



St. Vincent's Hospital, Melbourne  
Australia



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HEALTH AUSTRALIA

# Overview of Opioid Use Disorder

Victorian Opioid Management ECHO  
Department of Addiction Medicine  
St Vincent's Hospital Melbourne 2021



# Interesting tidbits

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**Heroin was invented by the Bayer company in 1898 and marketed as a “non-addictive analgesic” suitable for children and a cure for morphinism.**

**NYC street linguists called methadone “Adolphine” in the 70s to discredit it.**

**OAT agents have several reasons for their use in OUD:**

- **Long duration of action**
- **Cross-tolerance with other opioids**
- **Effective oral (now sub-cutaneous) administration**
- **Good research standing**
- **Economic and forensic benefits.**



# Some statistics

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**Estimated cost of opioid use (2015-16) was \$15.76 billion**

**Opioid use contributes to nearly 1% of all burden of disease in Australia (2015).**

**Heroin use in 2019 NDSHS - <0.1% of population**

**Pharmaceutical opioids – 2.7% of population (3.6% in 2016)**

**Lifetime opioid use has decreased in recent years from 9.7% to 8.3%**

**Codeine use dropped from 3% to 1.5% between 2016-19 – likely related to codeine scheduling in 2018**

**Frequency of use dropped as well from 29-19.5% using weekly or more**

**Estimated number of people misusing pharmaceuticals (any) in last 12 months is 4.2% (900,000).**



# Prescriptions

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**2016-17 – 15.4 million opioid prescriptions dispensed to 3.1 million people.**

**OME estimated at nearly 1000mg per day per 1000 population.**

**Higher OME for inner and outer regional areas.**

- **Prescriptions: 74k per 100k population in inner regional**
- **OME – 1362 per 1000population per day.**

**1 in 10 Australians have ever had at least one opioid for illicit purposes.**

**NOPSAD 2019 – approx. 50k people on OAT**

# Pharmacology

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**Opioids act on the  $\mu$ ,  $\kappa$  and  $\delta$  opioid receptors in the central nervous system**

**Resulting action results in pain relief**

**Additionally – drowsiness, confusion, nausea, euphoria, depressed respiration, constipation**

**Use of opioids can also release of dopamine – inducing a pleasurable sensation.**

**Not all opioid use leads to dependence – depends on individual and environmental factors around use.**

**- Estimated 2-5% risk of ongoing opioid use at 1 year post first prescription**

# Pharmacology

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**Activation of the  $\mu$ -OR leads to stimulation of the mesolimbic reward system.**

- **Tracks through the ventral tegmental area (VTA) and releases dopamine into the nucleus accumbens.**
- **This then causes feelings of pleasure.**
- **This sensation is recorded in the brain and is associated with the environmental setting and emotional setting surrounding the use of the opioids.**
- **These conditioned responses can lead to cravings when presented with a trigger cue.**

# Pharmacology

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## **Tolerance:**

**Repeated exposure to opioids on a regular basis leads to adaptation in the brain.**

**Down regulation of VTA response to opioid stimulation – downregulated dopamine release**

**Less effect is perceived leading to increased dosage required to achieve the same effect.**

# Pharmacology

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## Dependence:

The locus ceruleus (LC) is also affected by opioids.

- Usually, the LC causes release of noradrenaline
  - Stimulates wakefulness, respiration, blood pressure
- When affected by opioids
  - Suppresses release of NA
  - Drowsiness, respiratory depression, hypotension

Repeated exposure leads to upregulation of NA release.

When opioids are removed – the relative overbalance of NA leads to withdrawal symptoms

# Manifestations

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**Patients can present with various complaints/issues.**

- **Isolation from family and friends**
- **Weight loss**
- **Inability to wean opioids prescribed for a purpose**
- **Changes in sleep habits**
- **Financial difficulties**
- **Job loss**
- **Cravings**
- **Crime**
- **Frequent flu-like illnesses**

# Health Consequences

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## At time of use:

- **Hypoxia**
  - Risk of coma and death
- **Overdose**
  - CNS depression and coma
- **Injury**

## Short term:

- **Infection**
- **DVT/PE**

## Chronic use:

- **Chronic infection (HCV/HIV)**
- **ABI**
- **Osteoporosis**
- **Violence**
- **Social harms**



# Red Flags

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**Requests for early refills**

**Running out early**

**OMEDD >100**

**Opioids and Benzodiazepines together**

**Older or younger population groups**

**Concomitant mental health concerns**

**Non-adherence to non-opioid treatment regimens**

**Inability to reduce dose**



# Interesting numbers

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**Just a few interesting numbers to know.**

**Number of opioid prescriptions in Australia (2016): 15.4 million**

- Prescribed for approximately 3 million people
- Oxycodone makes up 1/3
- Codeine, tramadol and buprenorphine follow

**Number of hydrocodone *pills* dispensed in USA 2016: 6.2 billion**

**Opioids contribute to the cause of death in approximately 60% of cases of drug related deaths.**