
**Feasibility Studies of Providing Naloxone Treatment for Heroin
Overdose by Outreach Workers (Draft)**

YD

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Writers: Luo Zhi, Zheng Jiarui, Lin Yun, Bao Xiuhong, Duo Lin

On-site Investigators: Fu Qinmei, Tan Jiabin, Liu Jun, Li Shuhui, Yang Feng, Feng Yu, Xin Demin, Chen Huabing Liu Dong, Ma Xue, Ma Yunfang, Dai Yunchun, Zhang Shuangcai, Yang Shangang, Ma Liqin, Ma Li, She Kanglin, Nie Xin.

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Feasibility Studies of Providing Naloxone Treatment for Heroin Overdose by Outreach Workers

Abstract

Objective

Through systematic investigation and study to heroin injecting overdose, their families, outreach works of grass-root organizations, and health workers, understand comprehensively the reasons of IDU overdose, their response to naloxone emergency treatment services, and at the same time assess their attitude to and the effects of naloxone emergency treatment. Hence summarize the experience and find problems, with the objective of laying a foundation for “naloxone emergency service model through outreach workers in Yunnan Province”. Meanwhile, provide feasible suggestions and evidence for relevant management departments to improve their naloxone management.

Methods

The research is applied with the Prevalence survey of epidemiology, sampled objects by snowball sampling method, and combined the quantitative analysis and the qualitative survey method, then the situation of the key population who overdosed and accepted naloxone emergency aid service was evaluated. Meanwhile, the methods of naloxone emergency services supplied by outreach workers, the data of evaluated effectivity and materials from interviews were collected. All the information were recorded by EpiData3.02 and made with statistical analysis by SPSS17.0.

Results

1 frequency of drug users overdosed.

The survey totally investigated 108 drug users who had overdose experience, among them 98 in Yunnan, and 10 from Guangxi.

First, in term of times of drug overdose: there is no statistically significance comparing drug user whom used drug less than 10 years or above 10 years($Z = -1.951$, $P = 0.051$), their average overdose times were 2 times (M), and the average dose of drug overdose was 0.3g (M).

2 in term of overdose reasons

Most of the drug users mainly use heroin, and their overdoes reasons are: increase the amount of drugs in order to have pleasure; newly released from compulsory drug detoxification center and have lower tolerance to drug (use the same amount as usual); multi-drugs or use heroin after drinking alcohol; use heroin after taking methadone; drug purity purchased has a greater change, and so on.

3 measures after drug overdose occurs

The overdose location were mainly at home (57.4%), when drug overdose occurs, seeking help from outreach workers was the main measures took by their friends or family (73.1%), sometimes their friends/peers took some common first-aid measures (23.1%) such as pain stimulation (18.5%) or hospital treatment (11.1 percent), and other methods.

4 naloxone service

Almost all overdose drug users had received at least once naloxone service, and almost all the services were supplied by outreach workers. The time of overdose appearance to accept the service were about 20 minutes (M), the costs of naloxone services provided by doctors or outreach workers bears statistical significance($P < 0.001$). The average costs of naloxone services provided by doctors were 29.0 yuan (M), while the naloxone services from outreach workers were free of charge.

5 the comments and evaluation of naloxone service by outreach workers

60.0% of drug overdose clients were sure that outreach workers can properly use naloxone to save those who overdose, 40.0% of drug overdose clients generally believe outreach workers can use naloxone correctly saving drug overdose; in term of satisfactory evaluation in outreach naloxone service, 99.0% of treated clients shows very satisfied.

Conclusion

The merit of outreach workers providing naloxone first aid is, they have the same background, easy to communicate with each other, and the outreach workers keep it as confidential and will not disclose the information to police or others. In addition, as most drug users have a very poor economic conditions, while the service from outreach workers are free of charge. The most important thing is that they know each other, familiar with the situation, they trust outreach workers, and outreach workers always arrive timely, which saved precious time for rescuing the lives. Therefore, establishment of naloxone emergency aid by outreach workers is not only feasible, but also necessary to promote. However, the outreach workers are not medical staff, so their emergency treatment service is illegal practice. Once medical accident happens, they will face criminally charges, therefore, how to legalize naloxone outreach services and protect outreach workers interests need further exploration.

【Key words】 overdosed drug user; outreach; naloxone service

1 Research Background

According to a statistic by UN, the global drug abusers are over 200 million in 2007^[1]. The number of drug users in China is also increasing especially because of the quick spread of new drugs. By the end of December, 2007, the registered drug users in China have reached 957,000 with 73.1% or 700,000 of heroin users^[2]. By 2009, the number of registered drug users is more than 1.33 million with 84.6% of male and 15.4% of female, a 200,000 increase compared with that at the end of 2008^[3]. Due to the special location of Yunnan and Guangxi, both provinces have become the main passage for drug trafficking thus drugs in these areas are easily accessible with cheaper price, which in turn makes Yunnan and Guangxi the most vulnerable in drug abusing. Although a series of treatment measures such as MMT and NSP have been introduced to China which has effectively prevented AIDS and other serum or body fluid transmitted diseases from spreading, it only reduces the harm of the drug at some extent, not a solution to drug use, let alone to solve once for all the problem of social functional recovery for drug users.

A statistics in 2004 shows that, among current drug users, 81.1% takes heroin, then the new drugs (ecstasy, ice, ketamine), opium and pethidine with the share of 9.5%, 2.2% and 2.0% respectively^[4]. Heroin (Heroin, diacetyl morphine), marijuana and cocaine are the three major drugs which brought disaster to the world with heroin as the most harmful. With the development of purification technology these days, the purity of heroin has become higher and higher, e.g. the purity of No.4 heroin can reach 98%^[5], its toxicity has become more acute and the user could be addicted quickly. If stopped suddenly, the users could suffer from vomiting and seizure while taking overdose could lead to inhibition of breath and even die. Therefore, heroin has become the most harmful drugs to the human. But because current drugs are harder to get compared with years before with its price much higher, many drug abusers has choose to take heroin mixed with diazepam and phenergan. The deadliest side effect of mixed use of drugs is it tends to be overdosed especially when injected into veins, thus it hastens the possibility of death caused by overdose.

So far, there has not been any unified statistics on the death caused by over injection of heroin. From a baseline research in Yunnan, it shows that among 201 surveyed drug abusers, 66.0% has witnessed an overdose once among which those happened last year take 34.0%. 29.0% respondents say that at least one of their acquaintances died from overdose in the last year^[6]. In Gejiu, Yunnan, from 1990 to 2011, over 3000 heroin users died, 60.0% of which is from overdose^[7]. Another survey was carried out in Liangshan district of Sichuan Province on the array research to 731 heroin users. The survey shows that the non-fatal occurrence of overdose

among heroin drug users is 12.0% per year and it was also calculated that the death rate from heroin use is 4.7/100 person-years^[8]. In the third year study, it is found that heroin overdose takes 68.0% (30/44) of all drug related death^[9]. Based on these data, it can be said that heroin overdose is the leading cause affecting the life span of heroin users. Therefore, it is important to have education on prevention and overdose emergence aid for heroin drug users. As for the heroin overdose, the most effective emergency method is to inject naloxone into the user.

As a derivative from diaoxy-hydromorphone, naloxone is a kind of pure morphine receptor antagonist and it is an endogenous opiate like substances and its affinity to opioid receptor is stronger than morphine and enkephalin. Naloxone is capable of preventing and substituting opioid substance from combining with receptors quickly in a competitive way through blood-brain barrier to remove the toxicity symptom in opioid medicine and block the β -endorphin from inhibiting the breath in respiratory failure^[10,11]. Besides, naloxone has a strong effect on exciting the central respiratory system and strengthening the sensitivity of central respiratory system to CO₂ to cause increase in breath frequency and air volume, improve the cerebral anoxia, relieve the brain edema and prevent pulmonary edema. Naloxone has reliable curative effect with little side effect and easy use, which provides overdosed drug users a quick, convenient, safe and effective treatment for their breath inhibition.

Naloxone

Although naloxone was equipped by most of hospitals and emergency centers in China, many drug users still die each year from overdose due to the law breaking and secrecy features of drug use. This also happens in developed countries like U.S.A. Therefore, as early as ten years ago, the U.S. has began to explore and develop the naloxone emergency service for overdosed drug users by their peers (outreach backbone workers) and has saved over 10,000 overdose users^[12]. So far, this service model with naloxone emergency service carried out by outreach backbone workers has been promoted in over 10 countries^[13], including China. By the early 2011, over 20 harm reduction projects in 4 provinces of China have began to distribute naloxone through outreach workers^[14]. The preliminary localized implementation has proven the feasibility of naloxone emergency service. But problems still exist: first, these services and their experience are only in local area with small quantity of samples, which cannot be taken as representative for other regions; second, it is limited to services only without sharing and summarizing their experience; third, research has been made but limited to quality without the support of quantitative research. That is the reason why Yundi-Yunnan Harm Reduction Network decided to choose 13 grass-root organizations as pilots to provide them with training and technical support and also carried out qualitative and quantitative research based on these activities

hoping to promote with the relevant outcome the naloxone service through outreach work.

Yundi- Yunnan Harm Reduction Network was officially registered in Kunming Municipal Civil Affair Bureau. It is a non government organization providing relevant services to the venerable group affected by HIV/AIDS. Under the active support and guidance of Yunnan HAARP office, based on the outreach workers in project counties, a network was established with the voluntary participation of grass-root organizations formed voluntarily by the vulnerable groups. Up to the end of August, 2011, 31 grass-root organizations in 5 cities or provinces such as Yunnan, Guangxi, Guizhou, Hainan and Beijing have joined the network. Currently, most of network member organizations are from Yunnan and Guangxi and most are set up by drug abusers voluntarily. Due to its advantage in location and human resources with the understanding that overdose drug use is a serious problem and to reduce the shock and death of drug users in overdose, the network has decided in 2011 to choose 13 from its 30 members as representatives to give them knowledge training and technique support on naloxone to their backbone workers. After the naloxone emergency service was implemented, the network decided to adopt the qualitative and quantitative research to explore from multiple perspectives and in vast coverage the feasibility and possibility of promoting naloxone emergency service by outreach workers, to find out the difficulty and challenges in the promotion of such service so that better improvements can be made, to share the experience to a larger extent, to benefit more drug abusers and to reduce the harm by their use of drugs.

2 Goal and Objective

2.1 Goal

Through the comprehensive survey and research on overdosed heroin injection users, their families, outreach workers from grass-root organizations and medical staff, to have a thorough understanding to the situation of overdose drug users and their acceptance to naloxone emergency services as well as the method and impact of naloxone emergency services through outreach workers. To summarize experience and find out problems so as to bring out reasonable suggestions for continually optimizing the model of naloxone emergency services by outreach workers. To lay a foundation in the next step for promoting the model of naloxone emergency service through outreach workers in Yunnan as well as to provide relevant administration with suggestions and basis for optimizing the management on naloxone services.

2.2 Objectives

- 2.2.1 To understand the situation and experience of overdosed drug users;
- 2.2.2 To understand their acceptance to naloxone services by overdose users;
- 2.2.3 To understand the attitude and comments of overdose users to naloxone emergency services by outreach workers;
- 2.2.4 To understand the attitude and comments of the family members of overdose users, outreach workers and medical staff to naloxone emergency services.

3 Documents and Methods

3.1 Location

This survey and research are chosen to be carried out in areas in Guangxi and Yunnan covered by 13 member organizations under Yunnan Harm Reduction Network. These areas are: Mengzi city and Gejiu city of Honghe Prefecture, Mangshi city, Ruili city, Yingjiang county of Dehong Prefecture, Huize county in Qujing city, Hongta district and Chengjiang County of Yuxi city, Yongde county of Lincang Area, Yanshan county of Wenshan prefecture, Wuhua district and Jinning county of Kunming City in Yunnan province and Nanning city in Guangxi Province.

3.2 Target Group

The research is to two target groups: 1. Outreach backbone workers providing naloxone services from 13 grass-root organizations under Yunnan Harm Reduction Network and the project medical administrators in the areas of those 13 organizations; 2. Overdosed drug users who have received naloxone emergency services in the areas covered by 13 organizations and their family members.

3.3 Contents and Methods

The research time was from March to August of 2011. It is a field survey in which qualitative and quantitative methods are used to collect the experience of overdose drug users and their acceptance, evaluation and attitude to naloxone services. The case interview with family members of overdose drug users and medical staff are also used.

3.3.1 Questionnaire

Questionnaire designed for the project and revised after experiment is used on site asking overdose drug users about their basic demographic characteristics, overdose experience, reception of naloxone services at overdosing as well as their attitude and comments to naloxone service provided by outreach workers. The survey was carried out face to face to overdose users with questionnaires and in local dialect by naloxone service outreach workers, who have been trained again before the survey.

3.3.2 Interviews

To further and more comprehensively understand the feasibility and promotion possibility of naloxone service by outreach workers, individual interviews were conducted with outreach backbone workers of grass-root organizations, project medical staff and overdose users who have received naloxone services and their family members. Topics range from drug abuse experience of overdose users, overdose situation, the effect of naloxone use and advantage and disadvantage of naloxone services. All interviews were carried out by project staff with professional

trainings in languages easily understandable in a period of 30 to 35 minutes each interview. Finally, ten typical cases were filed from Mengzi, Gejiu, Mangshi, Jincheng, Ruili of Yunnan and Nanjing of Guangxi.

3.3.3 Quantity of Samples and Sampling Methods

Snowball sampling is adopted for this survey and 108 overdose users were selected with 98 from Yunnan and 10 from Guangxi.

3.4 Quality Control

3.4.1 Selection Phase of Research Targets

The survey is conducted with unified questionnaire. Those outreach workers who are going to carry out the survey was provided with strict and standardized training together before it so they could have a clear understanding on its objective, methods and the questionnaire. Survey methods and filling-out standards were also unified. For qualitative interview, those were chosen who have rich experience in outreach work and have dealt with overdose users with strong communication abilities and neutral attitude to respondents.

3.4.2 Phase of On-site Survey

To avoid the loss and discrepancy of data, professional outreach workers will explain to the respondents the objective and significance of the survey while giving them questionnaire. The fill-in only begins after they agreed and signed the informed consent form and in a quiet environment with one worker facilitating one respondent. It is assured that no others were present during the whole process. In consideration of those factors such as respondents are not well educated or have difficulty in understanding some professional words, local dialects or words easy for them to understand were used to the possible extent to ensure they could give their true answers, avoiding the discrepancy of information. When the questionnaire is finished, respondents were asked to check their answers in front of the workers to make sure they have answered all the questions without missing blanks to ensure the integrity of the questionnaire.

The staff responsible for network input will check and review its quantity and the quality while collecting the questionnaire. If questionnaires were found with missing blanks or with certain ambiguity, the staff will tell the responsible surveyor immediately to confirm and if necessary, will return the questionnaire for completion and recheck. The number of questionnaire finished by each surveyor is also recorded.

Interviews were also recorded on paper while it is conducted. The results were reviewed and filed to ensure the integrity and authenticity of information.

3.4.3 Phase of filing and analysis

Original information collected in this survey includes individual in-depth interviews and questionnaire. Information was checked, purified, supplemented,

coded and corrected in logics. Unqualified questionnaires were eliminated. The method for information review is through telephone and face-to-face interviews.

The records of interviews were converted into electronic WORD with reference to on-site files and then sorted out based on interview outlines. After each question, relevant information such as all the words, facial expression and behaviors was also attached.

The finished questionnaires were inputted into the computer in double inputting method to ensure their accuracy.

3.5 Ethic Concerns

The survey, which began only after they signed the informed consent form, not only with questionnaire but also in interviews, totally respects the rights of the respondents and is in strict confidentiality. Questionnaire were asked to respondents by naloxone outreach workers and collected after coded with series of numbers to avoid the disclosure of their privacy; while interviews is conducted anonymously to make sure respondents get relaxed and provide truthful information to interviewers.

3.6 Statistical Treatment

All information collected with questionnaires were processed and filed with EpiData3.02 into the computer and analyzed and arranged by SPSS17.0. Basic information underwent descriptive analysis while count data was tested with χ^2 test, measurement data with t test and Rank sum test and ordered categorical data Rank sum test. Information gathered through interviews underwent descriptive analysis.

4 Outcomes and Analysis

4.1 Basic Information

108 respondents are surveyed with 98 from Yunnan and 10 from Guangxi. They are mainly male youth aged from 23 to 54 with the average at 35.08 ± 5.63 years old. Most of them are Han with education under high school and almost half are unmarried. Their drug use lasted over 1 to 24 years. 46 of them or 42.6% have a history of drug use less than 10 years and 62 or 57.4% have history over ten years. See table 1 for details.

Table1 Basic Information of Respondents (*n*, %)

Basic Information	Frequency	%	Basic Information	Frequency	%
Gender			Marital Status		
Male	87	80.6	Single	56	51.9
Female	21	19.4	Re-married	19	17.6
Education			Co-habitation	13	12.0
Illiterate	3	2.8	Divorced or widowed	20	18.5
Primary School	32	29.6	Age (Years)		
High School	55	50.9	20~	20	18.5
Senior High or Vocational School	18	16.7	30~	65	60.2
Ethnic			40~	21	19.4
Han	81	75.0	50~	2	1.9
Minorities	27	25.0	Average	35.08±5.63	
Household Register			Duration of Drug Use		
Yunnan	95	88.0	<5	7	6.5
Guangxi	10	9.3	5~	39	36.1
Other Provinces	3	2.8	10~	32	29.6
			15~	18	16.7
			20~	12	11.1

4.2 Information on Overdose

4.2.1 Overdose occurrence

Compared to those who have over 10 years of drug use history, for those whose history is under 10 years, the overdose occurrence has no significance in terms of statistics ($Z=-1.951$, $P=0.051$), their number of overdose occurrence is between 1 to 17 with the average at 2.0 (M); 80.0% of overdose drug users have 1 overdose experience in last 6 months with the overdose at 0.1-1 grams averaged at 0.3 grams (M). See Table 2.

Through in-depth interview, it is found that overdose is a very common occurrence among drug users.

“For us drug users, overdose happens regularly. I still remember the first time I overdosed that I didn’t want to move at all then I felt unconscious. When I wake up,

the syringe is still in my arms and the blood in it has clogged already (From Mr. Wu, Male, Mengzi Resident, Overdosed drug user)

”Here, lots of my peer drug users use diazepam while injecting heroin. That is because on one hand, their finance is tight and the drug is expensive, we can save some drugs by doing this; on the other, drugs mixed with diazepam have a quick effect and can be felt more easily. Thus, overdose is very common in my circle. I have seen a lot”.(From Yang, Male, Mangshi Resident, Overdose Drug User)

Table 2 comparison of overdose occurrence (*n*, %)

Item	Layer	Drug Use less than 10 year (<i>n</i> =46)		Drug use over 10 years (<i>n</i> =62)		<i>Z</i> / χ^2	
		Frequency	%	Frequency	%		
Number of overdose occurrence	1	7	15.2	26	41.9	-1.951	0.051*
	1~4	35	76.1	27	43.5		
	Over 5 times	4	8.7	9	14.5		
	Average (<i>M</i> ± <i>Q</i>)	2.0±0.0		2.0±1.0			
If overdosed in last 6 month	Yes	35	76.1	48	77.4	0.026	0.871
	No	11	23.9	14	22.6		
The number of overdose occurrence	1	29	82.9	39	81.3	0.035	0.851
	More than 1	6	81.3	9	18.8		
The over-dosage in the latest overdose occurrence (ml)	<0.5	23	74.2	35	66.0	0.609	0.435
	≥0.5	8	25.8	18	34.0		
	Average (<i>M</i> ± <i>Q</i>)	0.3±0.4		0.2±0.4			

Note: * indicates the bilateral P value in Rank Sum Test.

The reason for overdosing: the main reason is to heighten the sense of pleasure, the weakening of the resistance to drugs after newly being released from detoxification center, mixed drug use and drug use in drunken state, and in small quantity, drug use after taking methadone and the variation of the purity of the drug etc. see table 3 and figure 1 for detail.

Through the in-depth interview, it is found that many drug users are well aware that mixed use tends to lead overdose but due to different reasons, it is difficult for them to control the dosage while taking drugs.

“Lately, I began to take mixed drugs of heroin, diazepam and Promethazine hoping to find back the feeling I had when first taking drugs. And nowadays, drugs are just getting worse with more and more impurities which make us easy to overdose. I still remember one time when I took out the drug that I have left, I found one injection is little bit too much but two is not enough. That is why I got overdosed (From Wu, Male, Mengzi Resident, Overdosed Drug User)

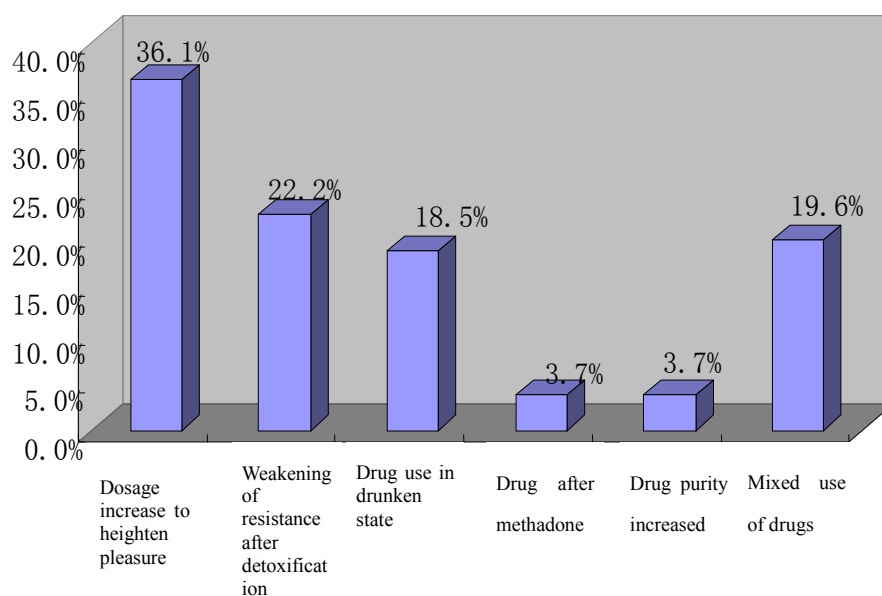
“The price of heroin has risen from the previous a few dozens of Yuan to recent over 300 Yuan per gram. In order to save some money, I became to use mixed drugs of diazepam , promethzaine or triazolam as my fellows did. Although from my peers,

I already knew that mixed use of drugs could easily lead to overdose but I just can help it” (From Kui, Male, Gejiu Resident, Overdosed Drug User)

“Among my fellow drug users I knew, eight of them have died from overdose. Some of them were taking mixed drugs, some increased their dosage to heighten the sense of pleasure and still others wanted to accomplish their wishes (meaning to take drugs) after released from detoxification center. (From Li, Outreach worker from Guangxi)

Table 3 Cause for Overdose (n, %)

Cause	Frequency	Percentage (%)
Dosage increase to heighten the sense of pleasure	39	36.1
Weakening of resistance to drugs after just being released from detoxification center(the dosage is the same as usual)	24	22.2
Drug use in drunken state	20	18.5
Drug use after taking methadone	4	3.7
Drug purity increased	4	3.7
Mixed use of drugs	19	19.6



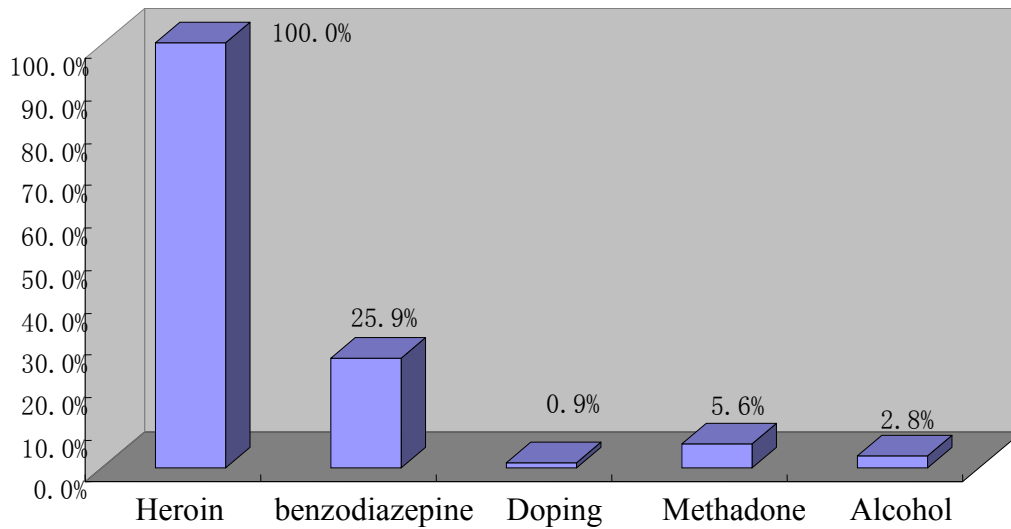
Graph 1: The Reasons of Overdose

4.2.2 Common Types of Drugs

The usual types of drugs are heroin which takes 100.0%; 25.9% overdose users have taken benzodiazepine kind of drugs (midazolam, diazepam), a few of them have taken doping, methadone and alcohol. See table 4 and figure 2.

Table 4 common types of drugs (*n*, %)

Drugs	Frequency	Percentage (%)
Heroin	108	100.0
benzodiazepine(midazolam, diazepam)	28	25.9
Doping(amphetamine, methamphetamine)	1	0.9
Methadone	6	5.6
Alcohol	3	2.8

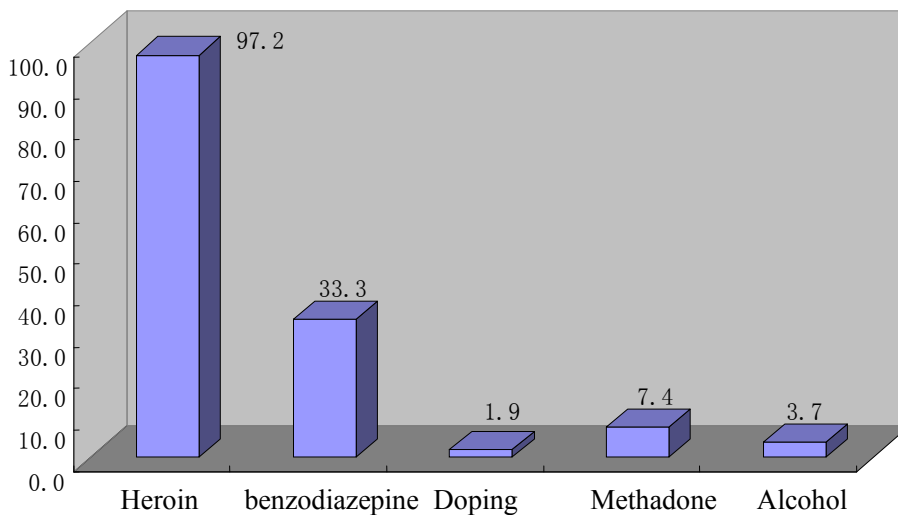


Graph 2: common types of drugs

Their most recently overdosed drugs are still mainly heroin, which takes 97.2%, the next is benzodiazepine (midazolam, diazepam), 33.3%, only few has taken doping agent, methadone and alcohol. See table 5, figure 3.

Table 5 most recently overdosed drugs (*n*, %)

Drugs	Frequency	Percentage (%)
Heroin	105	97.2
benzodiazepine(midazolam, diazepam)	36	33.3
Doping(amphetamine, methamphetamine)	2	1.9
Methadone	8	7.4
Alcohol	4	3.7



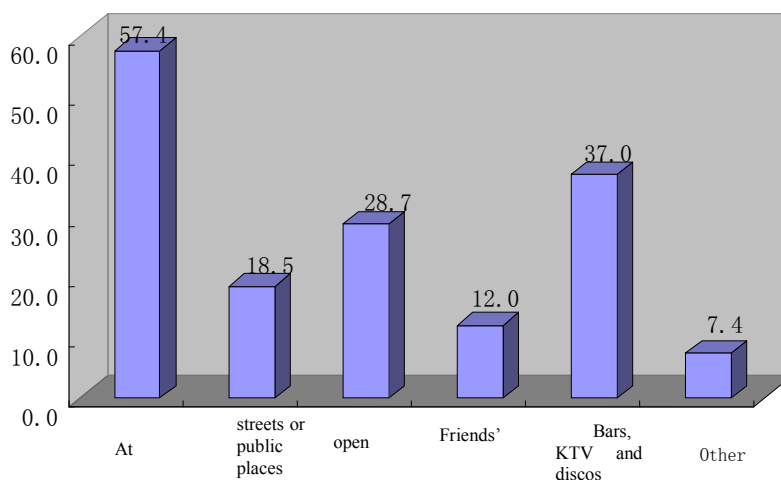
Graph 3: most recently overdosed drugs

4.2.3 Place where overdose occurred

Among the places where the overdose occurred, home ranges at the number one which takes 57.4%, open fields(park, woods) at number two, 28.7%, then the street or other public places(alleys, public toilet), friends' house, other places, bars, KTV and discos. Other places mainly include drug friends' house, garbage stations, hotels etc. see table 6, figure 4.

Table 6 places where overdose occurred (n, %)

place	Frequency	Percentage (%)
At home	62	57.4
In the streets or other public places (alley or toilet)	20	18.5
At open fields (park, woods)	31	28.7
At Friends' houses	13	12.0
In Bars, KTV and discos	4	3.7
Other places	8	7.4

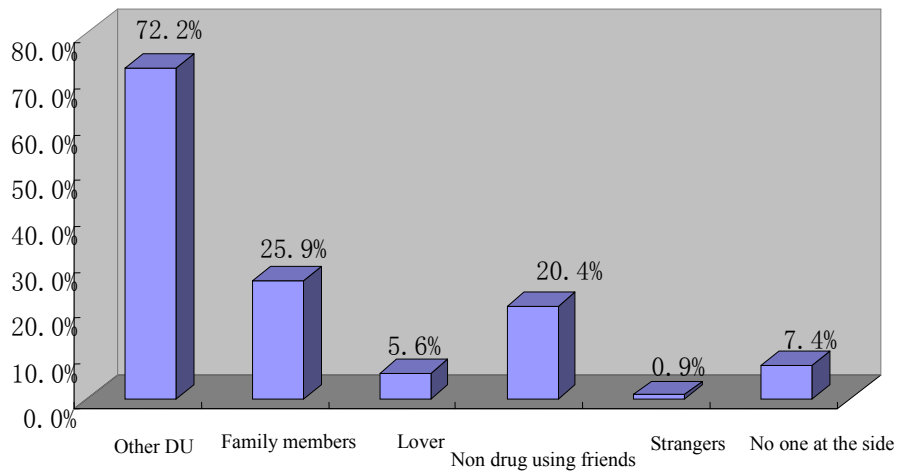


Graph 4: places where overdose occurred

When asked “who is with you when you had overdose?” what was answered most is other drug users, which takes 72.2%, their family members come next with 25.9%, and then their non-drug using friend, lover, strangers or no one at the side. See table 7, figure 5.

Table 7 who is with you while you had overdose (n, %)

Item	Frequency	Percentage (%)
Other drug users	78	72.2
Family members	28	25.9
Lover	6	5.6
Non drug using friends	22	20.4
Strangers	1	0.9
No one at the side	8	7.4



Graph 5: who is with you while you overdose

4.2.4 Measures taken at overdose

When asked what measures they took while at overdose, what was answered most is seeking help from outreach worker, which takes 57.4%, those who are not aware what happened under their unconsciousness come next with 50.0%, then calling hospitals at 7.4%; a few sought help from their family members or did nothing. See table 8.

Through in-depth interviews, it is known that at overdose, most of family members and friends of drug users is not willing to call hospital or dial 120 for emergency aid but rather sought help from outreach workers.

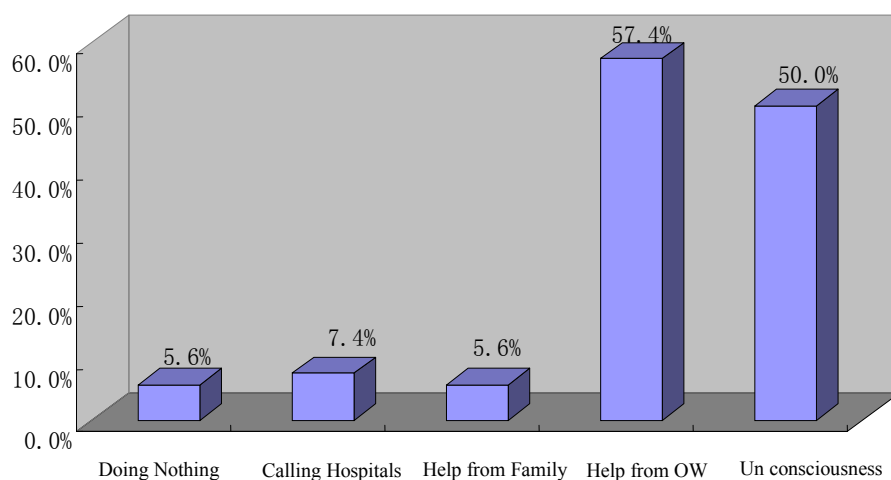
“Most of drug users are with their peers at overdose. Because they are afraid of exposing themselves, they are reluctant to call hospitals or dial 120, although doctors from 120 are more experienced professionals. Let’s try to think this: if some drug

users called 120 at overdose, the emergency vehicle must arrive at the scene for the aid, which will definitely attract a huge crowd out of curiosity. Therefore, the overdose users will be exposed which bring lots of problems to drug user himself, his family members and his drug using friends such as discrimination and police detention etc. (by project officer of Mangshi CDC)

“Calling 120 for emergency aid will expose my husband to the humiliation. But I cannot watch him die like this if I didn’t call 120. Where we live is a residential quarter of our factory. There is already a lot of gossip beyond what we can bear. If something happens because of drug use, we definitely will become a laughing stock for those people”.(by Bao, a family member of overdosed drug user)

Table: Measure taken at overdose (*n*, %)

Measure	Frequency	Percentage (%)
Doing Nothing	6	5.6
Calling Hospitals	8	7.4
Seeking Help from Family Members	6	5.6
Seeking Help from Outreach Workers	62	57.4
I didn’t know what happened under my unconsciousness	54	50.0



Graph 6: Measure taken at overdose

When asked “what measures did they take while they found you overdosed”, what was answered most is seeking help from outreach worker, which takes 73.1%, taking basic recovery measures such as mouth to mouth resuscitation or CCCM comes next with 23.1%, or stimulating with pain (kicking or face slapping), 18.5%.

In the interview, it is found that most of the friends of drug users will use some local methods to save their lives such as pain stimulus.

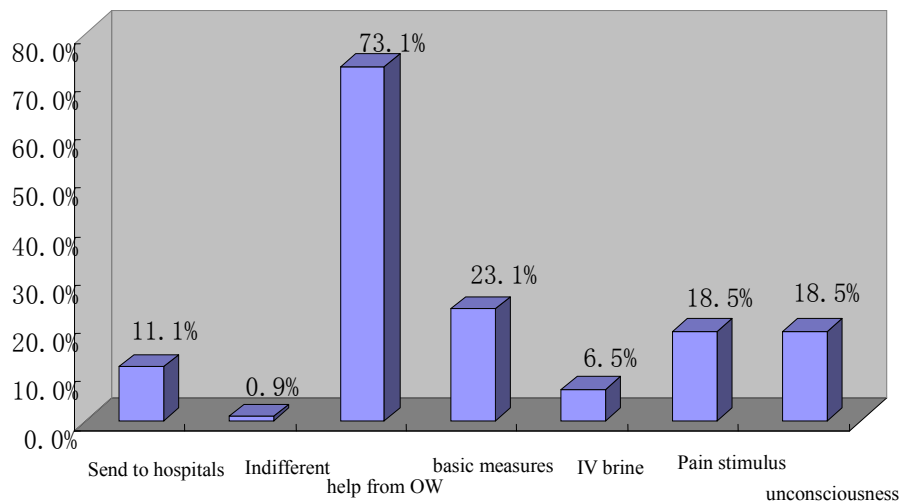
“I passed out after injection in total unconsciousness. I remember I wake up by myself several times. I had injection with my friends two times and passed out. They

were worried and tried to save me. But they dare not to call others for help, since we all know drug use is illegal activity. I don't know exactly what they did to save me. I just know commonly they just yell and slap my body and face or press my chest.” (By Kui, Male, Gejiu Resident, overdosed drug user).

“I saved some of overdosed users myself before and also watched others saving them. Generally we just took a local method, with which we carry them on our backs and shake them or slap his face or heart. Sometimes we also press their ribs. If there is still no sign of recovery, we will inject salt water into them. Sometimes fortunately, they woke up. We don't know if the salt water worked or they didn't overdose too much. But they just said their whole body aches” (by Ma, Jincheng Resident, Outreach worker)

Table 9 measures taken by family members or friends to overdosed drug users (*n*, %)

Measures	Frequency	Percentage (%)
Send them to hospitals	12	11.1
Indifferent	1	0.9
Seek help from outreach workers	79	73.1
Take some basic measures (mouth-to-mouth resuscitation and CCCM)	25	23.1
Inject salt water into veins	7	6.5
Pain stimulus (kicking, face slapping)	20	18.5
I don't know what happened because of unconsciousness	20	18.5



Graph 7: Rescue taken by family members or friends

4.2.5 Overdose Symptom

When asked “what was the situation after you had overdose”, the answers are generally: falling to the ground suddenly, unconsciousness, difficulty in breath, blues

in skins etc.

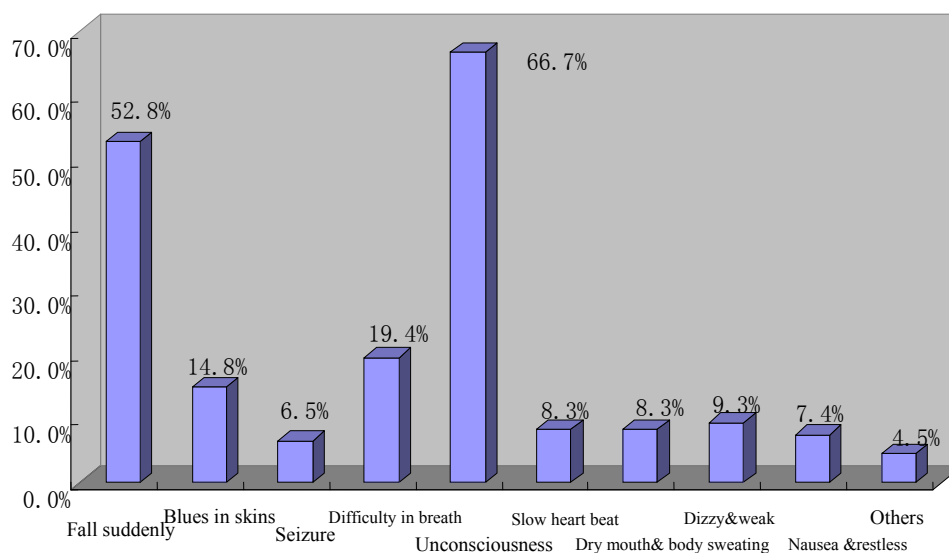
From the reaction of the interviewees, most of drug users will have such symptoms like white bubbles out of their mouth, difficulty in breath and blues in skins.

“After one injection, I just passed out. Afterwards, one of my friends told me what happened that afternoon. He said he just pushed the air from the syringe and ready to let me make injection for him. But when he looked back, he saw my lips turning blue, my finger purple and my body black. My friend knew right away that I was passed out from overdose. (by Deng, overdosed drug user)

“we hurried to the scene with naloxone. When I arrived, I just found the man had overdosed too much with his mouth turned blue and white babbles in it. He is also out of his breath. I felt that man is in no hope for recovery.” (by Ma, male, Jincheng Resident, outreach worker)

Table 10 Overdose Symptom (n, %)

Measure	Frequency	Percentage (%)
Fall to the ground suddenly	57	52.8
Blues in skins	16	14.8
Seizure	7	6.5
Difficulty in breath	21	19.4
Unconsciousness	72	66.7
Slow heart beat	9	8.3
Dry mouth and body sweating	9	8.3
Dizzy and weak	10	9.3
Nausea and restless	8	7.4
Others	5	4.5



Graph 8: Overdose Symptom

4.3 The naloxone use by overdosed drug users

Almost all the overdosed drug users knew that naloxone could treat overdose and almost all the overdosed users have received naloxone service at least once. The place

where they received naloxone service is usually at their home or other places, while the providers are mainly outreach workers. Injection of naloxone can make most of overdosed drug users wake up from unconsciousness but could alleviate the after-symptom for only a few of them. Almost all overdosed drug users expressed their willingness to use naloxone at their next overdose. See table 11 for details.

Through in-depth interviews, it is found that naloxone is quite effective in treating overdose.

“My friends died mostly because they didn’t receive treatment in time or they were treated in an inappropriate method. I still felt heartbroken now. Therefore, I am always emotional to say that if naloxone were available a few years earlier or we could know its magic effect, their lives could probably have been saved”. (by Ma, male, outreach worker)

“Our team has provided naloxone services six times. Through a few occasions of on-scene emergency aid, we have seen with our own eyes the magic effect of naloxone. Generally, one injection will make the overdosed drug user wake up in 2 minutes. I still remember that one time I received a call saying someone is overdosed, I rushed to the scene with naloxone but found that man was having a serious situation. His lips turned purple and he was totally out of breath with white babbles in his mouth. I had a feeling that this man is going to die. But I still tried to give him one injection of naloxone. It turned out he woke up after just 2 minutes. It is magical! This not only strengthened my determination to provide naloxone emergency service to my overdosed peers but also made me feel happy with a sense of achievement for saving someone’s life”. (by Ma, male, outreach worker)

“Under the urges of my peers, I took the syringe, still in doubt and worry, to shot at his arm and pushed all the liquid into his body. I pulled the needle out, sat in a chair and looked at the watch. One minute passed and two... the short duration of 4 minutes is just like a long time to me. I didn’t have attention to other things even when my peers were still beside me and asked about the information about the caller. Finally, after the overdosed users wake up with a sound of “OH”, the stone of my heart fell to the ground.” (by Chen, Mangshi resident, outreach worker)

“My friends who used to be at my side now have left me one after another because of drug overdose. Today, I just can’t believe that I have saved an overdosed user with the naloxone distributed by our network and the knowledge they taught me. You can even say that I have saved a family. I simply felt relieved and proud”. (by Chen, Maoshi resident, outreach worker)

“In just half a year’s time, our Twilight Home have saved with our own hands one after another overdosed users with naloxone. Total ten overdosed users have been saved at the verge of death! Looking at their eyes full of gratitude, we were proud of

ourselves and confident too. As long as we keep providing them with naloxone services, we could save more lives” (by Li, outreach worker from Guangxi)

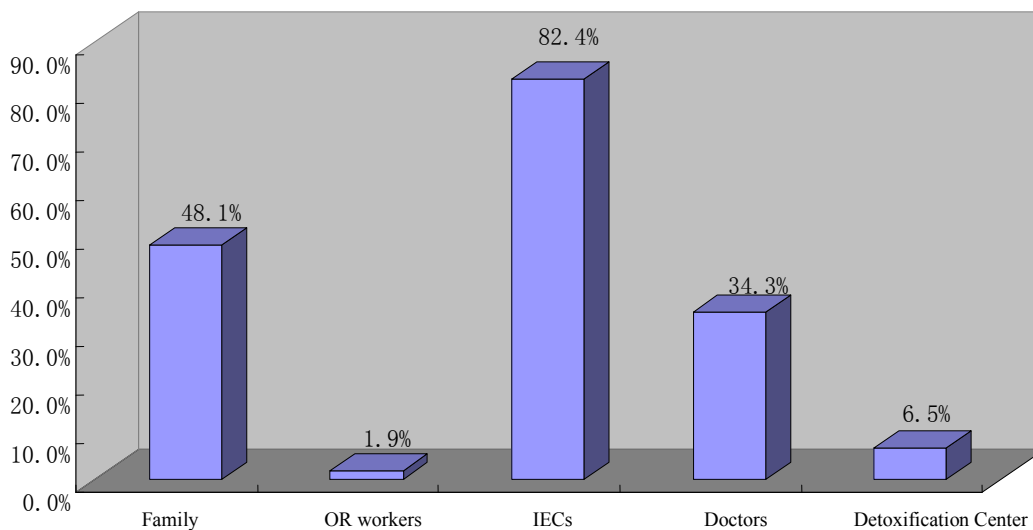
Table 11 naloxone use by overdosed drug users (*n*, %)

Item	Layer	Less than 10 years		Over 10 years		χ^2	<i>P</i>
		Freq uenc y	%	Freq uenc y	%		
If you knew naloxone could treat overdose	Yes	44	95.7	58	93.5	0.002	0.962
	No	2	4.3	4	6.5		
If you have received naloxone service at overdose	Yes	44	100.0	56	94.9	0.857	0.355
	No	0	0.0	3	5.1		
The number of times you received naloxone treatment	1	36	85.7	48	88.9	0.218	0.641
	2	6	14.3	6	11.1		
The dosage of naloxone taken at overdose	1ml	17	38.6	33	60.0	4.998	0.082
	≥2ml	5	11.4	6	10.9		
	Don't know	22	50.0	16	29.1		
Place of receiving naloxone treatment at overdose	Hospitals	1	2.3	1	1.8	0.070	
	Homes	27	61.4	22	40.0		
	Outreach workers' house	0	0.0	1	1.8		
	Other places	16	36.4	31	56.4		
Who helped you with naloxone injection at overdose	OR worker	45	100.0	56	94.9	0.504	
	Peers	0	0.0	1	1.7		
	Others	0	0.0	2	3.4		
The change of overdose symptom after you received naloxone treatment	Recovered from coma	41	93.2	52	89.7	0.073	0.534
	Alleviation of overdose symptom	3	6.8	6	10.3		
Have you used naloxone at your latest overdose?	No	2	4.4	3	5.2	0.00	1.000
	Yes	43	95.6	55	94.8		
The dosage of your latest drug use	1ml	25	58.1	36	65.5	0.780	0.677
	≥2ml	5	11.6	4	7.3		
	Don't know	13	30.2	15	27.3		
Will you use naloxone again at your next overdose?	Yes	45	100.0	58	98.3	0.00	1.000
	No	0	0.0	1	1.7		

When asked “where did you learn naloxone”, what was answered most are: from IECs, which takes 82.4%, then from family members and then from doctors with 34.3%. a few are from outreach workers and in detoxification centers. See table 12, figure 9.

The approach of knowing naloxone (*n*, %)

From	Frequency	Percentage (%)
Family	52	48.1
OR workers	2	1.9
IECs	89	82.4
Doctors	37	34.3
In Detoxification Center	7	6.5



Graph 9: The approach of knowing naloxone

4.4.1 Reception of naloxone services

As for the reception of naloxone services by individuals or organizations at overdose, comparative discrepancy makes no significance in statistics with those who have a history of drug use less than 10 years compared with those who have above 10 year history (P=1.000) . 95.0% of them received outreach services and less than 5.0 % received services from doctors or nurses. See table 13.

As for the main provider of naloxone service to drug users, comparative discrepancy makes sense in statistics with those who have a history of drug use less than 10 years compared with those who have above 10 year history (P=0.048) . For those who have ten years or above ten years drug using history while at overdose, 96.7% have received naloxone services from outreach workers; for those who have less than ten years while at overdose, 88.6% have received naloxone services from outreach workers and 9.1% from doctors.

As for the assessment over the capability of outreach workers while providing naloxone services, 51.1%~69.4% overdosed drug users said that outreach workers can definitely use naloxone correctly to save them; 30.6%~46.7% think that generally outreach workers could use naloxone correctly. See table 13.

Through in-depth interviews, it is found that overdosed drug users think highly of outreach workers. Outreach work played an indispensable role in the prevention of overdose.

“I hope more outreach workers could dedicate to this job. If condition permits, I want to be one of them too. Because I believe we are peers and it is easier for us to communication with one another. Furthermore, we keep secrets for one another and won’t do thing like buying our horses(a jargon meaning reveal information to police

or others). Besides, all of outreach services are free of charge. This is important to our group since all of us on drugs are not in good financial state. The most important of all is that they can arrive at the scene in time. In downtown, it only takes a few minutes for them to reach you, which will earn precious time for saving our lives” (by Kui, Male, Gejiu resident, overdosed drug user)

“One worry is the problem of money. In this sense, services provided through outreach work are not only free of charge but also with good attitudes, easy to communicate and strictly confidential. For the sake of safety as well as economic factors, drug users are happy to receive the service provided through outreach workers. Therefore, as far as I understand, the naloxone emergency service through grass-root organizations is not only feasible but also imperative. I think in our next step we should propagate the service with more effort through grass-root organizations to let as many as possible peers and their family members understand about naloxone” (a PO from Mangshi CDC).

Table 13 reception of naloxone services by overdosed drug users (n, %)

Item	Layer	Less than 10 years		10 years and above		χ^2	P
		Frequency	%	Frequency	%		
From what organization or individual have you received naloxone service at overdose?	Doctors and Nurses	2	4.4	2	3.4	-	1.000
	OR workers	43	95.6	55	94.8		
	Others	0	0.0	1	1.7		
The times of reception of naloxone services at your overdose	1	41	91.1	52	88.1	0.028	0.867
	2	4	8.9	7	11.9		
Who provided naloxone services to drug users around you?	Hospital doctors	4	9.1	0	0.0	-	0.048
	OR workers	39	88.6	59	96.7		
	Others	1	2.3	2	3.3		
Do you think that OR workers could use naloxone correctly to save overdosed drug users?	Probably No	1	2.2	0	0.0	-	0.083
	Generally Yes	21	46.7	19	30.6		
	Definitely Yes.	23	51.1	43	69.4		

As for the times of naloxone service reception at overdose, the comparative discrepancy between doctors and outreach workers makes no significance in statistics ((P=0.671). The average number of reception of naloxone services is 1 (M). See table 14.

As for the comparison on the time span from the occurrence of overdose to the reception of naloxone service, that of doctors and outreach workers makes no significance in statistics (P=0.694) with the time span at 20 minutes (M). See table 14.

As for the charge for naloxone services at overdose, the comparative discrepancy of doctors and OR workers makes sense in statistics ((P<0.001) with 29.0 RMB from service by doctors and 0 from outreach workers(M). See table 14.

As for the satisfaction to maxolone service, the comparison between doctors and outreach workers makes no significance in statistics (P=0.140). 90.0% of overdosed

drug users feel satisfied to the workers providing the service. See table 14.

Through in-depth interviews, it is found that due to social and other factors, outreach workers takes a greater advantage in saving lives of overdosed drug users than doctors.

“Besides, my peers said their arrival is just as quick as 110 (policy emergency call) and really fast. Furthermore, they are not going to gossip around and disclose us to police. We knew one another and we are friends. Outreach workers are people just like us and it is easier to communicate with them. But if we go to hospitals, others will definitely know about us even though the doctors keep secret for us. It is better for people not to see us there since this is quite a small place where good things stay behind closed doors and bad news spreads quickly. And above all, their services are free of charge but hospitals usually charge us 200 to 300 RMB each time (by Yang, male, Mangshi resident)

“Generally, we will try to take emergency measures ourselves first. Calling 120 is only an option when there is no option because we are afraid of taking responsibilities in fear of worrying that their family members will bother us once the man is dead. Additionally, if we called doctors to his home, this will also worsened the relationship between the drug user and his family since his family has already lost confidence in him and have to keep their heads down in front of their neighbors and friends. If his family knew he is taken to hospitals because of overdosed drug use and they have to pay 300 to 500 RMB, they will not accept this. Most of drug users have no money left after buying drugs. They cannot pay the charge and their family does not want to either. This also troubles doctors. “by Ma, male, Jincheng resident, OR worker)

Table 14 comparison of reception of services from doctors and OR workers ($M\pm Q$)

Item	Doctors and Nurses		Outreach Workers		Z/ χ^2	P
	Frequency	%	Frequency	%		
Times of reception of naloxone service	1.0±1.5		1.0±0.0		-0.425	0.671
Time span from overdose to service reception	22.5±32.5		18.0±13.7		-0.394	0.694
Charge for naloxone service	29.0±132.0		0.0±0.0		-10.241	<0.001
Satisfaction with naloxone service						
Satisfied	7	87.5	102	99.0	-	0.140 [▲]
Not satisfied	1	12.5	1	1.0		

Note: because the data is in partial distribution, $M\pm Q$ is used. [▲] is to indicate the bilateral P value from accurate exact probability method.

5 Discussion

5.1 Overdose is mainly caused by taking heroin

This survey shows that by now the most commonly used drug is heroin. This finding coincides with the research done by Hao Wei, Wang Wenpu et al. Drug users occasionally also take benzodiazepines (midazolam, diazepam), doping agent (amphetamine, methamphetamine), methadone, alcohol etc. the reason for them to overdose is complicated but mainly includes: to increase the sense of pleasure, the weakening of their resistance to drug after newly released from detoxification center, the mixed use of drugs, drug use in drunken state, drug use after taking methadone, the change in the purity of drugs (one dose is not enough, but two is a little bit much so they tend to take it altogether) etc. heroin (heroin and diamorphine) is semi-synthetic opium receptor agonist. It will be decomposed into diamorphine after entering human body then stays in brain, spinal cord and the peripheral tissues (like intestine) after combination with multiple kinds of opioid receptor, which could have effects of pain-relief and calming of central nerve system, inhibition of breath, myosis and inhibition of intestine movement. Besides, a large quantity of heroin could cause the release of histamine inside the human body thus inhibit the central movement system for blood vessel. Therefore, series of inhibition symptoms on nerve, respiratory and blood and vascular system could be shown in intoxication[17,18].

5.2 Inappropriate emergency treatment at overdose

Most of their peers are present and will seek help from outreach workers (73.1%) or send them to hospitals (11.1%) while they are overdosed. And still other 20.0% will take some local measures. Those who understand basic emergency treatment could take some common measures (such as mouth-to-mouth resuscitation, CCCM or pinching the philtrum) and those who don't would adopt pain stimulus like kicking or face slapping to save overdosed drug users while still others would inject salt waters. The risks are: it could delay the right moment for their treatment, it could cause more harm to their body; it could make the overdosed lose their lives. The respiratory department of Pu'er Municipality Hospital of Yunnan has made a conclusion after they have received and treated 41 cases of heroin intoxicated patients: the key of saving lives of the overdosed lies in the timely treatment, the timely diagnosis, and the timely taking of sufficient opioid receptor antagonist naloxone hydrochloride following through the course of treatment. So it can be seen how important and urgent it is to strengthen the understanding and knowledge of drug users on saving the overdosed.

5.3 The providence of naloxone emergency service by outreach workers is

sufficient and feasible

Naloxone is a kind of opioid receptor antagonist and capable of preventing and substituting opium substance from combining with receptor, thus to reduce the intoxication symptom of opium medicines. It is the safest, most effective and most prevalent medicine in emergency treatment. Drug abusers often have the intoxication by overdosing. To effectively provide help in time and reduce the mortality, foreign countries has already taken measures of naloxone emergency treatment by the peer drug users, which has gained a lot of success. The efficient use of peer organizations to carry out on-scene naloxone emergency treatment is the effective way of treating overdosed drug users. And most of overdosed drug users also expressed that if they had overdose again, they would still seek help from outreach workers. Therefore, to have relevant trainings to non-medical workers such as the peer drug users and to carry out naloxone emergency service is feasible and worth promotion.

5.4 The model of providing naloxone service by outreach work gained high evaluation

This survey show that while at overdose, 95.0% of drug users would seek help from outreach workers and basically, almost all of them think that outreach workers could use naloxone correctly to save their lives and they are also satisfied with the service provided by outreach workers. Because drug users are weak group in society and they will face social problems if going to hospitals such as social discrimination and getting caught by police. Therefore, majority of them will not go to hospitals unless they have no other options. Under such a condition, the advantage of naloxone service provided by outreach workers stands out.

Another worry of this group is money. Outreach workers are not only kind to them, it is easier for them to communicate and also outreach workers keep their secrets with services free of charge. For safety and financial reasons, they prefer to have outreach workers providing naloxone service to them. Therefore, to carry out naloxone service through outreach workers from grass-root organizations is not only feasible not also necessary because as their peers, they understand better their peers' needs.

6 Recommendations

6.1 Promote the naloxone emergency service mechanism through outreach workers

The advantage of naloxone emergency service by outreach workers is both of them are peers so it is easier for them to communicate and they keep their information confidential and won't disclose to the police or others. Besides, outreach services are free of charge. This is important to them because drug users generally don't have a good financial condition. The most important of all is they knew one another and their residential places so they could arrive at the scene in time which could catch precious time for the emergency treatment. 99.0% of targets expressed satisfaction with the service. Furthermore, naloxone is safe in clinical use. As long as outreach workers are trained, the occurrence of problems is very low. In the cases listed in this survey, only one has already died before the emergency help arrives and the rest 108 drug users have all been saved.

Naloxone service provided by outreach workers not only saved lots of lives in just simple ways in a short period of time, which greatly reduced the mortality rate of HIV infected drug users in Yunnan ,but also safeguarded their rights for life and hold their family together. Under the current severe situation of drug use, in which injection and overdose seems inevitable, to explore and develop in a sincere and truthful attitude naloxone service by outreach workers will provide harm reduction with new solutions and its outcome will also make contribution to lowering the mortality in the national goal of "Two Decline and One Increase" for HIV/AIDS control.

6.2 Create a supportive environment for naloxone emergency services provided by outreach workers

The key is: outreach workers are not medical doctors; once a dispute arouse, they could be blame as illegal doctoring and could be punished by law. Lots of injections for medical purposes in real life are not all carried out by medical doctors including risky insulin injection by the patients' family members. therefore, it is especially important to think how to liberate our minds and open up our thoughts as well as to discuss other alternatives to this problem. Take a example in the accessibility of naloxone, under the prerequisite of not violating the medical regulations and rules, it should be considered to allow outreach workers who have received relevant trainings to provide on-scene naloxone emergency injection just like trained drivers are allowed to provide on-scene emergency aid. The relevant supportive environment is the precondition for outreach workers to provide and promote naloxone service. Therefore, if it is preferable to let grass-root organizations implement naloxone

services in local areas, it is indispensable to have understanding and support from local administrations such as the police and medical administrations and regulatory bodies.

6.3 The awareness of outreach workers in protecting their legal rights

Through the survey, it is found that outreach workers are under a heavy pressure while working with naloxone service. Lots of outreach backbone workers worry that the patients make the call too late so that they cannot catch the right moment to have the emergency treatment and their lives could be lost. This could probably have a legal responsibility or even drug users were saved but sometimes they might come to outreach workers for trouble. Therefore, it is recommended for outreach workers to ask drug users or their family members to sign the Informed Consent Form in the time of their regular activities. That is to consent that in case of overdose, outreach workers is able to provide naloxone treatment without having legal responsibility as long as their conduct follows operation regulations. It is also recommended to have outreach workers taking records in emergency treatment and revisit the overdosed user one week after they have been saved to know their health conditions and take records to have evidence for unnecessary disputes.

6.4 Strengthen the trainings on service capability for outreach workers

The implementation of naloxone service by outreach workers has an outstanding advantage but also problems like service skills. Most of outreach workers are not well educated. Even though they were trained, overdosed drug users or their family may still have doubts on their capability compared to doctors. Therefore, to promote naloxone emergency service by outreach workers, the training on naloxone knowledge to outreach workers should be strengthened first to help them to understand more about naloxone, its dosage and effect, to become more professional in skills and to establish confidentiality awareness for the protection of the privacy of drug users. After trained, outreach workers should have regular follow-up trainings to ensure the quality of their service after they return home. Communities should also organized activities or use posters to propagate to drug users so they could have adequate information to know who should call so to gain precious time for naloxone emergency treatment. Additionally, after the project was implemented, outreach workers should be organized to have experience sharing opportunities to help them improve their skills and strengthen their confidence.

6.5 Regulate the management on outreach workers in reference to that on village doctors

As an outreach worker for naloxone service, it is required to keep their phone in service 24 hours a day. Once someday calls for help, he/she is required to arrive at the

scene in time. But under the current condition of grass-root organizations with insufficient funding and that lots of organizations with naloxone service do not include health and accident insurance in the welfare, the safety of outreach workers are not well protected but with potential hazards. It is recommended to have the agreement from the police and health department with the leadership of civil administrations to provide in reference to the management on village doctors certain financial reward to those outreach workers who have qualified after trainings and have certificate in naloxone service awarded by health administrations and to legalize and rationalize the naloxone service to drug users by outreach workers. In consideration of the specialty of service targets, the health and accident insurance benefits for outreach workers should also be regarded.

6.6 Strengthen the propagation on the knowelge of overdose drug use and naloxone treatment for overdose

It is a cliché to say “strengthen the propagation”. Our national propagation on HIV/AIDS control and drug control always has flaws. From the perspective of breadth, education on HIV/AIDS control and drug control is implemented by public media, drug control agencies, health departments and education departments organized by Party committee and is always in big cities and universities but seldom in rural and remote areas for the special vulnerable group like drug users. From the perspective of depth, the education on HIV/AIDS control and drug control in Yunnan is mainly on the introduction of drug and HIV/AIDS knowledge but the detailed knowledge which is able to promote the awareness and capability of the public on drug and HIV/AIDS prevention and control such as laws and regulations on drug control, identification and prevention of drugs, technique and methods on HIV/AIDS prevention as well as help agencies and methods can only be obtained by the public through their own effort. From its target, topics of education on HIV/AIDS control and drug control are almost identical without focus on specific problems [22,23].

Therefore, in keeping the momentum of current propagation on drug control, the propagation on the knowledge of emergency aid, measures for overdose and prevention of overdose should be strengthened. It should be also strengthened to collect typical cases of overdosed drug use, compile scientific and applicable IECs with focus on the severe harm, prevention technique and emergency treatment for overdose and organize different forms of propagation activities.

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Cases

Case 1, respondent: Wu, Male, 34 years old, primary school education, Mengzi Resident, Overdosed drug user

I started heroin use in 1992 and have not withdrawn ever since. Recently I began to inject mixed drugs of heroin, diazepam and promethazine to find the feelings I had when I first used drugs. To us drug users, the overdose happened quite often. I remember the first time I had overdosed injection, I felt dizzy and did not want to move and also cannot. Then I passed out. After I woke up, I found the needles still inserted in the arm, the blood in the syringe has been solidified. It was dark and I was very scared at the time but very glad to be alive. Since lots of drug user who used to be my friends and peers have passed out because of the overdosed injection. I constantly remind myself to be careful with the injection. I don't want to die, because I have always loved my family who care for me and has not given me up.

Since "taking medicine" (referring to drug use or injection drug use) , I have had overdose several times. Once it was a friend of mine who are also a drug user to have done mouth-to-mouth resuscitation to me. He laid my back on the floor, slapped my face and pinched my philtrum etc. After 20 minutes I woke up, but I felt very painful where they have slapped or pinched me. I guess that it is because my friends did not know how to rescue me with right method so it made my body hurt. I have also heard, someone just do not know how to help their peers and turned out to have broken their ribs or even made them dead. At injection, I often remind myself not to overdose in case someone could break my ribs. But overdose still occurred to me several times, perhaps because of long-term drug use, my body became worse and worse. I am not so capable of make enough money for the drug so I always injected the drug with diazepam. Even so, I can hardly have enough drugs let alone that my addiction has become stronger. I just cannot find the dizzy feeling I had when I first used drugs. So this time I decided to be luxury just once and I poured all the rest drugs in the syringe. When I saw the blood flow back to the syringe, I had this long expected impulse and feeling. I just saw my hands trembling then I passed out. When I woke up and saw people from Kangxin Home, I just had this emptiness in my head. Afterwards, I knew that my drug use friends called Kangxin Home when I had overdose and they rid bikes to have rescued me.

That day, it was raining heavily. My friends called Kangxin Home just for a try but unexpectedly they arrived in just 10 minutes. They came to rescue me while it was still raining and kept by my side until I woke up and sent me home without asking for money. I was deeply moved. Only peers could have such a good attitude and because they are also drug users, they knew how I felt. What wonderful persons they are!

Others will not come for reasons such as busy at work, deeply occupied and it is raining, I could be died already. Even if they came, they would not treat me so kindly and sent me home. They probably sent me to the police station and also asked me for money. But to a person like me, how could I afford doctor?

This experience just made me think: if there were naloxone earlier, so many of my drug use friends would not have died because of overdosed injection. If the local grass-root organizations could have carried out naloxone service earlier, most of my friends could have been saved. If next time I saw someone have overdose, I definitely would call Kangxin Home for help. Naloxone is really quite effective in treating overdose and their service are also very good. After I woke up, they also chatted with me and gave me cigarettes with asking me for money. They also sent me home and tell me knowledge on the prevention of overdosed drug use and left me with their contact information so I could call them next time if in need. For so many years in drug use, this was the first time I have a sense of safety. I didn't feel alone anymore. I even had this wish of quitting drug use because I knew the outreach workers from Kangxin Home used to be a drug use like me and they already quit and have been doing things so meaningful. I hope I would not overdose again and even not touch the drugs again. I wish I could stay away from drugs just like them.

The last words from the respondent: (If someday I had overdose again, I hope it is them to come to rescue me. I would think: It will be better if I don't have overdose anymore.)

Case 2: Kui, Male, 43, Primary Education, Gejiu Resident, Overdosed Drug User

I have taken drugs since 1989. I take the mixed drugs such as Diazepam, triazolam or proazamine with heroin as my companions in order to save money since the price of heroin has increased from several dozens yuan to more than three hundred. I can't help using mixed drugs though I knew from his companions that it is easy to have an overdose. There are several reasons to have an overdose such as mixed use or taking the drugs by burning or injecting randomly. I have 8 times of overdose . I recall: I lost consciousness just after injection. I woke up a few times .But there are two times, I passed out after injecting with my companions. They were worried and tried to save me in a hurry, but didn't dare to ask for help for we all knew that taking drugs is prohibited. I don't know how they saved me .I only know that they were shouting, kicking my body, flapping the face and pressing the chest, which are commonly used. It's lucky that I woke up after about 40 minutes. I did not think I could die from the overdose because I have survived from overdose several times. I was injecting a small dose of heroin (about 0.1g) with Valium and proazamine once. Unfortunately, I lost consciousness again. It is very serious. My companions failed to wake me up by

pressing my chest after a long time .Then they called the outreach worker from Hu Yangshu(a grass-root organization) for help. I knew later that they arrived in 8 minutes ,injected naloxone for me. They stayed with me until I was awakened. I did not say anything for I didn't want them to know about my secrets. They left when they think I was safe. I taken an overdose of drugs once more in the early of this year, my friends called them for help again. They didn't blame me, but asked me with great care what I felt. I was so moved. This time, I chose to trust them and told them the truth about me .It's maybe because they saved me twice and had the same experiences in drugs. I felt easy in talking with them and I was willing to talk with them. They introduced naloxone to me and told me the knowledge on drug abuse prevention, and advised me to take rehabilitation. They didn't ask for the fee at all. So I know they are helping us by heart. I take part in the actions in order to learn more knowledge on drugs. Meanwhile,I tried hard to stop taking drugs. Now that I know what they do, I trust them more trust. I called the outreach workers at once when my companions had an overdose. I saw how they used naloxone to save my friends and what the magic affections naloxone did. People who had overdose will be wakened up in 5 minutes after injected with naloxone. In the past, we helped each other by using the stupid methods of kicking、flapping、pressing and etc. It took 20 minutes at least, and someone won't recover and will be lost forever. Now I know it is a dangerous way as well as wasting time and may get hurt seriously. As an addict, we don't trust others easily. We are afraid to be arrested and to stay in drug rehabilitation center if others know what we do and report to the authority. But the outreach workers keep our secrets and help us by heat. Most importantly, they are skillful and know how to save us with naloxone. So I think it is necessary to expand the service in a larger scale.

I hope more outreach workers to do the job. I am willing to be the one if I am ready. It's easy for us to communicate because we are companions. We keep the secrets and won't betray each other. The service is free. It's important because the addicts are all short of money. And the most important thing is that they will arrive at the site quickly, it will save a lot of time to carry out the treatment for life. Normally, they will arrive in several minutes in city. There is some problem in the way. The patient's companions and relatives may doubt the outreach workers' ability, and they trust the doctor more. The outreach workers may worry about the legal responsibility if they failed to save the life . Above all, I think that the advantages outweigh the disadvantages.

Kui advised how to extend the use of naloxone at the end of the interview. He said: the outreach workers may gain the understanding andsupport by contacting with the parents of drug users and introducing to them what they do and the naloxone by visiting the family. The parents will call them in time if their sons or daughters had

overdose. The policy support is very important also, for it is illegal in using naloxone by the outreach worker. The outreach workers have lots of worries in saving their companions. For example, they are afraid to be troubled by the parents; they are worried about the legal responsibility if they failed to save the life. The use of naloxone is limited for these reasons.

Case 3: Chen, Mangshi Resident, OR worker

As an outreach worker, once I was just could not get myself from drugs. Since 2006 the year I involved in MMT, my life began to change. From not knowing what I should do for my life to being an outreach worker in HIV/AIDS prevention providing services to my peers, I finally found a goal in my life looking at my peers changing with our services. As a recognized peer educator, this is also a whole new change for me to help more drug users with my own experience.

In March, 2011, as a worker in an organization under Yunnan Harm Reduction Network, I had the honor to have attended naloxone emergency treatment promotion training class organized by the network and learned a lot. To tell the truth, since my drug use, there were just too many deaths because of overdosed drug use and some of them are even my friends. The appearance of naloxone show a twilight in my heart. In fact I doubted if it is effective but one experience just cleared my doubts. It is a night in early of May in 2011, when I was filing up my work after a whole day, my phone started to ring. A voice seemed very urgent from a NSP peer: “come quickly. Someone here is dying because of overdosing.” After I asked his detailed address, I just had a image in my head of that dark alley and a pale face but feeling nothing. After so many years in HAARP’s NSP, I knew very well the location and family structure and condition of the drug users in Mangshi area. I picked up my medical kit and hurried to the place. On the way, I called a colleague and told him the address and to meet me there.

When I arrived, my colleague was already there because this drug use is the one he usually provided service for. With the knowledge we learned at the training, we sensed he still had some signs of life so we carried out the treatment immediately. Just at the time when I opened up the naloxone bottle and began to such the liquid out of the bottle, I still doubted if it could work like what teachers had taught us. What if he did not wake up or even died after I injected the naloxone. With the urge of my colleague, I pierced the needle into the arm and pushed all the naloxone into his body. I pulled the needle out and sat in the chair waiting. One minutes passed after another..., the 4 and half minutes just like a long time to me. I was totally concentrated on waiting and did not even paid attention to what my colleagues asked about the condition of the patients. In 4 minutes and 27 seconds, the overdosed user

woke up after a sound of “OH”, the stone of my heart just fell to the ground.

“Guang Hui, Third Yang, Dao Kong”, they are all my friends and passed away from me because of overdosed drug use. I still can’t believe how it could happen so far that I saved a overdosed drug user with naloxone with my own hands and the knowledge I learned. I can also say that I saved a family. For this, I felt relieved and proud. I began to ask myself “why such good thing as naloxone could not have emerged earlier, then my friends could not have been died or maybe we could have saved one or two, or even more”. Anyhow, as their peer, as a person in charge of a grass-root organization, we will keep providing naloxone emergency service to overdosed drug users. We are all human and we have life only one times. So do drug uses. I am very happy I could save someone’s life.

Case 4: Bao, family member of an overdosed drug user

As a family member, I have unspeakable pain. But anyhow, I should thank Xie Huabin and Nie Xi(outreach workers), thank them for saving my husband.

I heard something about overdosed drug use before but I always feel they are far away from me. This time, my husband have withdrawn from drug for 1 year and he promised not to take “No. four(Heroin)” again. My husband is quite a good man if he is not taking drugs because he is diligent, trustworthy and kind to me. I love him very much anyhow.

But he did again to tell the truth, I don’t know much about naloxone. I just kept their telephone number when I was attending a family activity organized by Huabin and his colleague. It turned out it is really useful.

As a family member of drug users, we all know we can’t hold our heads high in front of people but with our tails in between our legs. When my husband took drugs, every time I passed by the residential quarters for worker’s family, people would point finger at me and made me feel pricks in my back or I am some kind of monster. Especially, when I pushed open the door and saw my husband just had an overdose symptom with his face pale and lips black, out of breath and in unconsciousness, I did not know what to do (I am still afraid at that time as far as I can remember now). If I called 120, the shame of my husband would be exposed. But I cannot watch him die without doing anything. There is already lots of gossip about him in this area. If they knew he had an emergency out of taking drugs, we would definitely become their laughing stock.

While I was just considering what to do, I suddenly remembered Huabin and they said they could save this emergency during the activity. I picked up the phone and dialed their number and told them what had happed here. In just 10 minutes, two of them arrived. They felt my husband’s neck, and listened to his chest, then laid him down on

his side. I saw Huabin taking a syringe and filling it with medicine and injecting into my husband's arm. After 2 to 3 minutes, my husband woke up and asked for water. Afterwards, I asked if he knew what happened to him at that time. He said no.

From the bottom of my heart, I want to thank everything Huabin and his colleagues have done for us. They not only saved my husband but my family. To my surprise, everything they did is free. Assuming I called 120 that day, the life of my husband could also be saved but his relapse in drugs would also be exposed. He would be laid out. It could hurt our parents more. They are old and not in good health and already felt disappointed to his son's drug use. They seemed to have seen my husband was already back on track and began to give us support. If they knew their son was taking drug again, they cannot stand it. I just cannot imagine the outcome of them hearing about the news. I am still shivering when I think of that now. But to my relief, our parents and others did not what happened that day. My husband is now working as a normal person. And the most important of all, after that thing happened and under the persuasion of Huabin and his colleague, he began to understand things and have quitted taking drugs. I cannot imagine what if that day Huabin did not come. We could probably have a broken family with prejudice from all sides of our life.

Case 5: Doctor Wang, Project Office in a Municipal CDC

It is meaning to have grass-root organizations carry out emergency treatment with naloxone because naloxone could effectively save overdosed heroin users. Our lives are equal no matter you are a bad or good person. Our right to life is the same. Therefore, as long as there is sign of hope, we should not give up in saving someone's life. But as far as we know during our contact with target group, most of overdosed drug users will have other drug users at their side when they had overdose. They are worried to expose their drug use so not willing to call hospitals or 120, although doctors from 120 are more professional. Let us think this way: if someone called 120 at overdose, ambulance will arrive. People will gather around and knew what happened. This will bring lots of problems to the overdosed drug user himself as well as his family and those with him such as discrimination and police detention. Naloxone is relatively safe in clinical application so we should carry out the service through outreach workers. Certainly, through the propagation and implementation for a period of time, more and more injection drug users are willing to call outreach workers for help when they had overdose. The reasons are: they think outreach worker would not expose them, it is easier for them to communicate and they can even directly tell that they had overdose. This is helpful for outreach workers to arrive in time for treatment. Besides the problem of exposing themselves, another reason they do not want to call 120 is the financial problem. However, outreach workers are not only kind, easy to communicate, silent to their confidentiality, but also provide

services free of charge. For the sake of safety and money, they are more willing to seek help from outreach workers. Therefore, I think that to implement naloxone emergency service through outreach workers are not only feasible but also necessary. As peers, they knew better about those drug users and can feel what the drug users feel, and furthermore, knew how to communicate with them more effectively. This will catch precious time in saving the overdosed. Additionally, the relapse rate is still high nationwide. Drugs in border areas like ours are more easily accessible. This leads to the fact that relapse rate in these areas are much higher than other places. Many would take drugs secretly after released from detoxification center and they could easily get overdosed. Besides, some users in MMT sometimes will also take drugs to the overdosed state. To save more lives, it is not only imperative but also a good choice to have naloxone emergency treatment through outreach workers. In my opinion, for next step, we should strengthen the propagation through grass-root organizations to make more drugs users and their family members to understand about naloxone. Because naloxone is quite effective, safe and even magical in treating overdosed users and it could also provide another change of life for drug users, it should be promoted. So far, the use of naloxone still has certain limits. If it is possible to legalize the use of naloxone by outreach workers, more lives could be saved, I think.

Case 6: Yang Hai, 39, primary school education, overdosed drug user.

After I was dumped by my former lover, I began to take drugs under the influence of my friends. I have been in detoxification center for 1 year and quitted the drug after the release. But a few months later, I started to take drugs again at an irregular basis. Then the methadone came in until now. I still take drugs occasionally and inject heroin with diazepam. Lot of my peers will mix diazepam with heroin in injection. One reason is they are not rich and this could save some heroin, another is the feeling comes more easily with diazepam. So the overdose is very common around us. I myself have seen a lot. A lot of my friends have been dead from overdose. I often felt scared when I heard someone has died from overdose and reminded myself not doing that. But now I have become dumb to these deaths. Maybe I heard too much. People always look down upon drug users let alone care for our deaths. We cannot see any hope. I cannot remember how many times I had overdose in these years. It is very rare for people like me who have been overdosed so many times but are still alive. Others could be dead already and I am fortunate. I remember this time I had injected heroine with diazepam with my friends around. Like usual, I felt shivering in my skull and blurry in my eyes after the injection. Then I passed out. When I woke up, Huabin and his colleagues are by my side, I soon realized I had overdose. This time it was serious for I did not even breathe. Friends thought I was already dead and called Huabin

saying I was dead but they'd better to come and have a look. They told me I finally woke up 10 minutes after they gave me 2 bottles of naloxone injection. I am even afraid today of thinking of what have happened that day and feel lucky at the same time. In fact, I don't want to die. If there were no my friends calling Huabin, and Huabin would not come, I could have been dead already. I really want to thank my friends. If I did not take drugs now and could afford it, I would take them to a big dinner and to sing in KTV, then the night snacks, then the drinking and then the night club. I should thank them really. They saved my life. (the respondent is quite emotional at that moment).

If I had overdose again, I still want the outreach workers to help me. If they were not my friends and if they thought I was really dead, they would not come. You could not see me here today. Because of them, they did not give me up and what responsible persons they are. Their sense of responsibility saved me. Besides, their arrival is quick like 110, very fast. Additionally, they kept my drug use in total confidentiality. We knew each other quite well and they are my friends. Outreach workers are just like us. It is easier to communicate with them. If I was sent to a hospital, others could definitely knew about the situation even though doctors keep their mouth shut. This is a small place with bad news spreading quickly so it is better for people not to see me in hospitals. Their services are free of charge but not like in hospitals where we have to pay 200-300 once. As peers, outreach workers are not afraid of us. For others, they could not be so experienced and could feel afraid of us or even look down upon us drug users, let alone provide good services. After this overdose experience, I really what a wonderful thing it would be If I am not a drug user. Can I quit taking drugs? It there still hope for me?

Case 7: Ma, Male, Primary Education, Jincheng Resident, OR worker.

I saved some of overdosed drug user myself before and also saw someone saved others. Generally we will use local methods and carry the patient at our back and shake him, slap his face, his chest or sometimes press his ribs. If he shows no sign of recovery, we will inject him with salt water. Sometimes, out of fortune, he will wake up but we don't if it is because of salt water or the reason that he is not so severe. He would say his whole body aches. But to my deepest sorrow, lots of my friends have gone because of delayed rescue or improper treatment. I still felt heartbroken today. I always sigh if we could have naloxone earlier and if we could know how effective naloxone is, the lives of my friends or my brothers, especially the lives of a few of my best friends like my brothers could have been saved.

In March 2011, after attending naloxone emergency treatment training, we received naloxone. So far, our team has provided naloxone treatment six times. Through the

on-scene naloxone treatment experience of my own, I have witnessed the magical effect of naloxone with my own eyes. Generally the overdosed will wake up in 2 minutes after the injection of naloxone. I remember once that we received a phone call saying someone had overdosed, I hurried to the scene with naloxone and found him in a serious situation with his lips black, out of breath, white babbles in his mouth. I had a feeling that he is going to die but I tried anyway and injected naloxone in his arm. It turned out he woke up in just a few minutes. It is magical. This experience strengthened my belief and devotion to naloxone service. The most important thing is I save a life with naloxone. I felt extremely happy with a sense of achievement. I almost became a legendary doctor in the eyes of the drug users.

He said: “I usually chose to carry out the treatment myself instead of calling 120 unless I had to. It is because I worried about taking the responsibility once the overdosed dies and they family would bring trouble. Besides, if doctors came for the treatment, this will worsen the relationship between the patient and his family once his family knew about it. Lots of families of drug users have already lost faith in them and looked down upon by friend and neighbors. It could be worse if they knew their family member has been sent to hospital because of overdose and they have to pay 300-500 for the treatment, they would not pay. And lots of drug users do not have money left after buying drugs. This troubles doctors as well.

After coming back from the naloxone training organized by the Network in Kunming, we shared what we have learned with our peers. When we were out for emergency treatment, we will call those who are with the overdosed drug user, telling them to help him lay down on his side with his head on his palm and another hand on his chest, and also check if he is vomiting to keep his respiratory channel open. When we arrived, we will check if his pupils diminish and his pulse is even. This is what we learned at the training. We will only leave until the overdosed wakes up and until we told him about the prevention of overdose as well as left him with our contact information in case next time there is a need.

Besides, we will not leave the overdosed alone. We will communicate and exchange trust. We will keep their secrets and our service is free of charge. We carry out our service with care. Sometimes, we would help drug users to put our contact information into his mobile phone, and tell his family to give us call next time when the overdose happens. Certainly, although we worked very hard, sometimes drug users still had doubts. Some of them still chose to carry out treatment themselves but call us when they have to. Therefore, we should strengthen our propagation in the future to have more drug users understand naloxone and trust us so they could give us call the first time to allow us the sufficient time for the treatment. So far, there are still lots of difficulties in promoting the use of naloxone but I felt accomplished and good

for my conscientiousness doing this job. The health, difficulty and even lives of drug users are a reluctant concern for most of people. But we care about them because we can feel what they feel.

Case 8: Liu, Male, Senior High School Education, OR worker.

We are in the border area between China and Myanmar. Drugs are cheap and easily accessible. We have lots of drug users here. With 30-40 RMB, you have an adequate one-day supply of drugs. Drug users usually inject all they acquired without any plan with diazepam. Different package of drugs have different purity. Those in bulk and those in plate are quite different in purity. One gram of those in plate is like 10 gram of those in bulk. When in addiction, drug users could not care so much and usually take the average dosage so almost every day there would be someone overdosed although in different seriousness. From May this year, 4 have been dead from overdose because of the delay of the treatment.

After taking a Naloxone training on March 9th, 2011 organized by the network, we promoted Naloxone at the team activities, through which we had saved 5 people. I still remembered that two of us went out for giving away needles and was told by a drug taker (referring to person who takes cracker) that two drug users took too much at a waste recycling station and were about to die. They got wind of us having solution for saving their lives, so they asked us to check out. But we don't have any experience of saving people's life, just with one Naloxone. When we got there, even with years of drug addiction myself, what I saw scared the hell out of me. I noticed that two guys sat on the ground looking weak and limp with dark face and syringes still in their arms, in which one of them even got burnt badly on the fingers by cigarette. At that moment, my heart beat so fast, I didn't know whether it was because that was my first time of saving people's life or lack of confidence with Naloxone, I was so panicked. What I remembered was that I kept shaking when I was injecting Naloxone with syringe, at the same time, I was yelling to other co-workers for getting more Naloxone from the center. Luckily, those guys had some reactions (still in dizziness) in 2-3 minutes after injection with one Naloxone and became sober in about 5 minutes. He was aware that we are outreach workers. I then felt relieved and found out I was too nervous with sweats. Then the other co-worker brought more naloxone, we eventually saved both of them. It is like a scene in a movie called Speed, audience were so haunted with fear while those guys in the bus had no idea. I was desperately hoping to bring them back to life with just one injection of Naloxone. Hope everything goes well. Nonetheless, I feel so good because I saved their lives and that is a kind of satisfaction of seeing those picture taken while saving them. I could live a valuable life as this for persons like me who are used to be drug users and that

thought even made me even have two more bowls of rice at dinner.

Through our practice, I feel naloxone is quite effective in treating the overdosed. Usually, at overdose as long as he is still breathing, drug users can wake up in 2 minutes or at the most 4 minutes after the injection of naloxone. Five of drug users I have saved wake up just after one injection. I should thank him who invented naloxone. In practice, I feel it is not feasible but also worth promotion to a larger extent to carry out naloxone emergency treatment through outreach workers because naloxone is effective in saving lives of the overdosed drug users and outreach services have many advantages: e.g. many drug users do not want to be involved with the police; they are afraid of being exposed or detained so they always try to avoid the contact.... Now our organization has gain the trust of drug users by having saved 5 lives of the overdosed with naloxone emergency treatment service. Plus the support from local Bureau for HIV/AIDS Prevention and Control, (they granted a working certificate to us with their stamp on it), we are able to carry out outreach services safely. And it is easier to have the trust from their family members. with this support and our experience, we are confident and capable to carry out each task for the services better.

Case 9: Li, Nanning Resident, OR worker

As a member of AIDS prevention outreach workers once having drug experience, I have been working on preventing AIDS for 7 years. 8 of my friends taking drugs died because of excessive drugs. Some of them died either by mixed drugs or huge amount of drugs for pursuing pleasure, and some of them even died in their first drug experience just after they leave drug addiction treatment .For their death, we feel powerless sadness. With the help of city CDC, we joined the YUNDI, a Harm Reduction Network. Furthermore, I and some friends built Twilight family, a group to help each other.

We participated in the courses about naloxone emergency treatment organized by the network. During this course, the utility method was trained and practiced. After passing the course, we received some naloxone water. I felt happy, excited and also uneasy on the way back home. It's really a feeling difficult to describe in words. Just 3 hours after I came back home, a coincident accident happened. One friend called me and told me that her husband was in a coma state because of too much injection of drug. If this happened before, what I can do is just to call 120 and send them to the hospital. However, after the training, I can do much more. I asked my assistant Mr. KANG, one of the teacher in SHUGUANG family to come with. After 7 minutes, we arrived at my friend's house. Mr. KANG checked if there is something unknown in his throat and the position is correct or not and clean up the dangerous things. We

utilized the knowledge and experience from the training courses to evaluate that coma guy.

And we found that he was still in coma state with muscle twitching, needle-like pupil, slow and irregular breathing and purple skin. Based on these evidences, we judged that he was in excessive Heroin poisoning. So we injected the naloxone to his arm. After that his mother asked me what kind of medicine did you inject, how long he could wake up and what we should do if he can't wake up. I told his mother that just took it easy and he would wake up in just 2 or 3 minutes. After a long period of 2 minutes and 10 seconds passed, he still did not wake up. My heart beat fast because I felt disturbed and scared. If he can't wake up, what I can explain to his family. Did they could listen to my explanation? Or they will beat me and call the police? I felt massy at that time. I even doubted about if naloxone was effective just like they told me in the training courses. Staring on my watch and after four minutes, the coma guy waked up with a slight "KK" sound. His eyes can also move. I repeated his name with an excited feeling. Fortunately, he replied me. Finally, we were sure that we succeeded. Just at that moment, I calmed down. And I had a feeling to cry, because I just saved a life by myself. All of this I devoted deserved the value. Could I know how to save a friend having excessive durg? It's unbelievable, even for me. With the help of YUNDI, the network for decreasing damage in Yunnan province, I taught what I learned to the other members of YUNDI. During the next half year, we saved 10 persons who had excessive drug although it's really a short period. What we saved are 10 lives. I really felt proud when I was looking at their grateful eyes. And I feel more confident to continue to provide naloxone to the other friends and save more lives. Meanwhile, I also feel proud to participating in YUNDI, the network for reducing damage.

Case 10: Deng, Overdosed Drug User

The Change I had after saved from overdose

Since the day I contacted with the white demon, I fell into a web without bottom. The day I had with it, I lost myself and everything. I cannot leave it at my loneliness. Only it can bring temporary comfort to me. But I become a total prisoner of it for its manipulation. Every time I heard some friends have gone to see Marx from overdose, I made up my mind to quit it. But it will give a painful lesson and make me want to die. Even if I could escape its control temporarily, I would soon be back to where I was. No matter how I tried, I tried in vain and in pain.

I just gave up my struggle and danced with it every day. I always knew that overdose could take away my life. Since my drug use, I saw too many of my friends have died from overdose. But I still hold this thought that maybe I was fortunate as long as I

keep control on the dosage. But unexpectedly, from the moment I get to know it, I could be waiting the call of death at any time.

On the night of May 14th, 2011, in the seizure of drug addiction, I began to rummage the house for money. Then I heard a knock at the door. I went out and saw a peer who I get to know in detoxification center there. He was just released from the center and his family gave him 500 for him to buy new clothes. But he thought he should finish his wish (meaning: taking drugs) first. What a coincidence! We went out and got half a gram of drug. It felt so bad without the drug so I just could not wait and made a syringe full of liquid and then injected into my arms. I passed out quickly. Afterwards, my friend told me what happened that afternoon. He said he just pushed the air out of the syringe and want me to help him with the injection. But when he turned around, he saw my lips just turned purple, so are my fingers and my body. My friends knew that I had overdosed. Fortunately, when my friend came back from the center, the chief staff and a outreach acquaintance visited me and told some knowledge about harm reduction and reminded me not to relapse. They also said they are having a project for overdosed users and left me with their service card with their numbers on it. So my friends called. Thank god the phone was picked up. Li shuhui and Zhi Ning from the Twilight Home arrived in just a few minutes. They injected me with 2 ml of naloxone and take the needles out from my arm and clear the ash on the bed. After I heard what happened, I was so afraid and felt lucky at the same time. Without them, I could be dead already just like many other drug users. This is the first time I heard **Twiligh home and also the first time I knew there is a service with naloxone. A Hui stayed with me for 2 hours and told me things about the prevention of overdose and then left with my eyes full of gratitude. They did ask for a single penny of money. They saved me without asking for anything in return. I felt contradicted and complex after I gained my consciousness. I was lucky to have them who really cared about me and meantime I saw hope through the outreach workers from Twilight Home. for a person like me who have been living in the darkest corner of life with social discrimination and indifference, I could be dead already without them. Those outreach workers are people just like me. If they can quit the addition and do something so meaning, maybe I can too. I saw hopes from them. I wanted to be one of them, could I?**

After several days, A Hui invited me to attend the outreach activities of Twilight Home. From there, I knew that all the participants are just people like me who used to be drug users but now quitted and on MMT. They are here to learn and share experience. I was very happy with them. The same experience made us bound together. Under the help from A Hui, I went to the clinic to have the MMT as well and joined the detoxification in community. Everything is for a better future now. I

should thank my peers in Twilight Home. They saved me and gave me a new life. Meanwhile, I hope their outreach workers could continue their naxolone emergency service to us drug users in Nanning, to save our lives at the time when they are in danger from overdose and in their time of life and death. I want to become one of them to serve my brother and sisters.

Annex

Baseline Survey Questionnaire on Heroin Overdosed Injection and the Use of Naloxone

Good Day. My name is _____, and I am from _____. We are going to conduct a survey with this questionnaire. The reason for the survey is to get to know your understanding and behaviors on certain health problems to enable us to provide better service in the future. Some questions might involve your privacy but this survey is anonymous. We will be totally confidential to your answers and we also hope what you answered here is from your real mind or thoughts. This will only take you 10 minutes. Thanks for your support. Shall we proceed?

Ask the respondent: “have you had overdosed drug use?” If the answer is “no”, then end the questionnaire.

Serial Number _____ (001—999)

DATE: _____Year_____Month_____Day

1. Demographical information

A01 Sex: 1. Male 2. Female

A02 Born in : _____Year_____Month

A03 Marital Status 1、Single 2、Married 3、Cohabitation 4、Divorced
or widowed

A04 Registered Household at: 1.Yunnan_____County
2.Other Province_____Province

A05 Nationality 1.Han 2.Dai 3.Yi 4.Lahu or Jingpo 5 Miao 6.Wa
7.Hui 8.Zhuang 9.Others

A06 Education: 1、illiterate 2、Primary School 3、Junior High 4、Senior
High or Vocational School 5、 College or above

2: Overdosed Drug Use

B01.How long have you been using drugs?_____Year

B02Drugs you commonly use

1Heroin 2 benzodiazepine(midazolam, diazepam) 3 Doping
agent(amphetamine, methamphetamine)

4 Methadone 5 Alcohol

B03.Have you had overdosed drug use? (please point out the times)

1、 Yes, _____ times

B04.Have you had overdose in last 6 months? (please point out the times)

1、 Yes, _____ times 2. Not in last 6 month

B05Where are you when you had overdose? (multiple choice)

1、 At home

2、 In street or other public places (alleys and public toilet)

- 3、 Other open fields (park or woods)
- 4、 In bars, KTV and discos
- 5、 Other places _____(please specify)

B06 who is at your side when you had overdose? (multiple choice)

- 1.other drug users
- 2.family members
- 3.lover
- 4.non-drug use friends
- 5.strangers
- 6.no one

B07 what measures have you taken when you had overdose? (multiple choice)

1.Do nothing 2.Call hospitals 3.seek help from family 4.seek help from OR workers

- 5、 I have no idea what happened because I was unconscious

B08 what measures did you family take when you had overdose?

1.no family or friends present at overdose 2.take me to hospitals
3.indifferent 4.send for OR workers

5.take basic emergency measures(mouth-to-mouth resuscitation, CCCM)
6.inject salt water

7. pain stimulus (kicking, face slapping) 8 . I have no idea what happened because I was unconscious

B09 what is the drug you took at your latest overdose?

1 heroin 2 benzodiazepine(midazolam, diazepam) 3 Doping agent(amphetamine, methamphetamine)

- 4 methadone
- 5 alcohol

B10 what is the dosage at your latest drug use?_____ml

B11 What is the reason for you to overdose last time?

1. increase the dosage for a heightened sense of pleasure 2. weakening of resistance to drugs after newly released from detoxification center (dosage as usual)

3. drug use in a drunken state 4.drug use after taking methadone 5. Increased purity of drugs

6.mixed use of drugs (please specify _____)

7. others _____

B12 What is the symptom after you had overdose last time?

1.fall to the ground suddenly 2.blue skin 3.seizure 4.difficulty with breathing 5.coma

7. heart attack 8. slow pulse 9. dry mouth and sweating 10.dizzy and weak

11. nauseated and nervous
12. others (please specify)_____

3: naloxone use at overdose

C02 Do you know that naloxone can treat overdose?

- 1 Yes
- 2 No (then please skip the following questions)

C01 Do you think naloxone is able to treat overdose?

1. Yes, it can
- 2.No. I don't think so.

C02 Have you received naloxone treatment when you have overdose?

1. Yes 2. No (Please turn to D06)

C03 how many times _____ have you received naloxone treatment?

C04 what is your overdosed dosage?

1. _____ ml 2. I don't know_

C05 Where did you receive the naloxone treatment when you had overdose?

1. in hospitals 2. at home 3. at the house of OR workers 4. other places _____

C06 Who helped you with the injection of naloxone when you had overdose?

1. Family members 2. OR workers 3. medical staff (doctors and nurses) 4. Other peer drug users
5. others (please specify) _____

C07 What changed on your overdosed symptom after you are injected with naloxone?

1. Woke up 2. overdosed symptom relieved 3. Nothing changed
4. symptom worsened

C08 Have you used naloxone at your latest overdose?

1. No 2. Yes, with the dosage of _____ ml (Please turn to C 10)

C09 What is the reason that you didn't use naloxone at your latest overdose?

1. can not afford it 2. Not necessary, I woke up on my own 3. Didn't feel well after use.
4. no effect in previous use. 5. I wanted to use naloxone but no one is available for you.
6. others (please specify) _____

C10 Will you use naloxone next time when you have overdose?

1. Yes 2. No

4. Naloxone Service

D01 From whom you have received the naloxone service when you had overdose?

1. Doctors and nurses 2. OR workers 3. others (please specify) _____

D02 How many times have you received naloxone service?

- 1 from doctors and nurses: _____ times
2 from OR workers: _____ times
3. from others (please specify: _____): _____ times

D03 How long did it take for naloxone service to come to you after you had overdose?

- 1 from doctors and nurses: _____ minutes
2 from OR workers: _____ minutes
3. from others (please specify: _____): _____ times

D04 How much did it cost you for naloxone service (including all charges for naloxone treatment)

- 1 from doctors and nurses (including transportation, registration etc) :

RMB

2.from OR workers: _____RMB

3.from others (please specify: _____) : _____ RMB

D05 Are you satisfied with the naloxone service you have received?

1.from doctors and nurses : 1. Yes 2.No

2.from OR workers: 1. Yes 2.No

3.from others(please specify: _____): 1. Yes 2.No

D06 How did you learn about naloxone?

1.from drug users 2. From family members 3.from lovers 4. From non-drug use friends 5. From OR workers

6.from IECs 7.introduced by doctors 8.in detoxification centers

D07 Who mainly provided naloxone service to the overdosed drug users around you?

1.doctors 2. OR workers 3.others (please specify) _____

D08 Do you think that outreach workers can use naloxone correctly to save the overdosed drug users?

- 1、 Definitely not
- 2、 with difficulty
- 3、 generally yes
- 4、 definitely yes.

Outline for Interviewing Those Who Have Received Naloxone Emergency Treatment (1)

Recorder:

Interviewee:

Time:

1. Basic information about the interviewee: name (Anonymous), sex, age, education
2. drug abuse experience
 - years of drug use:
 - types of used drugs:
 - dosage at your latest injection of drugs:
3. overdose
 - times of overdosed experience:
 - Under what condition?
 - What is the reaction to overdose?
 - How did you handle the overdose? Who helped you?
 - Are you satisfied with the service and attitude they provided you?
4. Naloxone
 - Is naloxone effective in saving the overdosed drug users?
 - Next time when you have overdose, would you like OR workers to save you with naloxone? Why?
 - Do you think it is necessary to promote naloxone treatment at a larger extent? Why?
 - Do you think you peer drug users can accept outreach workers to save them with naloxone? Why?
 - The advantage and disadvantage of naloxone emergency treatment by outreach workers?
 - Do you have any worries or concerns about promoting naloxone emergency treatment by outreach workers?
 - After receiving naloxone emergency treatment, what would you do if you had peers overdosed?
5. Suggestions and comments: Do you have any good suggestions on the promotion of naloxone services?

Outline for Interviewing Outreach Backbone Workers

Implementing Naloxone Emergency Treatment (2)

Recorder:

Interviewee:

Time:

1. Basic information about the interviewed outreach worker: name, sex, education, organization
2. How many times have you involved with on-scene naloxone treatment? Is there anything different in the emergency condition?
3. Do you think naloxone is effective in emergency treatment? Why?
4. How did you feel when you had saved drug users successfully with naloxone? How did they feel?
5. Do you have any concerns when you use naloxone in emergency treatment? Why?
6. Compared with doctors, what is the advantage and disadvantage in using outreach workers for naloxone emergency treatment?
7. Do you think it feasible to promote this model of using outreach worker for naloxone emergency treatment in other areas?
8. What is the difficulty and challenge in promoting naloxone service at a larger extent? Do you have any suggestions and comments?

Outline for Interviewing the Family Members of Drug Users who Have been saved (3)

Recorder:

Interviewee:

Time:

- 1.** Basic information of the interviewed family members: name, sex, education, and the relation with the saved drug user
- 2.** Do you have any worries about the naloxone emergency service implemented by outreach workers?
- 3.** Do you have any worries about doctors using naloxone for emergency treatment? Compared with doctors, what is the advantage and disadvantage in using outreach workers for naloxone emergency treatment?
- 4.** Do you think it feasible to promote this model of using outreach worker for naloxone emergency treatment in other areas?
- 5.** What is the difficulty and challenge in promoting naloxone service at a larger extent? Do you have any suggestions and comments?

Outline for Interviewing CDC Staff and Project Staff (4)

Recorder:

Interviewee:

Time:

- 1, The basic information of the interviewed CDC doctors and project staff: name, sex, education, department or organization.
- 2, Do you think outreach workers are capable of providing naloxone emergency treatment? Are they effective? Why?
- 3, Do you have any worries about doctors using naloxone for emergency treatment? Compared with doctors, what is the advantage and disadvantage in using outreach workers for naloxone emergency treatment?
- 4, Do you think it feasible to promote this model of using outreach worker for naloxone emergency treatment in other areas?
- 5, What is the difficulty and challenge in promoting naloxone service at a larger extent? Do you have any suggestions and comments?

Informed Consent Form

Introduction: Yunnan Harm Reduction Network is planning on carrying out a survey about naloxone emergency treatment for drug abuses. Questions will be asked about the use of naloxone as emergency treatment for overdosed drug users and your attitude and knowledge to the drug use and naloxone as well as your suggestions and comments on the promotion of naloxone service.

Objective: through the analysis on the outcome of the survey, coordinate relevant government agencies to give support and help to grass-root organizations under Yunnan Harm Reduction Network in their naloxone emergency service so as to prevent more drug abusers from dying in overdosed drug use.

Process: You are going to have an interview, which will last about 1 hour. The person who will ask you questions is trained professional. Those questions may involve your privacy such as your experience in drug use and overdosed drug use, your knowledge and understanding to naloxone and your comments and suggestions about outreach workers carrying out naloxone emergency treatment.

The use of the results: what have been interviewed is only used for compiling reports so we are hoping you could give us your experience truthfully to ensure the authenticity of the results. Your personal information will not be used in the report or the future propagation. We also promise that relevant data is used only for this survey and except reviewing the authenticity of the data, it will not affect your personal life. We may contact you in the future to have your support again.

If you agree on the above-mentioned contents, we will begin the interview.

Signature: _____

Date: _____

Interviewer: _____

Date: _____