


 Project supported by the PHA


Understanding Opioids

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  **Housekeeping**

- Breaks
- Microphones
- Internet connections
- Confidentiality
- Questions/comments





  **Course Objectives**

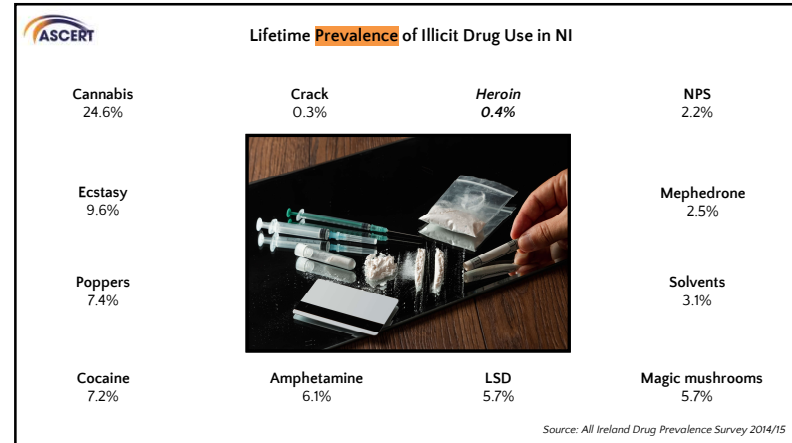
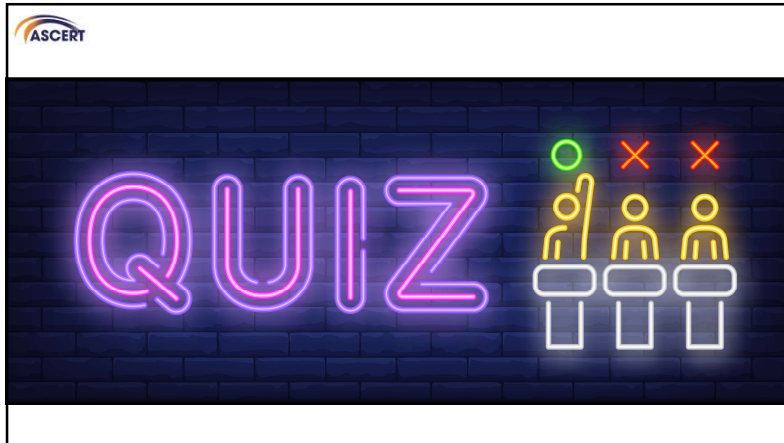
By the end of today, you will be able to:

- Understand the prevalence of opioid use in Northern Ireland
- Identify types of opioids used
- Explain the effects and risks of opioid use/misuse
- Describe harm reduction and treatment approaches for opioid use/misuse
- Identify local services available



  **Introduction**

What do you know about opioids, and what is the prevalence of opioid use in NI?




0.4%
Lifetime prevalence of heroin use

22.2%
Lifetime prevalence of use of other opiates

Pregabalin, diazepam, & tramadol
are the most commonly requested medications


Females and older respondents
were more likely to have used sedatives, anti-depressants, and other opiates



Source: All Ireland Drug Prevalence Survey 2014/15

Deaths by Drug Type

	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total (2013-2021)
All benzodiazepines*	47	45	63	67	61	97	102	100	111	692
All antidepressants	27	30	38	39	25	42	39	46	27	344
Tramadol* ³	20	22	28	33	31	27	33	26	22	242
Heroin/Morphine*	25	11	11	27	24	40	46	55	39	292
Codeine not from compound formulation*	22	20	13	17	16	13	33	25	16	177
Pregabalin	1	5	7	9	33	54	77	70	71	327
Dihydrocodeine not from compound formulation*	6	8	13	18	8	11	12	3	16	95
Cocaine*	1	8	8	3	13	28	37	36	33	167
All amphetamines*	1	9	7	8	6	15	11	12	7	78
MDMA/Ecstasy*	1	7	4	7	5	11	11	10	5	62
Methadone*	5	8	6	8	6	15	16	13	19	96
Paracetamol	8	3	2	1	2	10	6	5	6	43
New Psychoactive Substances	4	19	15	6	12	10	11	51	73	207



Source: NISRA (2022)

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Number of drugs										Total (2013-2021)
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
One	45	30	43	25	40	50	42	56	54	384
Two	27	28	39	36	26	40	31	45	36	314
Three	21	21	25	22	28	38	29	34	46	264
Four	8	8	19	22	15	23	35	28	30	188
Five or more	5	14	11	17	19	32	43	37	33	211
Unknown	9	9	7	5	8	6	11	18	14	87
	115	110	144	127	136	189	191	218	213	1448

Deaths by **Number** of Drugs Mentioned on the Death Certificate

Source: NISRA (2022)


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2 Types and Forms of Opioids

So what actually are opiates/opioids, and what are the different types?

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What Are **Opiates** and **Opioids**?

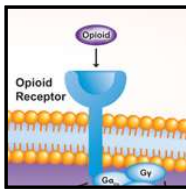


- Opiates
 - Natural (or slightly modified) drugs derived from opium (poppy plant)
 - Morphine, codeine
- Opioids
 - Originally used to refer to only synthetic opioids (drugs created to emulate opium while being different chemically)
 - Now used to refer to the entire family of opium-like drugs
 - Semi-synthetic = heroin, hydrocodone, oxycodone
 - Synthetic = methadone, tramadol, fentanyl


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What Are **Opiates** and **Opioids**?

- All opioids have similar properties to opium
 - Sap of the seed pod of *Papaver somniferum*
 - Actively cultivated since 3400 BC and has been used by various ancient cultures (e.g. Greeks, Romans)
 - Main function = produce sedation and pain relief
- Chemicals that bind to opioid receptors in the Central Nervous System and gastrointestinal tract to produce effects



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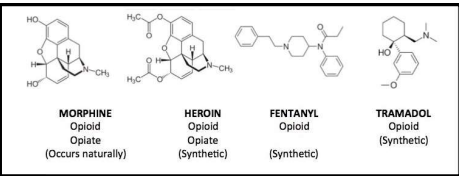
What are some commonly used/misused opioids?

In groups, do some research on a commonly used/misused opioids, then share your information with the larger group.

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Categories of Opioids

- 4 main categories
 - Endogenous
 - Naturally derived
 - Semi-synthetic
 - Synthetic



<chem>CN1CC[C@]23[C@@H]4OC5=C(C=C2)C(=C(C=C5)O)C1</chem>	<chem>CN1CC[C@]23[C@@H]4OC5=C(C=C2)C(=C(C=C5)OC(=O)C)C1</chem>	<chem>CN1CC[C@]23[C@@H]4OC5=C(C=C2)C(=C(C=C5)C1=CC=C(C=C1)C)C1</chem>	<chem>CN1CC[C@]23[C@@H]4OC5=C(C=C2)C(=C(C=C5)C1=CC=C(C=C1)O)C1</chem>
MORPHINE Opioid Opiate (Occurs naturally)	HEROIN Opioid Opiate (Synthetic)	FENTANYL Opioid (Synthetic)	TRAMADOL Opioid (Synthetic)

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Endogenous Opioids

- Chemicals naturally produced by the body in response to things like exercise, pain, and eating
- Examples of substances
 - Enkephalins
 - Dynorphins
 - Endorphins
 - Endomorphins



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Naturally Derived Opioids (Opiates)



- Alkaloids (nitrogen-containing base chemical compounds) found in the opium poppy
- Examples of substances
 - Opium
 - Morphine
 - Codeine

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Semi-Synthetic Opioids

- Synthesized from natural opioids
- Examples of substances
 - Hydrocodone (Vicodin)
 - Oxycodone (Percocet, OxyContin)
 - Desomorphine (Krokodil)
 - Dihydrocodeine ("diffs")
 - Buprenorphine (Temgesic)
 - Diamorphine (heroin)



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Synthetic Opioids

- Lab-synthesized compounds commonly used to relieve pain, treat drug dependence, and as an anaesthetic
- Examples of substances
 - Pethidine
 - Tramadol
 - Methadone
 - Fentanyl



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New Synthetic Opioids

- Include analogues of fentanyl ("fentalogues"), and non-fentanyl based drugs called "nitazenes" (or benzimidazole opioids)
- NSOs are less common in the UK, but have the potential to gain popularity
 - Can be purchased intentionally, but are often found as a contaminant/additive in "established" drugs like heroin, or in counterfeit drugs

Heroin contaminated with methoxyacetylfentanyl - WEDINOS sample from Bradford, England




Metonitazene (possibly sold as benzodiazepines) - Belfast, June 2023



W037988


Date Received: 08 Aug 2023
 Postcode: BN1 -
 Purchase Intent: Diazepam
 Package Label: Accord Diazepam Tablets
 Sample Colour: Blue
 Sample Form: Tablet
 Consumption Method: Not Stated
 Self-Reported Effects: Not Stated
 Sample Upon Analysis (Major): Metonitazene
 Sample Upon Analysis (Minor):



[Click to Enlarge](#)

W037411

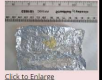
Date Received: 20 Jul 2023
 Postcode: CR0 -
 Purchase Intent: Flubromazolam
 Package Label: Flubromazolam
 Sample Colour: Yellow
 Sample Form: Powder
 Consumption Method: Not Stated
 Self-Reported Effects: Not Stated
 Sample Upon Analysis (Major): Metonitazene
 Sample Upon Analysis (Minor):



[Click to Enlarge](#)

W031837


Date Received: 15 Mar 2023
 Postcode: M14 -
 Purchase Intent: Xanax
 Package Label: Not Stated
 Sample Colour: Yellow
 Sample Form: Powder
 Consumption Method: Not Stated
 Self-Reported Effects: Not Stated
 Sample Upon Analysis (Major): Protositazene
 Sample Upon Analysis (Minor):



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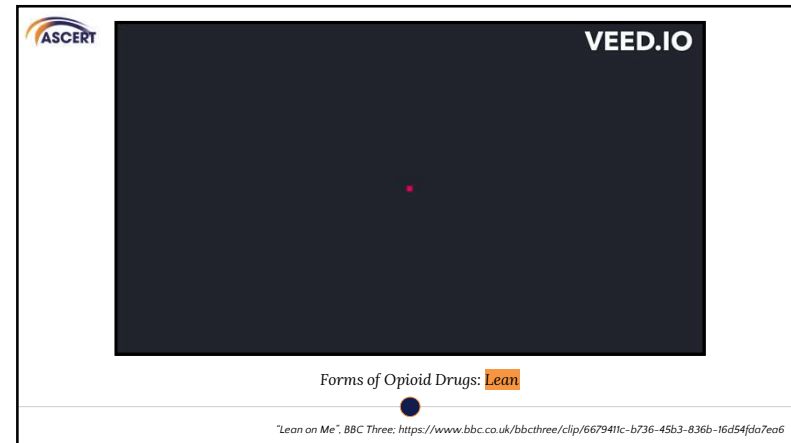
W030924

Date Received: 08 Feb 2023
 Postcode: WA8 -
 Purchase Intent: Alprazolam
 Package Label: Alprazolam
 Sample Colour: Brown
 Sample Form: Powder
 Consumption Method: Not Stated
 Self-Reported Effects: Not Stated
 Sample Upon Analysis (Major): Protositazene
 Sample Upon Analysis (Minor):



[Click to Enlarge](#)

36% (12/33) of samples testing as nitazenes sent to WEDINOS between Jan - Aug 2023 were sold as benzodiazepines!



3

Effects and Risks of Opioid Use/Misuse

What are the effects of opioids and risks associated with their use?


Effects of Opioids: Overview

- Intended purpose (for medications) is pain relief
 - Perception of pain is reduced → person feels that the pain is less intense
 - Reaction to pain is reduced
 - Pain tolerance is increased

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Effects of Opioids: Short-Term (Therapeutic Dosage)

- Decreased pain, respiratory and heart rate, hunger, and anxiety
- Increased blood flow to skin
 - Combined with above effects = user may feel warm, contented, and even euphoric
- Some first time users may vomit but this stops with repeated use
- Lower/therapeutic doses usually don't interfere with coordination/mental alertness



u/MichaelAinHere on reddit.com

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[Heroin] is like a wave of relaxation coming over my soul, slowly spreading from head to toe. Well actually at first, it kinda scared me when it first entered my brain. I got really lightheaded, like a very extreme intense head rush. I felt like I might die, but in a good way. It was a very dreamy trip. I felt like I was a god, I felt absoolutely eternal. I fell into the nod. Fantastic. Marvelous. [...] It slowly wore off until I finally became overtaken by the gentle waves of sleep.

“

Buddhit. "Not The Next Dope Sick Junkie: An Experience with Heroin (exp4257)". Erowid.org. Aug 20, 2007. erowid.org/exp/4257

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Sedation, "nodding off", microsleping

Pain relief (physical and mental)

Nausea and vomiting

Itching

Sweating



Constipation

Sexual dysfunction

Double/blurred vision

Bodily "heaviness"

Physical and cognitive euphoria and relaxation

Effects of Short-Term Opioid High/Recreational Dosages

Image source: u/JoeyP666 on reddit.com

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Next day, 80mg [of oxycodone]. I realized I had started to build a tolerance. I could function perfectly fine on 80mg, whereas just weeks before I struggled to stay awake on that much. I started taking them embarrassingly. I would wake up in the middle of the night and rail a 40[mg] just to go back to bed. Why not? [...]


Then I realized something. I was waking up at almost the exact same time each night to rail those 40s. A couple times a night actually. At one point I was rollin' on nearly 200mg just to sleep, and rollin' on at least 120mg all day long. It was getting bad.

“

anonymous. "Not Something to Play Around With: An Experience with Oxycodone (exp66654)". Erowid.org. Aug 26, 2009. erowid.org/exp/66654

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Effects and Risks of Opioids:
Long-Term




- Constipation
- Nausea
- Issues with concentration and memory
- Addiction and dependence
- Opioid-induced hyperalgesia

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Effects and Risks of Opioids:
Pregnancy


- Regular use can affect periods → return after stopping use, increasing risk of unintended pregnancy
- Risk of adverse pregnancy and birth events
 - Poor foetal growth and preterm birth
 - Stillbirth
 - Birth defects (e.g. heart defects, spina bifida)
- Quitting/tapering/medication-assisted treatment should be done under GP supervision



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Effects and Risks of Opioids:
Pregnancy

- Neonatal Abstinence Syndrome
 - Babies withdrawing from opioids due to mother using in pregnancy – symptoms usually begin within 72 hours
 - Symptoms can include
 - Trembling
 - Irritability
 - Sleep problems
 - Seizures
 - Vomiting and loose stools → dehydration
 - Treatment can involve giving oral morphine



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Effects and Risks of Opioids:
Mental Health

Sources: Scherrer et al., 2014; Schaffer et al., 2007

- Those misusing opioids often face the additional burden of mental health difficulty
 - Can make recovery from dependence/addiction more difficult if untreated
- The relationship between opioids and depression is bidirectional
 - Depression increases likelihood of opioid prescription but also makes them less effective
 - Pain decreases responsiveness to depression treatment
- Opioid misuse has been linked to depression, anxiety, and hypomania/mania (in people with bipolar disorder)

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Effects and Risks of Opioids:
Mental Health


- 49,770 US VA system patients not recently (prior 24 months) diagnosed with depression
- Higher risk of depression with higher doses/longer duration
 - Proportion of depressed patients 1 – 98 day use: 9.3%
 - 90 – 180 days: 13.1%
 - 180+ days: 15%
- Possible mechanisms include interference with brain's pleasure/reward systems; hormones

Source: Scherrer, Jeffrey F et al. "Prescription opioid analgesics increase the risk of depression." Journal of general internal medicine vol. 29.3 (2014): 491-9. doi:10.1007/s11606-013-2648-1

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Effects and Risks of Opioids:
Mental Health

- Dependence and addiction can lead to feelings of despair, guilt, and hopelessness
- Estimated 48% of those dependent on heroin will experience depression
- Heroin users are also at increased risk of self-harm and suicide
 - 14x more likely to die by suicide compared to their peers



Sources: McIntosh & Ritson, B. (2001); Darke & Ross (2002)


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Effects and Risks of Opioid Use: Tolerance and Withdrawal

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Effects and Risks of Opioids:
Overdose



- Non-fatal overdoses are several times more common than fatal opioid overdoses
- Opioid overdoses can be identified by a combination of three signs and symptoms ("opioid overdose triad")
 - Pinpoint pupils
 - Unconsciousness
 - Respiratory depression


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Changes in skin colour (lighter skin → blue/purple, darker skin → grey, ashen)

Choking or gurgling noises

Limppness

Vomiting



Irregular heartbeat

Clammy skin

Can't be awakened


Unable to talk/"lock jaw"

Other Signs of Opioid Overdose

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Risk Factors for Overdose

- Mixing drugs
- Quality of the drug(s)
- Tolerance
- Environment
- Age and physical health
- Mode of administration
- History of overdose



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4

Harm Reduction and Treatment for Opioid Misuse

What are common pieces of harm reduction advice given for opioid misuse, and what does treatment look like?

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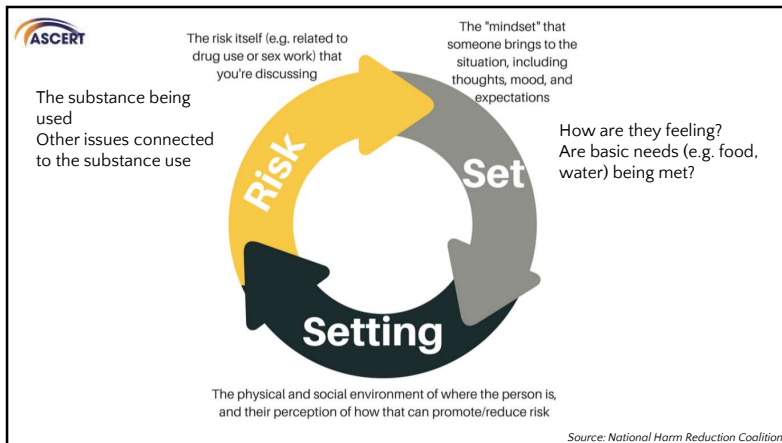
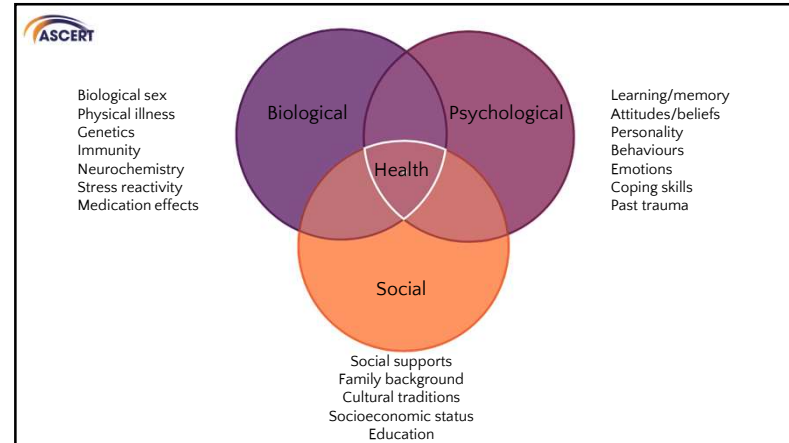
Harm reduction can be defined as a range of strategies and interventions designed to reduce the harm caused by drug use.

“

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Harm Reduction: Engel & Romano's Biopsychosocial Model

- All drug use carries an element of risk
- In order to reduce harm, we need to know what the potential risks are
- Substance use rarely impacts on just one area of an individual's life
- One way to think about this relationship: Biopsychosocial Model
 - All domains are interconnected, interdependent, and determine health-related outcomes



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Reducing Harm

In groups, look at the case scenario given to you and try to think of as many ways you can reduce harm as you can. Remember to consider **ALL** risks in the Biopsychosocial Model!

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Opioids Harm Reduction - General

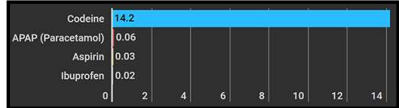
- Avoid mixing, especially with other depressants
- Tolerance and overdose
 - Tolerance decreases after breaks → increased risk of overdose
- Routes of administration and transitions
 - Oral is best
 - If switching to smoking/injection, refer to specialist services



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Opioids Harm Reduction - General

- Cold water extraction with codeine containing products (dependent users)
 - Meant to remove paracetamol or ibuprofen from compounds
- Avoiding constipation
- Tramadol overdose and withdrawal risks
 - Seizures
 - Serotonin syndrome



Codeine	14.2
APAP (Paracetamol)	0.06
Aspirin	0.03
Ibuprofen	0.02

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[After taking methylphenidate and tramadol]

I remember standing up to change the channel of the TV, and the next thing I knew, I had doctors and nurses standing all around me. I thought, "What the f*ck is going on?!"

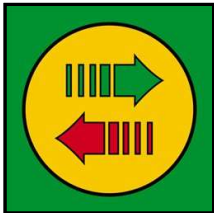
It turns out that after standing up to fiddle with the TV, I suddenly fell over and went into a grand mal seizure from what I'm told. Since then, my left hand's dexterity and maneuverability has been severely impaired. [...] I am told since the seizure lasted about 6 minutes, oxygen flow was impaired in the part of my brain that controls my left hand and arm for too long - brain damage.

“


https://www.eroid.org/exp/43391

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Opioids Harm Reduction - Needle and Syringe Exchange Services




- Confidential services providing new, sterile injecting equipment
 - Needles, citric acid, sterile water and swabs, and sharps containers ("cinbins")
- Clients give back used needles in their cinbins for proper disposal
- Advice services
 - Bloodborne illness
 - Related health behaviours (e.g. safe sex)
 - Safer injecting



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Opioid Harm Reduction: Safer **injecting**

Danny Morris & Jan Derricott: <https://youtu.be/gc-2A4F0k8k7si-AxhRDE92EB3RYj>

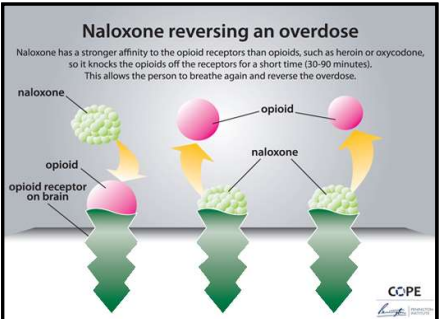


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RECOGNIZING AN OVERDOSE

Responding to an **Opioid** Overdose

Boston City TV/AHOPE: <https://www.youtube.com/watch?v=SuS7HwER-g>



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Naloxone reversing an overdose

Naloxone has a stronger affinity to the opioid receptors than opioids, such as heroin or oxycodone, so it knocks the opioids off the receptors for a short time (30-90 minutes). This allows the person to breathe again and reverse the overdose.

opioid receptor on brain

opioid


naloxone

opioid

naloxone

CC-PE


Opioid Overdose: **Naloxone**



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Treatment

- Needs to be tailored to the individual and medically directed
 - Tapering the drug dosage to manage withdrawal
 - Substitution of more appropriate/less addictive medication (e.g. OST)
 - Evidence-based talking therapies (e.g. CBT)
 - Support to improve self-management of symptoms (e.g. Pain Toolkit)



5 Signposting
Who's available to help?



NIDACTS

Northern Ireland Drug and Alcohol Coordination Teams


drugsandalcoholni.info




Family Support NI

familysupportni.gov.uk

A directory of various support services (e.g. mental health, finances) and registered childcare services in NI

Thanks!

Any questions?

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