Overdose Prevention and Management among Opiate Users

Under AHRN-PSI Joint Project on HIV among people using drugs in Myanmar

March 2013

Asian Harm Reduction Network (AHRN)
32-N, 32 Avenue, 6½ Miles, Pyay Road, Hlaing Township, Yangon, Myanmar
Tel: + 95-1-536 194, 507 003 and Tel/Fax: + 95-1-536 194
Acknowledgement

This Overdose Prevention and Management among opiate users Report is part of the “Switch Campaign” among Drug Users in Lashio, Hpakan and Seng Taung is part of the PSI-AHRN collaboration in Myanmar.

On behalf of the AHRN team, AHRN expresses its sincere thanks to many individuals and organizations that extended their support to make it possible. In addition, a special thanks to all peers and AHRN staff whose precious work is worth to be acknowledged since they played a very significant role in saving lives of Overdosed clients both in DIC and in the field.

This Overdose Prevention Program is supported by PSI Myanmar with their encouraging response to enhance understanding on local issues and contexts of drug use in Myanmar.

Project Consultant: Mr. Siddharth Singh

For further information please contact

Willy De Maere
Technical Director

Asian Harm Reduction Network (AHRN)
32-N, 32 Avenue, 6½ Miles, Pyay Road
Hlaing Township
Yangon
Myanmar

Tel: + 95-1-536 194, 507 003
Tel/Fax: + 95-1-536 194
Rationale for the Overdose Prevention and Management

While most attention, donor wise as well as program wise has been on the risks of HIV transmission, overdose is a major but often overlooked cause of death.

Data in many countries, although often incomplete, confirm this. In the United States overdose is the most frequent cause of mortality among injecting drug users (IDUs), as well as in the European Union where overdose is the top reason for preventable death associated with drug use, and there has been the equivalent of a fatal overdose an hour for the past two decades. IN BANGKOK, THAILAND, 30% OF IDUS INTERVIEWED had suffered an overdose, and more than two-thirds had witnessed one. IN NORTHERN VIETNAM, 43.5% OF RESPONDENTS had survived an overdose. In another study among male IDUs, 27% of deaths in the sample were attributed to drug overdose.

Although there is no overdose related data in Myanmar, field observations and programmatic interventions confirm that it is also a major health issue among opiate injectors.

To address this AHRN, under the joint project with PSI, developed a three-pronged strategy:

1. Revisiting, upgrading and implementing a training and health education on ‘Understanding Opiate Related Overdose’;
2. Revisiting, upgrading and implementing a training and health education on ‘Overdose Management Protocol’;
3. Overdose Management with the use of Nalaxone.

This report gives the overview of those activities, which is divided in 3 parts.

PART I: “Understanding Opiate related Overdose”: An AHRN Health Education/Training Tool on Overdose Prevention

Based on a desk review and focus group discussions with the target groups, an existing training/health education on ‘understanding overdose’ was developed to provide detailed information on overdose, its causes, signs and symptoms and prevention measures applicable to the existing nature and patterns of drug use at selected project sites.

This tool became part of the regular AHRN health education activities

---

The overall objectives of this tool are:
1. Understanding opiates related overdose;
2. Different categories and risks of overdoses (e.g. heroin & ATS);
3. High risk of overdose;
4. Prevention of overdose;
5. Common myths and misconceptions about overdose;

Injecting drug use is very risky; people who inject drugs endanger their lives more than other drug users. Accidental overdose is the biggest cause of death amongst people who inject drugs. Deaths from overdose are preventable; this tool is designed to provide detailed information on prevention and management of overdose.

### Overdose
Overdose means that someone went ‘over the limit’ of his/her personal tolerance. This often happens when someone has taken more (e.g. either of 1 drug or a combination of drugs) than his/her body can handle. Overdose is an inherent risk with any addiction.

### Heroin Overdose
Heroin overdose is most common, which happens when too much heroin (an opiate) is used. This can suppress or stop the breathing. Moreover, fluid could get into the lungs, making it even harder to get enough oxygen. But the affected person does not feel any of this because by then s/he will be unconscious. People with overdoses look limp and pale. Sometimes there is ‘foam’ coming on their lips. They might also be vomiting or have convulsions. If these symptoms are noticed on someone after he/she used heroin, what we should do:

- Check if he/she is conscious by shaking and calling him/her by name;
- If he/she does not react, try to wake him/her. Slap his/her face, pinch the muscle above the caller bone, splash cold water on his/her face or rub with a wet towel;
- As soon as he/she shows any signs of life, try to keep him/her awake. Force him/her to stand up and walk around and try to make him/her talk. Stay on alert though, because he/she might pass out again;
- If someone won’t wake up or falls back into coma, please take the help of whoever is around and you can keep him alive with mouth-to-mouth resuscitation until you reach the hospital.
- A shot of Narcan (Naloxone) is needed right away. Narcan blocks the effects of heroin in the brain and stops an overdose in its tracks.

### Risk

<table>
<thead>
<tr>
<th>Mixing</th>
<th>Prevention</th>
</tr>
</thead>
</table>
| Mixing Upper/Downers combinations (Heroin and ATS) | • Use one drug at a time;  
• Don’t mix alcohol with heroin/pills |
| Uppers (e.g. Speed, Cocaine, Ecstasy) | Downers (e.g. Alcohol, Heroin and Pills) |

<table>
<thead>
<tr>
<th>Tolerance</th>
<th>Quality</th>
</tr>
</thead>
</table>
| • Break due to detox/jail or MMT;  
• Being sick or hospitalized;  
• New environment; | • Tester shots  
• Release the tourniquet |

<table>
<thead>
<tr>
<th>Using Alone</th>
<th></th>
</tr>
</thead>
</table>
| • Cannot be found;  
• Behind closed locked door;  
• Hotel room; | • Fix with a friend;  
• Leave door unlocked;  
• Call a friend; |

### Heroin Risks
Overdoses do not happen by chance. Risks are greater under the following situations:

- Using different types of heroin in another place (other than your hometown or the town you have been living). If you do not know how strong the heroin is, best take a small amount first;
- Using heroin on top of a lot of alcohol or pills, then you are more likely to pass out or vomit. This vomit could get into your windpipe and suffocate you;
• If you only use occasionally or start using again after a period of tapering or having been clean. Even if the break took only a few days, the heroin will hit you a lot of harder. (To non-users, as little as 0.2 grams of heroin can already be deadly).
• Using heroin by yourself, if you overdose there is no one around to help you.

ATS Overdose
There are far fewer overdoses from ATS than from heroin and they also result in far fewer deaths. Swallowing ‘ice’ (crystal form of ATS) gives high risk for overdose and stomach bleeding. ATS overdose can set in quickly but can also be gone in flash. Still the same principle applies ‘quick action can save a life or limit the damage.

First sign of ATS overdose area great unrest, panic and heavy sweating. Such an overdose can cause two additional problems that can appear separately or in combination:

1. A crush-like pain in the chest;
2. Epileptic seizures and unconsciousness.

### Chest pain
In case of ATS overdose, the body is being over-stimulated which results in nervousness and panic, rapid rise in heartbeat and blood pressure and lack of oxygen to the heart. This pain can sometimes lead to cardiac arrest.

**Immediate action**
- Do something to reach to the hospital and inform the doctor that the person has heart problems after using a lot of ATS;
- Calm the victim; try to reassure him/her while you are on the way to hospital. This would not be easy, since he/she be probably panics;
- Once the victim gets to the hospital, his heartbeat and blood pressure will be lowered quickly. The doctor will also check if he had a heart attack.

### Convulsions and unconsciousness
In case of ATS overdose, body temperature rises rapidly and lots of sweats. This can lead to unconsciousness and convulsions (an epileptic attack). Breathing then gets even harder, which leads to an oxygen deficit in the brain. Coma or paralysis could follow.

**Immediate action**
- Stay calm, it is a shock to witness an epileptic attack;
- Do something to reach to the hospital and inform the doctor that the person has an epileptic attack after using a lot of ATS;
- Protect the client. If he/she still has convulsions, put him/her somewhere on the floor, where he cannot hurt himself/herself. Put a pillow under his head;
- Do not try to stick something in his/her mouth to keep it open; simply it would not help;
- Roll the client into the recovery position (on his left side). When seizures have stopped, straighten out his lower leg (still in the recovery position), bend his top leg at the knee and make sure his head is straight or slightly bent backwards;
- If he/she wakes up talk to him/her;
- The doctors will do the rest;
- Once in the hospital, the convulsions will stop quickly;
- An intravenous drip will lower heartbeat and blood pressure and benzodiazepines will take care of the nervousness.
**ATS Overdose Risk**

There is a fine line between using ‘much’ and ‘too much’ ATS. Taking more ATS than normal every now and then, will hardly cause any permanent problems, because it works quickly and it is always easy to know if the dose was okay. But be careful with:

- A combination with heroin and benzodiazepam you feel more relaxed but in reality your heart is racing. Resist the temptation to take more ATS right away and definitely do not do it, if you are on your own;
- Accidentally swallowing ‘ice’ (crystal form of ATS) seems to be risky as even a little amount is already enough for an overdose.

**High Risk Overdose**

- **Cocktail (a mix) of different drugs (opiates, ATS, alcohol...)**
  - strongly enhances the risk for an OD (some drugs like Heroin are ‘downers’),
  - ATS are uppers: very hard on the body/heart... Drug users also tend to take more of one product when drug users mix because they lose part of the effect;
  - Example: Drug user will feel less drowsy from heroin, because they take ATS. Since they still want to feel all the effects they want to take more; more expensive and more risky for OD;
- Swallowing ‘ice’ (crystal form of ATS) gives high risk for OD and stomach bleeding;
- Non-users and children have a high risk for OD when using methadone (higher risk than with heroine!!!);
- Overuse of a mix of pills (barbiturates, sleeping pills) and alcohol will more easily make the drug user unconscious, give vomiting and choking;
- Choking to death is one of the highest risks with an OD;
- Not all ODs have a fatal end: a lot of drug users experience an OD and recover by themselves;
- A combination of Central Nervous System (CNS) depressants enhances risk. They include:
  - All opiates (heroin, methadone, morphine and codeine);
  - Alcohol;
  - All benzodiazepines: Diazepam (Sedil available in Myanmar),
  - Alprazolam (Alzolam, Xiemet, Moxanax), Clodazam (Frisium) and Lorazepam (Ativan);
  - Barbiturates: Phenobarbitones (Pheno);
  - Skeletal muscle relaxants: Myonal and Myomethol;
  - Antihistamines (against allergies, colds and flu): Cetiriz and Lorinol.
- Although all these drugs have many different effects on the body, they all have in common that they make the brain and spinal cord work more slowly!
  - → if your central nervous system slows down enough → breathing very slowly/breathing stops → very bad for your health...
- Most dangerous: having a combination of those drugs in your body at the same time. It becomes very hard to know how close you are to the limit...
- Myanmar: Formula!!! → mix of opium, heroine, codeine-cough syrup, diazepam...
- This mixture is very popular in certain areas among drug users
- Many formula ingredients are CNS depressants, but quantity unknown
- Combined with alcohol/heroin → high risk

**Overdose Prevention**

- The drug user should first use a little bit every time he buys a new supply: quality might be very different (stronger-less strong) even if the drug user buy with the same dealer;
- The body is much more sensitive (tolerance goes down) when the drug user has not used (even) for a few days (with heroin that is already the case after 3 days) e.g. after prison, and detoxification etc.;
- If a drug user uses in a hurry or in a strange and/or new environment you have a greater risk of getting an OD

Example: Research with rats that were made addicted to heroin; then put into withdrawal, one group of rats moved to another laboratory. When giving heroin again after a few days, no rats dead from OD in group in the same room, almost 60% of rats dead from OD in group that was moved;
• Higher risk when drug user ODs alone: who will help him? (Of course with friends higher risk for sharing, safer use remains important);

• Sometimes drug users choose voluntarily for an OD: important to know personal triggers (like depressions etc.) when you follow them in DIC or outreach work;

• OD mostly happens with injecting, but can also happen when smoking/orally/sniffing...

When Confronted With An Overdose

• Remain calm (though it is not always easy);

• React as fast as possible (doing things might help to remain calm);

• Try to collect information if possible (e.g. what drugs and how drugs were used etc);

• Check vital signs (e.g. breathing, pulse and body temperature etc.);

• Call/bring victim to hospital (in some project sites, hospital doctors are supportive) and pass on information collected;

• CPR/heart massage not easy and risky: needs training. If not trained accidents might happen (example: puncturing lungs with ribs!!);

• Heart massage can only be given when the heart is not beating anymore;

• Never give food or drinks (tea, coffee, alcohol...) to the victim;

• Making the victim ill is ill-advised: vomiting and choking can happen;

• Injecting a saline solution is a MYTH: though practiced worldwide, it does not help and might even lead to septic shock!!! Counter advises drug users on this
**Myths:**

<table>
<thead>
<tr>
<th>Overdose related common myths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Myth:</strong> It would not happen to me</td>
</tr>
<tr>
<td><strong>Response:</strong> if you use, it can happen to you</td>
</tr>
<tr>
<td><strong>Myth:</strong> Let them sleep it off</td>
</tr>
<tr>
<td><strong>Response:</strong> If someone is really on overdose you may be leaving them to a slow death</td>
</tr>
<tr>
<td><strong>Myth:</strong> Inject them up with water or salt water</td>
</tr>
<tr>
<td><strong>Response:</strong> You can’t dilute the heroin in their blood – if anything this will make them sicker or give septic shock</td>
</tr>
<tr>
<td><strong>Myth:</strong> Put them in the shower or the bath</td>
</tr>
<tr>
<td><strong>Response:</strong> This can rapidly change their core body temperature which could put them in shock - extremes of temperature tend to shut your body down</td>
</tr>
<tr>
<td><strong>Myth:</strong> If they don’t respond, walk them around</td>
</tr>
<tr>
<td><strong>Response:</strong> If they aren’t responding they need urgent help - trying to walk them around will just waste of time</td>
</tr>
<tr>
<td><strong>Myth:</strong> If they have naloxone then they are fine and can use again</td>
</tr>
<tr>
<td><strong>Response:</strong> The naloxone will wear off in an hour or two and it’s easy to drop again, even if you don’t have more</td>
</tr>
<tr>
<td><strong>Myth:</strong> Most overdoses happen because the purity changes</td>
</tr>
<tr>
<td><strong>Response:</strong> Most overdoses are a result of poly drug use alcohol/benzos + heroin = Overdose</td>
</tr>
<tr>
<td><strong>Myth:</strong> Contaminants cause overdose</td>
</tr>
<tr>
<td><strong>Response:</strong> Most overdoses are a result of poly drug use alcohol/benzos + heroin = Overdose</td>
</tr>
<tr>
<td><strong>Myth:</strong> Usually new users overdose</td>
</tr>
<tr>
<td><strong>Response:</strong> Some of new users overdose, but most people who overdoses have been using for years</td>
</tr>
<tr>
<td><strong>Myth:</strong> Suicide is the most common reason for overdose</td>
</tr>
<tr>
<td><strong>Response:</strong> Most overdoses are accidental</td>
</tr>
<tr>
<td><strong>Myth:</strong> Give them stimulants (caffeine, speed or adrenaline)</td>
</tr>
<tr>
<td><strong>Response:</strong> The only drug that will help is naloxone</td>
</tr>
<tr>
<td><strong>Myth:</strong> If they are snoring or gurgling they are okay</td>
</tr>
<tr>
<td><strong>Response:</strong> Those sounds mean they are having trouble breathing - not okay</td>
</tr>
<tr>
<td><strong>Myth:</strong> Once they are breathing again they’ll be okay</td>
</tr>
<tr>
<td><strong>Response:</strong> Most people who overdose lapse in and out of unconsciousness for some time</td>
</tr>
<tr>
<td><strong>Myth:</strong> Stick ice cubes up their bum</td>
</tr>
<tr>
<td><strong>Response:</strong> Will give them a cold bum</td>
</tr>
<tr>
<td><strong>Myth:</strong> If I’m with friends I’ll be okay</td>
</tr>
<tr>
<td><strong>Response:</strong> Your friends may be too out of it to help, or may not know what to do - make sure they do know what to do</td>
</tr>
<tr>
<td><strong>Myth:</strong> Overdose happens quickly</td>
</tr>
<tr>
<td><strong>Response:</strong> Some overdoses happen quickly, but most people who fatally OD take a while to die – their breathing gradually slows and then stops</td>
</tr>
</tbody>
</table>
PART II: Overdose Management Protocol

Rationale:
This document is designed to outline an overdose management protocol using naloxone when an opiate associated overdose is encountered. This tool is not aiming to make anyone a doctor or capable of acting like one. This document will help project team to gain an understanding of the common actions to keep someone alive who has overdosed in the hope that our ability to act quickly and correctly can save a life.

Overdose victims may die or suffer brain damage due to a lack of oxygen. Other overdose-related morbidity can include pulmonary conditions and cardiac complications. Drug users or others at the scene of an overdose are often reluctant to call for emergency assistance, fearing that the hospital will inform the police. Even when this is not the case, there are many barriers to timely first aid. Rescue breathing can be difficult to sustain for a long period required until medical professionals arrive. Emergency personnel may not respond if the location is known as a place where people use drugs. In other situations, ambulances expect payment, are simply not available, or cannot quickly reach locations that are remote or inaccessible.

Some drug users, methadone patients, and their family members are now being trained as overdose responders themselves, and in this capacity, carry naloxone or give the medicine to a friend or family member to use in case of emergency. In some countries, only doctors may prescribe naloxone. In others, pharmacists or others operating under a doctor's standing order can provide the medication. In a handful of countries, naloxone is available over-the-counter at pharmacies, but the availability is very limited in Myanmar.

The overall objectives of this tool are:
1. Understanding how opiates work;
2. Recap of signs and symptoms of overdose;
3. Management of opiate overdose;
4. Protocol on using Naloxone in overdose management;
5. Detail pharmacology of Naloxone;
6. Messages of Naloxone recipients;
7. Strategies after Naloxone is provided;

1) Understanding how opiates work: Opiates
In some ways all opiates are the same, and in other ways they are different. All opiates are the same in that they . . .
• come from the opium poppy or are chemically created to be like a drug which comes from the opium poppy;
• have their effect on the same part of the brain;
• cause overdose in the same ways if too much is used --this overdose comes in the form of stopped breathing.

Opiates are different in that they
• have different concentrations or strengths;
• produce different speed, length and intensity of withdrawal;
• have varying durations of action, such as

<table>
<thead>
<tr>
<th>Drug</th>
<th>Duration</th>
<th>Drug</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>24 hours</td>
<td>Codeine</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>Heroin</td>
<td>6-8 hours</td>
<td>Demerol</td>
<td>2-4 hours</td>
</tr>
<tr>
<td>Dilaudid</td>
<td>4-6 hours</td>
<td>Fentanyl</td>
<td>1-2 hours</td>
</tr>
</tbody>
</table>
Important Note: Combining opiates with other drugs, especially alcohol and other downers, is much more likely to lead to an overdose. This protocol describes opiate overdose management and does not describe overdose with other drugs.

2) Recap of signs and symptoms of overdose

<table>
<thead>
<tr>
<th>A severe overdose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac arrest</td>
</tr>
<tr>
<td>. . . when someone's heart stops</td>
</tr>
<tr>
<td>Apnea</td>
</tr>
<tr>
<td>. . . when someone can no longer breath</td>
</tr>
<tr>
<td>Circulatory collapse</td>
</tr>
<tr>
<td>. . . when there is no circulation of blood</td>
</tr>
</tbody>
</table>

Recognizing an overdose and a ‘good-high’

<table>
<thead>
<tr>
<th>Some signs of a serious overdose with opiates, which may lead to death, are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory depression</td>
</tr>
<tr>
<td>. . . very slow and ultimately no breathing</td>
</tr>
<tr>
<td>Cyanosis</td>
</tr>
<tr>
<td>. . . turning blue on the lips and fingertips first</td>
</tr>
<tr>
<td>Extreme somnolence</td>
</tr>
<tr>
<td>. . . hard to awaken sleepiness</td>
</tr>
<tr>
<td>Progressing to stupor or coma</td>
</tr>
<tr>
<td>. . . falling out</td>
</tr>
<tr>
<td>Skeletal muscle flaccidity</td>
</tr>
<tr>
<td>. . . loose muscles</td>
</tr>
<tr>
<td>Cold or clammy skin Bradycardia</td>
</tr>
<tr>
<td>. . . slow heartbeat &amp; hypotension</td>
</tr>
<tr>
<td>Hypotension</td>
</tr>
<tr>
<td>. . . low blood pressure</td>
</tr>
</tbody>
</table>

3) Management of an opiate overdose

- Once it has been determined someone has taken too much, first arrange transportation to reach to the nearest hospital.
- Whatever is going on with them – the more help the better.
- Remember CPR is hard to keep up for long!
- Make sure they are breathing. If they are not breathing, breathing for them will keep them alive.
- In medical terms, "primary attention should be given to the re-establishment of adequate respiratory exchange through provision of a patent airway and the institution of assisted or controlled ventilation."
- Maintain the person's airways.
- Put them in a position so that they can breathe.

There are many reasons why many people choose not to go to the hospital when an overdose occurs (police involvement, the neighbors, an official record of an overdose...).

This protocol on how to administer naloxone should be considered as both an additional step you can take after you arrange to go to the hospital, but also as an alternative if you've chosen (after discussing this with your colleagues.) not to go to the hospital for emergency medical help.

Recovery position

If someone is unconscious and lying on their back, their airway can be blocked by their tongue, vomit or saliva in the back of their mouth. This can stop them breathing and result in death. By putting someone in the recovery position, you can unlock their airway and save their life.

If someone has collapsed and they are still breathing, do the following:

- Tilt their head back and lift their chin. Make sure their legs are straight (as shown in picture A);
- Bend the arm nearest to you as if they are waving, with their palm facing upwards (as shown in picture A);
• Reach over and put the arm that is furthest away from you across their body, putting the back of their hand against their cheek (as shown in picture B);
• Pull the legs furthest away from you up into a bent position and keep the foot flat on the floor (as shown in picture B);
• To roll the person onto their side, keep their hand against their cheek and pull the bent knee towards you (as shown in picture C);
• A person in the recovery position (as shown in picture D).

The airway steps
• Apply the major force with the hand that is on the forehead;
• Place the hand under the neck near the base of the skull;
• Support and lift gently with the hand under the neck. The chin should point straight up

Mouth to mouth resuscitation
It is also known as Expired Air Resuscitation (EAR). If someone stops breathing give 5 breaths of mouth-to-mouth resuscitation in 10 seconds.

How to give mouth to mouth resuscitation
• The person should be lying flat on their back;
• Remove chewing gum or anything else you can see in their moth and then lift their chin;
• Pinch their nostrils together, using your first finger and thumb;
• Take a deep breath and make a good seal around their lips with your mouth;
• Blow steadily until you see their chest rise;
• Take your mouth away and let their chest sink right back down;
• Repeat steps 3 to 6 times.

If you are giving ‘mouth-to-mouth’ and find that
• The person’s chest is not rising (check to see that you have extended the person’s neck “this opens the airway”), or
• They start breathing (roll the person onto their side and place in the recovery position).

When you have completed the 5 breaths, check for a pulse. You can locate a pulse by placing your index and middle fingers in the groove of the person’s neck, between the adam’s apple and the muscle of the side of the neck.

Cardio-Pulmonary Resuscitation (CPR)
To start CPR you need to:
1. Find the place where the ribs meet the breastbone and lay tow fingers there;
2. Put the heel of your other hand on their breastbone, just above where your town fingers are;
3. Place your first hand on top of this hand, locking your fingers together (as illustrated);
4. Keep your shoulders above the centre of the person’s chest and your arms straight, press down on the chest to a third of its depth;
5. Release the pressure, but keep your hands where they are. This is a chest compression;
6. Do 15 chest compressions within 10 seconds;
7. Give two breaths of ‘mouth-to-mouth’ within 5 second;
8. Continue ‘mouth to mouth and chest compressions at the rate of 15 compressions and two breaths (within 15 seconds), until help arrives;

If their heart starts beating again, and their colour changes from blue to pink, continue with ‘mouth to mouth’ if they are not breathing.

Chest compression
- When chest compressions are given, you push on the lower half of the sternum, above the xiphoid.
- Never push directly on the xiphoid, because you may injure the victim.
- Keep up the CPR if the person is not breathing!

4) Protocol on using Naloxone in overdose management

NALOXONE/NARCAN – the opioid overdose antidote

Naloxone is an easy-to-use, lifesaving antidote to overdose from heroin or prescription opioids. A safe medicine with no abuse potential, naloxone is an opioid antagonist, which means it ejects heroin and other opioids from receptors in the brain, thereby reversing the respiratory depression caused by an overdose of these drugs.

5) Detail pharmacology of Naloxone
- **Class:** Narcotic antagonist
- **Description:** Naloxone is an effective narcotic antagonist used to counter the effects of opioid overdose, for example heroin or morphine overdoses. Naloxone is specifically used to counteract life-threatening depression of the central nervous system and respiratory system. Naloxone is also experimentally used in the treatment for congenital insensitivity to pain with anhidrosis (CIPA), an extremely rare disorder (1 in 125 million) that renders one unable to feel pain. It is marketed under various trademarks including Narcan, Nalone, and Narcanti, and has sometimes been mistakenly called "naltrexate." An antagonist should not be administered in the absence of clinically significant respiratory or cardiovascular depression. Oxygen, intravenous fluids, vasopressors and other supportive measures should be employed as indicated. Gastric emptying may be useful in removing unabsorbed drug. **Note:** It is recommended not to be confused with naltrexone, an opioid receptor antagonist with qualitatively different effects, used for dependence treatment rather than emergency overdose treatment.
- **Consider using naloxone for opiate overdoses only**
  - If used correctly, naloxone can reverse the overdose and save the person's life.
  - If you get so tied up with the naloxone you don't keep up the breathing the person will die.
- **Dose**
  - 1 ml/100 units ideally with a prepared syringe
  - Repeat the dose as needed every 2-3 minutes

- **Method**
  - **Intravenously:** Can you get a vein? If you can get a vein, naloxone will work more quickly. Consider using veins under the person’s tongue. **If you can't get a vein;**
  - **Rectally:** squirting naloxone into someone’s rectum may be a quicker alternative than the methods below. Of course, take the needle off first.
  - **Into the muscle:** the shot might take 3-15 minutes to work. Also: Can you continue to breathe for them? Do you have the right syringe (1 - 1 1/2 inch needle)?
Under the skin: With this method, it might take 30 minutes to work. Can you continue to breathe for them for that long?

Intranasal: spraying with an atomizer up the nose.

Mechanism of Action: The medication works within two to eight minutes to restore breathing, returning the victim to consciousness. Naloxone has been used for decades in emergency medical settings, and it is included in the WHO List of Essential Medications. Naloxone is chemically similar to narcotics. However, it has only antagonistic properties. Naloxone competes for opiate receptors in the brain. It also displaces narcotic molecules from opiate receptors. It can reverse respiratory depression associated with narcotic overdose.

Indications: Naloxone is used for the complete or partial reversal of depression caused by narcotics including the following agents: morphine, Demerol, heroin, paregoric, Dilaudid, codeine, Percodan, fentanyl, and methadone. It is also used for the complete or partial reversal of depression caused by synthetic narcotic analgesic agents including the following drugs: Nubain, Talwin, Stadol, and Darvon. Naloxone may be used in the treatment of coma of unknown origin.

Contraindications: Naloxone should not be administered to a patient with a history of hypersensitivity to the drug.

Precautions: Naloxone can cause side effects that may impair your thinking or reactions. Be careful if you drive or do anything that requires you to be awake and alert. Avoid drinking alcohol while taking naloxone. Alcohol may increase dizziness caused by naloxone.

Side Effects: Side effects associated with naloxone are rare. However, hypotension, hypertension, ventricular arrhythmias, nausea, and vomiting have been reported.

- Stop using naloxone and meet your doctor at once if you have any of these serious side effects:
  - chest pain or fast or irregular heartbeats;
  - feeling light-headed, fainting;
  - seizure (convulsions); or
  - difficulty breathing.

- Less serious side effects may include:
  - dizziness, weakness, tired feeling;
  - nausea, vomiting, or diarrhea;
  - feeling nervous, restless, or excited;
  - sweating;
  - runny nose; or
  - trembling.

Note: It is advisable to explore more side effects as this may not be a complete list of side effects and others may occur. It is strongly recommended to talk on find any unusual or bothersome side effect.

Interactions: The pain-relieving effects of any narcotic pain medications you use will be reversed if you use them during your treatment with naloxone. Withdrawal symptoms could also occur, such as body aches, diarrhea, increased heart rate, fever, sweating, nausea or vomiting, irritability, trembling, weakness, and increased blood pressure. Your doctor may want to observe you after using naloxone to watch for side effects.

Collect information about any use of the following drugs

<table>
<thead>
<tr>
<th>Buprenorphine (Buprenex, Subutex)</th>
<th>Butorphanol (Stadol)</th>
<th>Codeine (Tylenol with codeine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocodone (Lortab, Vicodin)</td>
<td>Dezocine (Dalgan)</td>
<td>Hydromorphone (Dilaudid)</td>
</tr>
<tr>
<td>Levorphanol (Levo-Alphadon)</td>
<td>Meperidine (Demerol)</td>
<td>Methadone (Dolophine, Methadose)</td>
</tr>
<tr>
<td>Morphine (Kadian, MS Contin, Roxanol)</td>
<td>Nalbuphine (Nubain)</td>
<td>Nalmefene (Revex)</td>
</tr>
<tr>
<td>Naltrexone (ReVia)</td>
<td>Oxycodone (OxyContin, Roxicodone, Percocet)</td>
<td>Oxymorphone (Numorphan);</td>
</tr>
</tbody>
</table>
The following table provides a checklist for managing overdose.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Checklist for Overdose Prevention/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3</td>
<td>Remarks</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows OD prevention techniques</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows when to act for you - color/# breaths in 10 seconds</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows when you want them to call for help</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows if and when you want rescue breathing or CPR</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows if and when you want naloxone</td>
</tr>
<tr>
<td>O O O</td>
<td>Knows how and where you want naloxone given and how much</td>
</tr>
</tbody>
</table>

**Note:** This list is not complete and there may be other drugs that can interact with naloxone. Collect more information about all the prescription and over-the-counter medications being used. This includes vitamins, minerals, herbal products, and drugs prescribed by other doctors. Make sure you client do not start using a new medication without telling you.

- **Dosage:** The standard dosage for suspected or confirmed narcotic or synthetic narcotic overdoses is 1 to 2 mg administered IV. If unsuccessful, then a second dose may be administered 5 minutes later. Failure to obtain reversal after two to three doses indicates another disease process or overdoses on non-opioid drugs.

6) **Messages for the Nalaxone recipients**
- Before providing naloxone, collect information about any other narcotic pain medicine are being used; Remember:
  - The pain-relieving effects of any narcotic medications will be reversed during administration period of naloxone;
  - Withdrawal symptoms could also occur, such as body aches, diarrhea, increased heart rate, fever, sweating, nausea or vomiting, irritability, trembling, weakness, and increased blood pressure;
  - The vital parameters needed to be observed to watch for side effects;
- Inform them to use naloxone exactly as prescribed by the doctor. Make clear not to use it in larger amounts or for longer than recommended. Follow the instructions and directions;
- If naloxone was given as an injection under the skin, into a muscle, or into a vein. Nurse or designated healthcare provider would give this injection. Do not self-inject this medicine if you do not fully understand how to give the injection and properly dispose of used needles and syringes;
- Inform them not to draw naloxone dose into a syringe until they are ready to give themselves an injection. Do not use the medication if it has changed colors or has any particles in it;
- Use each disposable needle only one time. Throw away used needles in a puncture-proof container (ask your health educator/outreach worker or pharmacist where to get new needle/syringe and how to dispose of it). Keep this container out of the reach of children and pets.
- Store this medication at room temperature away from heat and moisture.

Clients should also be requested to provide information on their allergic status to any drugs, or if they have:
- a brain tumor or head injury;
- seizures;
- heart disease or a heart rhythm disorder; or
- a history of drug or alcohol addiction.

It is not known whether naloxone passes into breast milk or if it could harm a nursing baby. Do not use naloxone without telling your doctor if you are breast-feeding a baby.
Knows if and when you want to go to the hospital ER

Has agreed to stay with you to support while naloxone wears off (about an hour after it is given)

Notes your commitment to not use again while you wait for the naloxone to wear off

Other comments

7) Strategies after Nalaxone is provided

1. The person who receives naloxone will wake up and will not remember overdosing or receiving the naloxone.
2. You will need to stay with anyone you give naloxone to and explain that:
   a. They were overdosing and received naloxone to save their life.
   b. If they are feeling withdrawal symptoms, they will feel better soon. The naloxone will start wearing off in 20-30 minutes and they will start feeling better. Within an hour or two the effects will be gone
   c. Once the naloxone wears off, they may overdose again, especially if they do more dope to try to fix the withdrawal symptoms. If they do another shot it will be wasted. They cannot out-shoot the naloxone. They just have to wait.
3. It is very important to stay with the person to make sure they don’t use more heroin or overdose again when the naloxone wears off, a minimum of two hours, if any help is not called.
4. You should still contact for help after giving naloxone for 2 main reasons:
   a. To keep the person from overdosing when the naloxone wears off.
   b. If we can’t be 100% sure, the overdose was from opiates alone. Narcan has no effect on overdoses from alcohol, speed, cocaine, or pills.
   c. Because there is a small chance of dangerous side effects to the naloxone, including seizures and fluid build-up in the lungs that can cause respiratory distress and/or pneumonia.

AHRN Strategy for Overdose Prevention & Management with Naloxone

AHRN had naloxone available from the start of its programmes (procurement was possible under 3DF and GF). At first the medical staff in the clinic only administered it. This meant that, all too often, clients suffering from an overdose in the field could not be reached in time with the life-saving naloxone. To address this, outreach workers were thoroughly trained by the medical staff in the administration of naloxone and provided with it in their outreach kit as a second step.
The third and final step was to train and provide peers and key persons (like ‘shooting galleries staff’).

International examples/studies also shows that this is good practice. Those studies demonstrate drug users want to help their peers who are overdosing. Peer initiated overdose resuscitation: fellow drug users could be mobilized to implement resuscitation.

---

Furthermore, in surveys to determine the appropriateness of take-home naloxone, high proportions of drug users indicate a desire to participate. Overdose among friends: drug users are willing to administer naloxone to others.

Where drug users are trained as naloxone responders, many find it empowering—a way to save their own life as well as their peers. Syringe access programs and others working with injecting drug users report that naloxone distribution often revitalizes outreach, strengthening the alliance between service providers and clients. Research also shows that drug users, when trained, are as skilled as medical experts in recognizing an overdose and understanding when naloxone is indicated for use. Upon training, drug users showed improved knowledge and confidence about responding to an overdose and drug users who were trained frequently went on to train their own family and friends.

Finally, naloxone’s benefit to drug users and their communities includes more than overdose reversal. Drug users report that saving the life of a friend—or a stranger—can change the way drug users view themselves and their peers, increasing feelings of empowerment and self-efficacy. A study of the Staying Alive program in Baltimore found that post-training, 62% of participants felt that other drug users in their community had greater respect for them because they had been trained to help during an overdose. Nearly three quarters said that they felt responsible for helping other drug users experiencing overdose, and that it was important to teach their peers about preventing overdose in the first place. Another study suggested that teaching peers about naloxone provided drug users with an opportunity to discuss other overdose prevention information with their friends, something that otherwise was difficult to talk about.

Good programs endeavor to provide a continuum of care to their clients, referring them to support groups, legal aid services, or drug treatment programs if they are interested. Some research indicates that overdose response programming can serve as a bridge to drug treatment. A San Francisco study found an increased rate of entry into drug treatment after overdose training; this may be due to improved self-efficacy and increased knowledge gained during the training. In a study that looked at treatment enrollment following an overdose, about half of those who had a conversation with someone about drug treatment after their overdose went on to enroll in a treatment program.

---


Part III: AHRN Overdose Management with the use of Naloxone

AHRN Overdose Prevention Data: Total Overdose cases and outcomes
January 2011 to February 2013

<table>
<thead>
<tr>
<th>Township</th>
<th>Gender</th>
<th>Managed by AHRN</th>
<th>AHRN</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M F Yes No Alive Dead Alive Dead</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LKK</td>
<td>2 0</td>
<td>1 1 1 1 0 0 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSO</td>
<td>25 1</td>
<td>18 8 17 1 4 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KNN</td>
<td>41 0</td>
<td>40 1 39 1 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKK</td>
<td>6 0</td>
<td>5 1 5 0 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STT</td>
<td>34 1</td>
<td>35 0 35 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMM</td>
<td>32 0</td>
<td>26 6 26 0 3 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMM</td>
<td>10 1</td>
<td>4 7 4 0 5 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>150 3</td>
<td>129 24 127 2 14 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reasons of Reported Overdose

<table>
<thead>
<tr>
<th>Reasons</th>
<th>LKK</th>
<th>PK</th>
<th>ST</th>
<th>BM</th>
<th>WM</th>
<th>LSO</th>
<th>KNN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used drugs after drinking alcohol</td>
<td>4</td>
<td>15</td>
<td>6</td>
<td>15</td>
<td>11</td>
<td>22</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>DZ+ Heroin + Alcohol</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>DZ+Heroin</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td></td>
<td>13</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Yama+Heroin</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Yama+DZ+Heroin</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Heroin+MMT</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Yama + MMT</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Other polydrug use</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Long time no drugs used</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Used drug after discharge from DTC</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Not a regular drug user</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Used more Heroin</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>11</td>
<td>26</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>Used heroin during illness</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Unknown/other causes</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

Evaluation Naloxone Overdose Prevention Project of AHRN:

In order to get more qualitative background evaluation on the overdose prevention project, in-depth interviews were done with service receivers (4) and providers (6) in Lashio & Hpakant/Seng Taung. An overview of the collected information:

**A. Service Providers:**

1. How do you distinguish between ‘over-feel’ and ‘overdose’?
him about what happened and send him to the clinic. But some won’t go.'

Overdose.

'If the client is really in overdose, firstly, we put the antidote. I’ll arrange for the person to rest in shaded area and observe. When he recovers, I’ll explain to them what has happened and send him to the clinic. But some won’t go.'

Overall it indicates that all interviewed service providers can distinguish based on either behaviour or physical signs; while checking vital signs is also practiced.

2. What would you do if you see someone going in overdose? What are the steps you are going to take?

For service providers stationed in the clinic, a full protocol is followed.

For those working in the field, naloxone is injected as best as possible when overdose has been determined.

3. Do you remember how many overdoses you had to inject naloxone?

All service providers, peers and professional staff, were already called upon to administer naloxone; the frequency was between 1 and 15 times. This indicates the need to have a wide range of providers to address overdose.

4. Was 1 naloxone injection enough?

For 3 of the 6 interviewed service providers, 1 naloxone injection sufficed. For the other 3, sometimes 2 up to 4 were needed.
‘Mostly one injection was enough, but one client needed two injections and one four. Actually, the client who had been injected for four times used only a few amount of heroin, but at the time he was drinking alcohol a lot and on top of that he had not been using heroin for a long time’.

5. Did you have any problem with injecting Naloxone?
None of the respondents encountered any problems with injecting.

‘No, I don’t have any problem since I had experience on injecting and I got training from AHRN and also do in night duty in Black Sheep Care Centre’.

6. Did you inject intra-muscular or intravenously?
All service providers use both IM and IV injections.

‘Round about the 10 clients are given IV injection and 5 are given IM injection. IV injection is quick reaction so we try to inject IV first and only if it is impossible to give IV injection then, we give IM injection. However, we asked outreach worker and Peer to give only IM injection to clients because they might not be skillful enough to give IV injection (nurse).’

Nevertheless, the answers of the peers indicate that they also use IV on occasion. Since they are experienced injectors they feel comfortable to do so.

7. Which steps did you take after injecting Naloxone?
Follow-up after injecting is practiced in all cases, referral from the field to the DIC clinic and/or care centre are common as well as basic health information.

‘After the client got conscious, I tried to talk with him to keep him awake and tell him not to use drugs again within one day and let him stay in the Care Centre for two to two and half hours to check.’;

‘When clients were conscious after the injection, we brought them to the clinic and let them stay there depending on their condition. We collected the information, such as what drugs did they use, did they use poly drug or did they use heroin after alcohol drinking and so on. Before we let them go back, nurse had checked their heart beating etc….’;

‘I told them to take a rest for about half an hour. Then I advised them to go to the clinic’;

8. What was the reaction of the clients, after they recovered?
Psychological reactions from recovered clients vary between gratitude

‘Mostly, clients said thanks to me and they also said they would try not to get an overdose again’ or shame’

‘Some clients especially MMT clients they felt shame and they went back straight away when they become conscious, even we asked them to stay awhile in DIC’.

Dynamics of addiction also became apparent in following statement:

‘They said they would like to inject the drug again. They got withdrawal symptoms and felt as if they hadn’t injected the drug at all. I told them to wait for at least half-an-hour before another injection, as you’ve taught me’.
Although some recovered clients had no physical complaints, others mentioned ‘dizziness and/or ‘vomiting’.

9. Suggestions for more access to naloxone?
All service providers strongly agreed with the life-saving properties of naloxone. To strengthen the access to naloxone, different answers were recorded.

‘Even if I am off duty when I hear that someone gets an overdose I come to the office, get the naloxone kit and inject the overdosed client’.
‘I don’t think it would be a good idea if the naloxone is given to the clients because it is very expensive and they might sell it to make money’.
‘I am not sure about giving naloxone to the clients. It would be better, if outreach workers and peers, who now have naloxone, do outreach on a rotational basis in the weekend’.
‘I think, if the DIC’s night staff can be trained to give naloxone, it might be helpful’.

Nevertheless, the answer of one peer confirms the fact that overdose prevention has been strengthened:

‘In the past there were difficulties. Since naloxone was kept only at the clinic the outreach workers had to bring the overdosed persons there. During the clinic hours the clients had thus access, but it was pretty difficult to get naloxone after clinic hours. Then the clinic trained the outreach workers to use it and provided it in their medicine boxes. Now the medical coordinators train the ‘dealers’ in using it and also provide them. So, now it’s quite convenient’.

B. Service Receivers:
1. Detailed information of last overdose? (Why & What drug did you use...?)?
All service receivers used heroin with their last overdose; mostly only heroin or combined with diazepam. Consuming alcohol on the side is also mentioned. This indicates the enhanced overdose risk with poly-drug use. Using more than the usual dose, difference in purity and use after a break (detoxification in DTC) are all mentioned as reasons.

‘At that time, I had difficulty finding drugs due to police action. Drug dealer did not sell retail, so we (three drug users) had to pool money and buy one ‘penicillin bottle’ of heroin. I injected more than I used to’.
‘At that time, I just got out from DTC and injected the same amount of heroin that I used to inject, but I got overdose’.
‘The first time I overdosed I also took some alcohol. At that time I sold diazepam. I mixed No.4 and diazepam and injected’.

All respondents also mentioned that they were surprise that they had an overdose.

2. How did you feel after you recovered?

‘I felt guilty because I was doing such kind of things and all the people had to help me and God also helped me a lot.’ ‘I felt somewhat sad. I felt as if I came back from the death. If AHRN didn’t have naloxone, I would die’.
These quotes indicate the impact an overdose experience can have emotionally. Physically, the same responses are given as by the service providers: ‘dizziness’ and ‘vomiting’. All respondents also clearly stated that they owned their life to naloxone and that they all knew other drug users that had died from an overdose in the past.

3. Any changes in your drug using behaviour after you overdosed?
   It is clear that the experience of an overdose can lead to a wide range of behaviour changes, from getting treatment up to safer use.

   - ‘I experienced overdose repeatedly and almost died. If I do not take treatment, I will be dead. Therefore, I decided to take MMT’.
   - ‘I had an overdose 6 times. The next time, I might be dead. I am trying my best not to get overdose again and practice the prevention I got from AHRN. I recovered every time because of my luck and also the naloxone assistance from AHRN’.
   - ‘As I nearly died I no longer use the mix with diazepam, now I only use No.4 and alcohol. I was scared of diazepam and didn’t use it again’.
   - ‘I use lower dose’.

4. Do you think it is a good idea that Naloxone would be more easily available in drug using places?
   All respondents support the easier availability of naloxone in drug using places, based on its life-saving properties.

   - ‘I think that it is very good because mostly people don’t know when overdose is happening. If her outreach workers or peers who are in the fields have naloxone with them they can inject straight away when someone gets overdose and save his/her life’.

Conclusion:

Drug users in Myanmar are prone to overdose risks. Poly-drug use, purity of the available heroin, lack of knowledge on possible risks and myths… are all factors that put Myanmar users at risk for a (fatal) overdose.

A qualitative harm reduction service will thus have to integrate comprehensive overdose activities and think outside the ‘HIV Box’.
And developing and implementing a comprehensive overdose prevention & management campaign in Myanmar works and saves lives!

The data collected under this project show that more than 100 overdosed clients could recover through the use of naloxone; naloxone made widely available through trained staff and peers at those places where overdoses most likely happen (like ‘shooting galleries’).
Furthermore, next to the tangible impact of saving lives, awareness on overdose risks and safer use practices are on the agenda within the target group.

Although this AHRN-PSI joint project will end in March 2013, the lessons learned were invaluable. As such all activities will continue and become part of AHRN project activities in all sites.

References

1. DOPE Project / San Francisco Department of Public Health Overdose Rescue / Naloxone Training
2. Drug Overdose Prevention & Education (DOPE)/Harm Reduction Coalition (Brochure, Poster and Training Leaflet) at dope@harmreduction.org and www.harmreduction.org
4. Overdose Management Protocol, Naloxone/Narcan Training;
5. Skills and Knowledge On Overdose Prevention (SKOOP)/Harm Reduction Coalition
7. "Journal of Emergency Nursing".
   http://www.jenonline.org/article/PII500099176704000078/fulltext?browse_volume=30&issuekey=TOC%40%40JOURNALS%40YJENU%400000%4000002&issue_preview=no&select1=no&select1=no&vol=#section7.