
Take-home naloxone in Australian hospitals

HOSPITAL PHARMACY PRACTICE UPDATE

SHPA Take-home Naloxone Working Group

The Society of Hospital Pharmacists of Australia (SHPA) has produced this guidance document for use by health professionals providing take-home naloxone in Australian hospitals.

Purpose

The purpose of this document is to provide guidance to facilitate the supply of take-home naloxone from hospital settings to individuals who may witness or experience opioid toxicity.

Background

Opioids are known to be high risk medications, recently accounting for almost two thirds of all drug induced deaths in Australia. There has been a nine percent increase in opioid-induced deaths in the past five years and this figure will continue to rise each year if strategies to alter this trend are not prioritised.¹

In Australia, nearly 150 hospitalisations and 14 emergency department (ED) presentations daily involve opioid-related harm.² Accordingly, hospital settings present many opportunities to identify individuals at risk of opioid harm and are crucial sites for expanding evidence-based interventions to reduce opioid-related mortality.

There are a range of concerns relating to use of opioids including the development of iatrogenic dependence, and the lack of evidence around efficacy and safety with long term use in chronic non-cancer pain. Educating on opioid safety and empowering individuals initiated on opioids in Australian hospitals and those who present with, or at risk of opioid-related harm, is essential. A well-documented life-saving strategy to prevent unintentional opioid-related harm, is the provision of take-home naloxone wherever clinically appropriate.

Take-home naloxone

What is naloxone?

Naloxone, as an opioid antagonist, is an antidote to acute opioid toxicity. It can temporarily reverse the life-threatening respiratory depressant effect of opioids, and when supplied to laypeople to administer in the community (take-home naloxone) can save lives. Naloxone has a long history of safe and effective use in the treatment of life-threatening opioid reactions and has been used in Australia in emergency settings for decades.³

Why supply take-home naloxone through hospitals?

While naloxone is available via prescription and over the counter in Australian pharmacies, supply to individuals at risk of witnessing or experiencing opioid toxicity is currently insufficient.⁴ Lack of awareness and the significant cost of purchasing the medication over the counter, combined with the onerous process of obtaining a prescription to facilitate supply at a subsidised cost, serve as barriers for those who would benefit most from facilitated access to the medication.⁵

The expansion of naloxone access to people with opioid-related risk and their close family, friends and carers, is an integral harm minimisation approach that should be supported by all health professionals. In 2014, the World Health Organisation (WHO) issued guidelines recommending that people likely to witness a life-threatening opioid reaction, including people who use opioids, their friends and family, be given access to naloxone and training in its use so they can respond in the event of an emergency while awaiting medical help.⁶

Hospitals manage many individuals post-acute opioid overdose and discharge many others daily who would be considered at-risk of opioid harm. This makes hospitals a prime setting to reach people at risk and provide them with appropriate education and access to naloxone. SHPA recommends that take-home naloxone is offered wherever clinically indicated to address Australia's rising opioid-related mortality. Take-home naloxone programs supply free or subsidised naloxone kits and provide appropriate training to populations at risk of witnessing opioid toxicity. SHPA believes pharmacists, who are medication safety experts, should be involved in the delivery of take-home naloxone programs in hospitals and wherever medications are being used.

Implementation of take-home naloxone programs

International literature suggests that implementation of take-home naloxone programs in the hospital setting is feasible and increases the supply of take-home naloxone to at risk patients.^{7,8} In hospitals the provision of take-home naloxone has been described most commonly via the Emergency Department, followed by the inpatient and outpatient acute care settings.^{7,8}

Successful implementation of a take-home naloxone program is underpinned by: multidisciplinary team engagement in the development and implementation process; access to a take-home naloxone prescribing and dispensing guideline; staff education and training; integration with electronic medical record (where possible); and patient education.^{7,8} The multidisciplinary team should include doctors, nurses and pharmacists across the clinical specialities or departments, who manage at risk patients outlined in the [Who should receive take-home naloxone?](#) section below. Key stakeholders should be engaged in the planning, implementation, evaluation and review of the take-home naloxone program. The implementation of a take-home naloxone program must also consider the local context including, state or jurisdictional policies or legislation for the prescribing and supply of naloxone.

Who should receive take-home naloxone?

Providing naloxone and education about opioid safety is appropriate for anyone who is at risk of opioid toxicity (sometimes called an 'overdose'), or who may witness another person experiencing opioid toxicity. Consideration should also be given to the appropriateness of opioid therapy and/or assessment of potential risk of opioid toxicity.

Populations where take-home naloxone supply should be considered in the hospital setting include:

- people who present with an episode of severe opioid toxicity
e.g. someone being treated for opioid toxicity in an emergency department
- people who inject opioids
e.g. people who inject opioids may have a hospital admission for injection-related conditions, such as an abscess, or conditions unrelated to injecting opioids
- people prescribed opioid substitution therapy
e.g. people prescribed methadone or buprenorphine-naloxone or buprenorphine depot

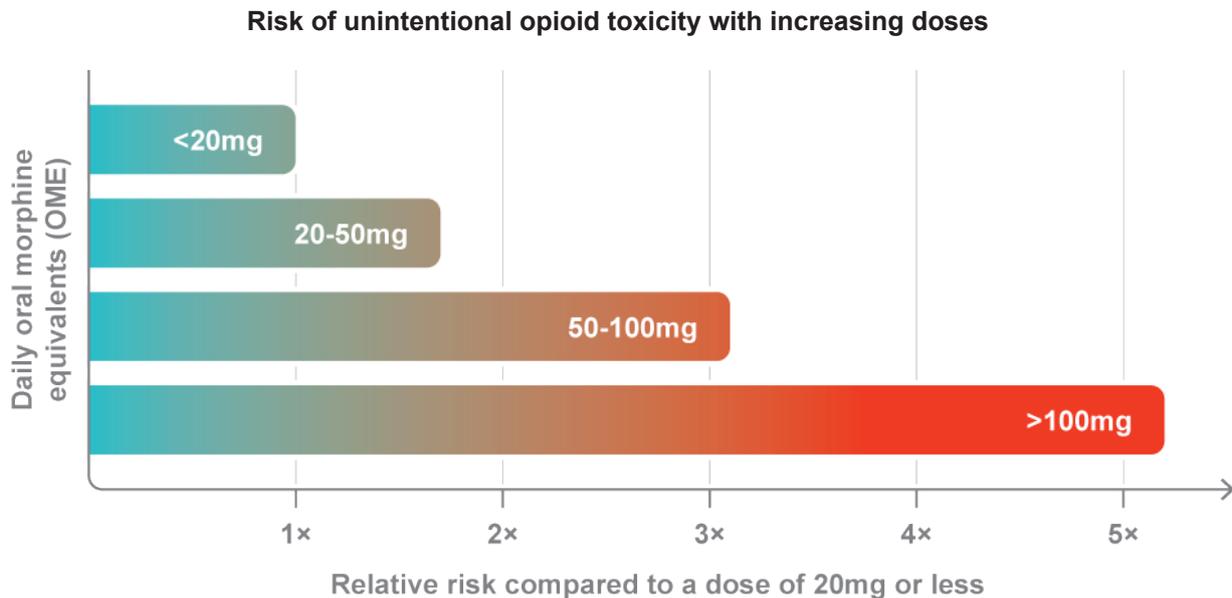
- people prescribed opioids for chronic pain, who have relevant opioid-related risk factors (see list below)
e.g. through outpatient pain clinics
- people who are opioid-naïve, with opioid-related risk factors (see list below) and are prescribed strong opioids for pain
e.g. post-surgical discharge supply of strong opioids for a patient with chronic obstructive pulmonary disease or sleep apnoea
- family, carers or peers of any of the above groups

Among those prescribed opioids for pain, the following factors are associated with increased risk of opioid-related mortality, suggesting take-home naloxone should be offered⁹:

- taking a high opioid dose (> 50 mg of oral morphine equivalents [OME] daily)
- taking concurrent sedatives (e.g. benzodiazepines)
- other concurrent substance use (including alcohol use)
- other comorbidities (e.g. respiratory conditions, liver or kidney disease, mental health conditions such as depression)

The risk of unintentional opioid toxicity (or ‘overdose’) is found to increase with increasing dose. A meta-analysis found that those taking daily doses of 20-50 mg of OME were 1.7 times more likely to experience an unintentional overdose compared to those taking <20 mg OME.¹⁰ This risk increases with each dose category, to 3.1 times for doses 50-100 mg OME and 5.2 times for doses greater than 100 mg OME (see figure 1). Although 50 mg OME is commonly considered a high-risk dose, this study found a considerable number of overdoses occurred in people taking less than 50 mg OME.

Figure 1



The risk factors above are common among people prescribed long-term opioids for chronic pain. Two unrelated Australian studies found that four out of five patients prescribed opioids for chronic pain had at least one of these risk factors^{1,1} (see figure 2). Given the high prevalence of opioid-related risk in this population, a more universal approach to take-home naloxone supply should be considered, with routine discussions about opioid-related risk and naloxone in settings with patients on long-term opioids (e.g. outpatient pain services). This will reduce the likelihood of stigmatising particular patient groups and is a more pragmatic approach, given the high prevalence of risk factors among people on long-term opioids.

Figure 2



Among people who inject opioids, one of the best predictors of opioid-related mortality is a previous non-fatal episode of opioid toxicity (often called an 'overdose').^{13,14} For this reason, anyone who injects opioids, and who is managed in a hospital setting for opioid toxicity, should receive take-home naloxone, and education on its use before being discharged. This is especially important, as often the hospital setting is one of the few places where those at risk may be in contact with a healthcare professional, so this represents a critical opportunity to supply take-home naloxone.

Supplying take-home naloxone

Safety profile of naloxone

Naloxone is a generally well-tolerated medication, and naloxone-related adverse effects are rare in non-opioid dependent individuals.

When administering naloxone to a person who is opioid tolerant or opioid dependent there is a small risk of inducing mild opioid withdrawal. This risk increases as the dose of naloxone increases, though it is rare with recommended dosing of 400 mcg intramuscular (IM) or 1.8 mg intranasal (IN). Signs of opioid withdrawal that may be precipitated by naloxone include anxiety, agitation, tachycardia and confusion.¹⁵ Opioid dependent individuals may, in very rare circumstances, experience more serious adverse events following naloxone administration, such as seizures, pulmonary oedema and ventricular arrhythmias if a large dose of naloxone is administered.¹⁵ These serious adverse reactions following naloxone administration are rare, and may be confounded by the effects of other co-intoxicants and/or the effects of prolonged hypoxia secondary to opioid-induced respiratory depression.¹⁶

While there are no reports of teratogenicity associated with naloxone use during pregnancy, naloxone should be administered with caution in pregnant opioid-dependent women, due to the potential to induce adverse events associated acute opioid withdrawal in the mother and foetus. At the extreme, opioid withdrawal during pregnancy could provoke seizures and potential death of the foetus, though this must be balanced with the likely effect of a severe anoxic event or maternal death on the foetus where medical care is not available (e.g. in a regional or rural setting where there may be a delay in ambulance attendance). This risk can be minimised by administering the smallest effective dose of naloxone, see Table C. Naloxone is safe to use when breastfeeding.¹⁵

There is little risk of harm if naloxone is administered to a person who is unresponsive for a reason other than opioid toxicity, as in the absence of opioids naloxone is reported to exhibit essentially no pharmacological activity.¹⁶

In all cases the potential risks associated administering naloxone must be weighed against the substantial risks of not treating suspected opioid toxicity in a timely manner.

Available formulations

Three different formulations of naloxone are available for the emergency management of suspected or known opioid toxicity in Australia. Table A provides an overview of each formulation all of which can be supplied with and without a medical prescription.

Selecting the formulation of choice should take into consideration patient preference and experience. Most people who do not have experience with administration of intramuscular (IM) injections may prefer the intranasal (IN) product. As the ampoules are not packaged in a 'fit-for-purpose' way for layperson administration (i.e. it does not contain a needle and syringe and does not have instructions for use on or in the packet), their use should be limited to when 'fit-for-purpose' products are unavailable.

Each of these formulations has a similar pharmacokinetic profile with a rapid onset of action and a short half-life (see figure 3). For this reason, a minimum of at least two doses should be supplied at any one time to allow for a repeat administration if required.

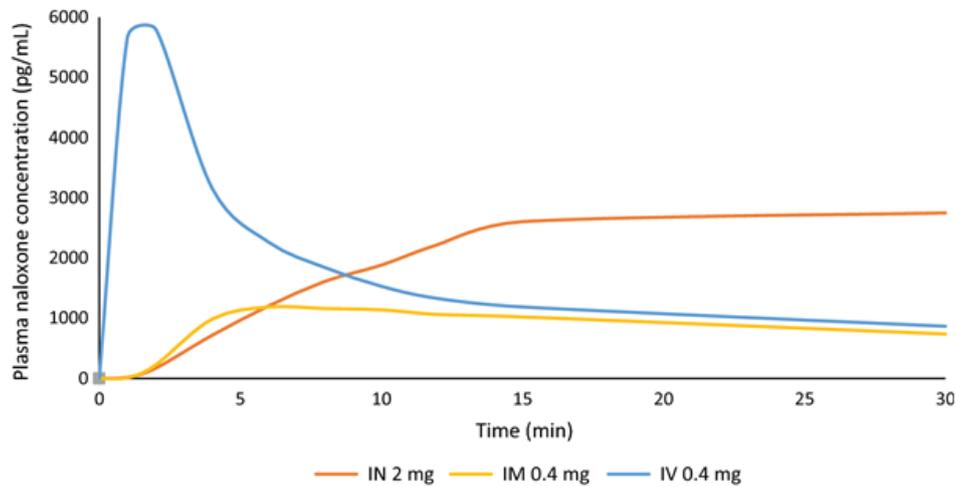
Table A

Naloxone formulation	Intranasal Spray ¹⁷	Pre-filled Syringe ¹⁸	Ampoules ¹⁹
Product details	Nyxoïd® 1.8 mg/0.1 mL per dose (2 single dose devices)	Prenoxad® 1 mg/mL, 2 mL glass syringe (1 multi-dose syringe and 2 needles)	400 mcg/mL, 1 mL (5 ampoules)
Dose	1 spray into a nostril, administer second dose from a new device into other nostril after 2 – 3 min if necessary	0.4 mL (400 mcg) IM, repeat 0.4 mL every 2 – 3 min if necessary	400 mcg (1 mL) IV / IM / SC, repeat 400 mcg every 2 – 3 min if necessary
Administration	<ul style="list-style-type: none"> Do not prime Single-use device 	<ul style="list-style-type: none"> Need to attach needle to pre-filled syringe 	<ul style="list-style-type: none"> Need to draw up into syringe for administration
Benefits and considerations	<ul style="list-style-type: none"> Easy and ready to use 1 spray per device Small enough to fit into a pocket Nil training required to use the nasal spray 	<ul style="list-style-type: none"> Pre-filled, single use syringe 5 doses per syringe Dose can be titrated Pack fits inside a small bag 	<ul style="list-style-type: none"> Can be given IV, IM, SC Require separate supply of needles and syringes User needs to be familiar with drawing up injections
PBS Listed	Yes	Yes	Yes

IN = intranasal, IM = intramuscular, SC = subcutaneous

Figure 3

PK profile in healthy volunteers: 0-30 minutes



Adapted from: [Take-Home Naloxone for the Emergency Interim Management of Opioid Overdose: The Public Health Application of an Emergency Medicine](#)²⁰

It is recommended that take-home naloxone be physically supplied in conjunction with appropriate counselling for the individual and where appropriate, their family member/s, carer/s or other relevant contacts.

Hospitals should establish processes to facilitate provision of take-home packs of naloxone from emergency departments for supply outside of usual pharmacy operating hours.

Providing education on take-home naloxone

Educating healthcare professionals

Many healthcare professionals may not be aware of the role of take-home naloxone, or may hold incorrect and stigmatising assumptions about naloxone.²¹ Some healthcare professionals may hold incorrect assumptions that providing take-home naloxone may increase substance use. Research demonstrates that where people who use opioids have received education regarding opioid-risk and provided take-home naloxone, no increase in substance use has been detected, and in a number of studies take-home naloxone provision has been followed by reduced substance use.^{22,23}

How to start the conversation with individuals prescribed opioids for pain

When raising the concept of take-home naloxone with patients and/or carers, it helps to normalise the role of naloxone as part of safer use of opioids. To avoid patients feeling singled out, suggested conversation starters include.²⁴

“We offer take-home naloxone to all patients prescribed strong opioids”

“Can I talk to you about naloxone? It is a medication you can keep in your home which can reverse the severe side effects of opioids”

People who use opioids for pain are unlikely to have knowledge of naloxone or symptoms of opioid toxicity²⁵, so when starting conversations do not assume pre-existing knowledge in these areas. Many people who use opioids for pain experience stigma around their use of opioids. When communicating about take-home naloxone, it may be helpful to

make clear that it is the opioid medicines that carry the risk rather than have the patient feel that they themselves are ‘high-risk’.

How to start the conversation with individuals who use or inject drugs

People who inject drugs may have already heard of ‘take-home naloxone’ programs²⁶, and may already have a high baseline knowledge around opioid overdose symptoms.²⁷ Asking about current knowledge and prior training on overdose prevention may help establish knowledge gaps and the need for training prior to supply, with recommendations that training should focus on use of naloxone and signs of opioid toxicity among people who inject drugs.²⁷

Appropriate language & avoiding stigma

The language used around the risks associated with opioid use and the use of naloxone can impact patients’ acceptability and healthcare professionals’ provision of take-home naloxone.²⁸ Language is context specific and can be understood differently among different population groups. For example, the term ‘overdose’ is often assumed to mean illicit drug use or intentional overuse, and is assumed to be irrelevant to people taking their medicines as prescribed.²⁴ A large proportion of opioid-related hospitalisations and deaths in Australia involve therapeutic use of prescription opioids.²⁹

Some healthcare professionals have been shown to hold stigmatised views on individuals that require take-home naloxone.³⁰ The language used around take-home naloxone should be carefully and intentionally considered.³¹ For a list of recommended non-stigmatising terms, please refer to table B.

Table B

Stigmatising Terms	Recommended Terms	Rationale
<ul style="list-style-type: none"> • abuse • dependence • drug habit 	<ul style="list-style-type: none"> • substance use disorder 	The 2013 Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) replaced earlier categories of substance “abuse” and “dependence” with a single classification of “substance use disorder” to remove stigmatising language.
<ul style="list-style-type: none"> • drug abuser • substance abuser • addict 	<ul style="list-style-type: none"> • person with a substance use disorder 	Person-first language has been widely adopted by professional associations and scientific journals to replace negative terms that have been used to label people.
<ul style="list-style-type: none"> • clean • dirty 	<ul style="list-style-type: none"> • in recovery • negative (for a toxicology screen) • not currently using substances 	These stigmatising terms imply that people who use drugs are dirty or socially unacceptable.
<ul style="list-style-type: none"> • overdose 	<ul style="list-style-type: none"> • severe reaction to opioids • severe side effects from opioids • too much opioid • opioid toxicity (when speaking to other healthcare professionals) 	The term overdose has been associated with illicit opioid use, substance use disorder and suicide, so information may be misunderstood or dismissed when talking to patients taking prescribed opioids.

For more information about the importance of language in opioid use disorder please refer to the following article [‘Confronting inadvertent stigma and pejorative language in addiction scholarship: a recognition and response.’](#)³²

Key counselling points for consumers

When providing take-home naloxone, the counselling points below should be discussed.

A. How naloxone works

- Naloxone saves lives by temporarily reversing the life-threatening side-effects of opioids allowing the person to breathe again until help arrives^{33,34}
- Opioids include^{35,36}
 - prescription medications used to treat pain (e.g. morphine, codeine, methadone, oxycodone, fentanyl, hydromorphone, and buprenorphine)
 - illicit drugs (e.g. heroin)
- Naloxone is safe to use even if uncertain that life-threatening opioid side-effects are being experienced.³⁷

B. When to administer naloxone

Naloxone should be administered to an individual exhibiting or suspected to be experiencing signs of severe life-threatening side-effects of opioids, known as opioid toxicity. The signs of opioid toxicity include^{38,39}:

- unresponsive
- snoring/gurgling noises
- irregular/shallow breathing
- no breathing at all
- blue lips – if pale skinned
- ashen look – if dark skinned
- limp body
- possible vomiting
- pinpoint pupils

C. What to do when witnessing opioid toxicity^{40,41}

Table C

STEP 1	Stay with them
Assess and call 000	Check for danger Try to rouse If no response call 000
STEP 2	Position to ensure open airway: tilt head back and clear the airway, if needed Give one dose of naloxone per product instructions (see below) If not breathing, apply rescue breathing if comfortable to do so If still not breathing, start CPR if trained and comfortable doing so Put person in the recovery position once they are breathing on their own
STEP 3	If still not responsive after 2-3 minutes give a second dose* of naloxone
Monitor and give 2nd dose of naloxone if required	Continue CPR and give repeat dose of naloxone (if available) until help arrives

**To avoid inducing acute withdrawal in the mother and foetus, the smallest effective dose of naloxone possible should be administered and an ambulance should always be called for pregnant women who are experiencing severe opioid toxicity regardless of the gestation.⁴²*

D. How to assemble and administer naloxone in an emergency

There are a range of consumer handouts that should be used as an aid to the counselling on the assembly and administration of the naloxone product being supplied. Some information is tailored for people who inject drugs and other information is useful when discussing opioid safety with people who are prescribed opioids for pain. Using relevant consumer information may help remove communication barriers. See product information suitable for each patient group in the [Resources](#) section below.

E. Aftercare

- Naloxone wears off in 30 to 90 minutes. When this happens, the person might experience the life-threatening opioid side effects again.
- If more naloxone is needed, use it*.
- Do not leave the person alone and discourage them from using any opioids for at least 2 hours.⁴¹

**In overdoses related to buprenorphine and fentanyl, carfentanil and other synthetic opioids, multiple doses of naloxone may be required to reverse opioid toxicity.*

F. Withdrawal

Withdrawal triggered by naloxone can feel unpleasant. Some people may become agitated or confused, if this occurs, provide reassurance and an explanation of the situation. Research suggests that a responder's supportive and non-judgmental approach following administration of naloxone, has been associated with reduced agitation and negative reactions.⁴³ Other signs of withdrawal include nausea, vomiting, diarrhoea and muscle aches.

G. Ongoing naloxone supply

Naloxone is available over the counter from a pharmacy without a prescription for a fee but may be cheaper with a prescription from a doctor.

In some jurisdictions naloxone may be supplied free of charge without a prescription.

H. H: Role of family and friends

As people who experience life-threatening opioid-related side-effects cannot self-administer naloxone, take-home naloxone is usually administered by friends, family, or bystanders.

Always keep the naloxone in a place where family, friends, and close contacts can easily access it in an emergency and advise them:

- that you have it, and where you keep it
- to call 000 or get emergency medical help straight away in all cases of known or suspected overdose, even if naloxone is administered
- how to recognise the signs and symptoms of an overdose
- how to administer naloxone in the event of an overdose
- to read the Patient Information leaflet or other educational material and Instructions for Use that come with naloxone before an opioid emergency happens, so everyone knows what to do.

Resources

Additional resources for health professionals and people who take opioids, their carers, friends and family, that may support education on preventing and responding to harm from opioids.

Consumer Medicines Information

Nasal spray (Nyxoid®):

<https://www.mundipharma.com.au/wlp-content/uploads/2018/12/nyxoid-cmi-2018-09-18.pdf>

Pre-filled syringe (Prenoxad®):

<https://www.phebra.com/wp-content/uploads/2017/01/Prenoxad-PIL-March-2018.pdf>

Ampoules:

<http://phebra.com/wp-content/uploads/2013/10/Narcan-CMI-V03.pdf>

Resources suitable for people prescribed opioids for pain:

Opioid safety hand-out:

https://www.monash.edu/_data/assets/pdf_file/0008/2315159/June2020-Naloxone-Patient-Leaflet.pdf

Animation for people prescribed opioids for pain:

<https://www.youtube.com/watch?v=6jkwccQ5xM>

Maximising Opioid Safety (Monash University):

<https://www.monash.edu/medicine/ehcs/marc/research/opioid-safety>

Naloxone Patient Leaflet (Monash University):

https://www.monash.edu/_data/assets/pdf_file/0008/2315159/June2020-Naloxone-Patient-Leaflet.pdf

Opioids Information video (NPS MedicineWise):

<https://www.nps.org.au/opioids-information-video>

Product information and resources suitable for people who inject opioids:

Nasal spray:

Penington Institute's COPE Opioid Overdose Response Plan (Nyxoid®)

<https://www.penington.org.au/wp-content/uploads/2019/04/COPE-overdoseresponse-nyxoid.pdf>

Pre-filled syringe:

Penington Institute's COPE Opioid Overdose Response Plan (Prenoxad®)

<https://www.penington.org.au/wp-content/uploads/2019/04/COPE-overdoseresponse-prenoxad.pdf>

Ampoules:

Penington Institute's COPE Opioid Overdose Response Plan (Ampoules)

<https://www.penington.org.au/wp-content/uploads/2019/04/COPE-overdoseresponse-ampoules.pdf>

Preventing overdose (Penington Institute's COPE program):

<https://www.penington.org.au/wp-content/uploads/2019/04/COPE-preventingoverdose.pdf>

LifeSavers Pennington Institute website:

<https://lifesavers.global/overdose/>

Additional resources for people who take opioids, their carers, friends and family, on the naloxone products:

<https://www.health.nsw.gov.au/aod/programs/Pages/naloxone-factsheet-nyxoid.aspx>

<https://www.health.nsw.gov.au/aod/programs/Factsheets/naloxone-factsheet-prenoxad.PDF>

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