



Research paper

A qualitative evaluation of a peer-implemented overdose response pilot project in Gejiu, China

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ABSTRACT

Background: A harm reduction NGO in southern Yunnan operating an emergency overdose response hotline service successfully reversed 76 overdoses through the administration of naloxone in one of the first interventions of its kind in China.

Method: To explore local understandings of risk factors related to overdose, assess ongoing barriers to overdose response, and solicit client input on how to further reduce opiate overdose mortality in Gejiu, the authors conducted qualitative interviews with 30 clients, including 15 individuals who received naloxone injections to reverse an overdose and 15 individuals who called the hotline in response to the overdose of a peer.

Results: Participants pointed to a number of local structural shifts in heroin use including the ageing of the opiate using population and drug mixing practises that contribute to the city's overdose toll. Concerns over medical professionals' willingness to treat drug users, protection of confidentiality, and financial costs associated with treatment frequently cause drug users to avoid contact with the city's emergency service providers. Participants suggest directly distributing naloxone to clients as one strategy to further reduce overdose mortality.

Conclusion: The authors explore possible strategies, including targeted trainings and new partnerships with local hospitals, to further reduce opiate overdose mortality in this resource-poor setting.

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Background

Over a span of nearly four decades, naloxone has been shown to be safe, inexpensive and highly effective in reversing opiate overdoses in clinical settings (Buajordet, Naess, Jacobsen, & Brors, 2004; Kim, Irwin, & Khoshnood, 2009). Numerous outreach programmes have trained non-medical personnel to successfully reverse overdoses in a variety of contexts (Galea et al., 2006; Maxwell, Bigg, Stanczykiewicz, & Carlberg-Racich, 2006; Piper et al., 2007; Saucier, 2011). Laypersons who receive overdose response training were found to perform as well as medical professionals in recognizing an opiate overdose and identifying when naloxone administration is necessary (Green, Heimer, & Grau, 2008). There have been over 10,000 reported reversals in the 10-plus years of peer-driven naloxone administration in the United States (Saucier, 2011) and programme distributing naloxone to peers now operate in more than a dozen countries worldwide (Coffin, Sherman, & Curtis, 2010).

The 2007 Reference Group to the UN on HIV and Injecting Drug Use reports there are 2.35 million injecting drug users in China, a figure representing approximately 14% of the worldwide population of people who inject (Mathers et al., 2008). Though China has scaled up certain harm reduction services since 2004 (Read & Aitken, 2009; Sullivan & Wu, 2007), data collection and interventions aimed at documenting and reducing opiate overdoses in the country have been limited. The most comprehensive survey to date was a cohort study which enrolled 731 heroin users in Liangshan, Sichuan. The authors reported a 12% one-year prevalence of nonfatal overdose amongst this population and calculated a heroin overdose death rate of 4.7 per 100 person-years (Yin et al., 2007; Zhang et al., 2005). Heroin-related overdoses made up 68% (30/44) of all deaths reported through the third year of the study (Zhu et al., 2006).

As of early 2011, naloxone is distributed by close to twenty harm reduction projects in four provinces in China (See, for example, Bartlett & Xin, 2010; Liu, 2010; Yu, 2010). Early assessments have found that there is great interest in and need for naloxone-based interventions targeting heroin users. A baseline study in Kunming, Yunnan found that 66% of 201 drug users surveyed had witnessed an overdose, including 34% within the last year. Twenty

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nine percent of respondents reported at least one instance of an acquaintance dying of a heroin overdose within the previous year (Yu, 2009). In Ningbo, 72% of heroin users surveyed in compulsory detoxification settings reported another person had been present the last time they overdosed and 88% indicated that they would be willing to administer naloxone to help a friend experiencing an overdose (Liu, Bartlett, Liu, Lü, & Zhou, submitted for publication).

Huyangshu, a non-government organisation headquartered in Gejiu, Yunnan, was one of the first groups in China to integrate naloxone into its harm reduction programming. Gejiu is a city located in Honghe prefecture, less than 100 miles from the Vietnamese border in southern Yunnan. Widespread availability of heroin flowing into the country from Southeast Asian neighbours contributed to increased consumption amongst Gejiu residents in the early 1990s. The city has a population of 440,000, including approximately 240,000 who live in the compact city centre. Per capita annual output value in this mountainous mining region in 2007 was 9859RMB (approximately USD\$1500) (Honghe, 2010). The local public security registered 5185 drug users, though a 2003 Yunnan Institute of Drug Abuse report estimated a total of 10,686 drug users in the area (Zhang, Zhang, & Li, 2003; Zhao, 2008). The mode of heroin administration amongst heroin users in Gejiu is almost exclusively intravenous injection. Local health-care providers estimate HIV prevalence amongst injecting drug users in Gejiu to be around 60% (Xin, 2011). Though first line antiretroviral regimens became available in 2004, few drug users in Gejiu have been approved for second line anti-retroviral treatment, which is being rolling out through the national treatment programme (Zhang et al., 2009). Tuberculosis hepatitis C, abscesses, heart conditions and other infections are common. Official estimates of overdose deaths at the city level were unavailable as there was no central coordinating government agency collecting the data. An informal list kept at Huyangshu in late 2010 included 26 individuals who were believed to have died directly from overdose.

Due to a lack of local precedent, Huyangshu decided that only staff members would administer naloxone in the first phase of implementation. The naloxone in the programme was produced domestically and obtained through a drug treatment provider based in Kunming. The organisation operated a 24 h hotline staffed by six peers who carry emergency naloxone response kits on their persons at all times. Medical supervision was provided by the last author who is based at the city's infectious disease hospital. Thanks to the compact, dense layout of the city and coordination between staff members, three of whom had motorbikes, Huyangshu generally responded to calls within several minutes and never took more than 10 min to arrive at the site of overdose (Huang, Bartlett, Zhang, & Xin, in press). In addition to the hotline, the staff ran stand-alone trainings on overdose prevention, identification and response and also integrated this information into other interactions with clients.

Methods

For this study, Huyangshu's outreach workers recruited 30 individuals, including 15 people who had received a naloxone injection from a Huyangshu staff member to reverse an overdose ("Overdosers") and 15 individuals who called Huyangshu's hotline and were present during the administration of the naloxone ("Responders"). A convenience sampling strategy was adopted. In order to preserve the anonymity of participants in the programme only the staff member who had responded to the overdose approached potential participants. Interviews were conducted between March and October 2010, each took between 20 and 30 min and were generally conducted in *Gejiuhua*, the local dialect. The two types of clients were administered slightly different versions of a 16-question qualitative survey instrument. Each

Table 1

Demographic characteristics of Overdosers and Responders (*n* = 30).

	Total	Overdosers	Responders
Number of participants	30	15 (50%)	15 (50%)
Age		37.1 ± 3.9	40.3 ± 8.3
Gender			
Male		11	12
Female		4	3
Relation to person overdosing			
Parent			1
Sibling			2
Married/partner			2
Friend			10
Other			0
First time of heroin use			
1988–1992		6	4
1993–2000		3	7
2001–2010		1	2
Year not specified		5	1
Never used		0	1

interview was digitally recorded and later transcribed by the third author.

All interviewers, a total of six members of Huyangshu's staff including the second and third authors, attended a training on interviewing techniques, and transcripts were reviewed during the data collection process to ensure a common approach was being followed. Initial coding and thematic analysis was conducted by the first author. Preliminary conclusions were discussed and the paper was translated into Chinese to allow co-authors to make additional written comments. No names were collected on the survey and each participant signed an informed consent form before participating. The research protocol was approved by the Institutional Review Board of the Yunnan Institute of Drug Abuse. The survey instrument aimed to (a) explore participants' understandings of local risk factors related to overdose, (b) assess ongoing barriers to overdose prevention and response, and (c) solicit client input on how to improve Gejiu's naloxone distribution in the future.

Results

Participant demographic information and summary of the programme's key indicators

The demographic information for the respondents is broken down into the two groups, "Overdosers" and "Responders". All but one of the 30 participants had a history of heroin use, and on average their first time using was 15.6 years before the time of interview. The average age of both groups was close to 40, with the Overdosers slightly younger. Except for one Mongolian female Responder and one Yi male Overdoser, all participants in this survey were Han, the ethnic group that comprises over 90% of the total population in China. Four participants had received a naloxone injection and, on a separate occasion, called Huyangshu to facilitate administration to a friend (three were interviewed as "Overdosers" and one as a "Responder"). Three other respondents indicated they had called Huyangshu staff more than once to obtain help for different overdose events. For additional demographic information, see Table 1.

From October 2008 through December 2010, the programme staff of six received 112 calls to the hotline and achieved a 100% resuscitation rate in the 76 instances where they administered naloxone. This total includes 50 people who overdosed once, eight individuals who overdosed twice, two who overdosed three times, and one who overdosed four times. Of the group who received naloxone, 19 individuals required two 1 ml injections and one person required three injections. In 35 instances the client was resuscitated through rescue breathing or other means after the staff member arrived and did not require a naloxone injection. There

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