



St. Vincent's Hospital, Melbourne
Australia



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HEALTH AUSTRALIA

Overview of Opioid Use Disorder

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Interesting tidbits

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

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

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

Opioids act on the μ , κ and δ 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



Activation of the μ -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



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

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

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

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

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

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.