and range of services offered to PWID. Those who consent to participate provide a biological sample, currently a dried blood spot (DBS), and self-complete a short questionnaire. The DBS samples are tested for antibodies to HIV (anti-HIV), hepatitis C (anti-HCV) and the hepatitis B core anti-gen (anti-HBc) using published methods. The survey has received multi-site ethics approval.

In 2013, a question on self-reported overdoses and naloxone use was added to the survey questionnaire. Participants were asked: "In the last year (12 months), have you ever overdosed (OD-ed, gone over, gone-under) to the point where you have lost consciousness?" Those reporting 'yes' were then asked how many times they had overdosed in the preceding year, as well as, "In the last 12 months, did you receive naloxone (the heroin overdose antidote) when you overdosed?".

Eligibility & analysis

Data from the first participations in the two survey waves undertaken during 2013 and 2014 were used in the analyses (i.e. those taking part in 2014 who reported having previously taken part in 2013 were excluded). Participants were included in the analyses if they reported injecting in the preceding year and answered the question on overdose.

Simple descriptive analyses and comparative analyses, using Pearson's Chi-squared test were performed to assess the bivariate association between the two outcome variables (overdosing to the point of unconsciousness in the preceding year and receiving naloxone in the preceding year when overdosed), and covariates (demographics, injecting practices, the drugs injected, sexual behaviour, and health services use). Where possible associations were found ($p < 0.10$) with either of the outcomes, these were then further examined via binary logistic regression using the forward stepwise procedure to select variables for inclusion in the model, with selection based on the likelihood ratio test ($p < 0.05$). All analyses were undertaken using SPSS 23.

Results

Sample characteristics

During 2013 and 2014, there were 3850 participants in the survey who reported injecting psychoactive drugs during the preceding year. Over half (56%, n = 2139) were aged 35 years or older (mean and median age both 36 years), the majority