Drug & Alcohol Update

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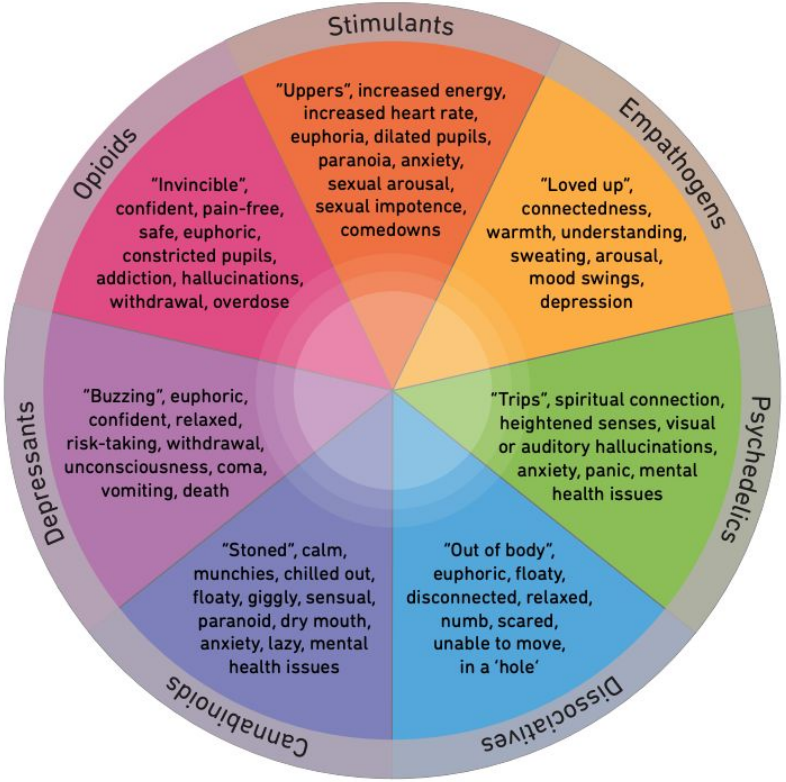
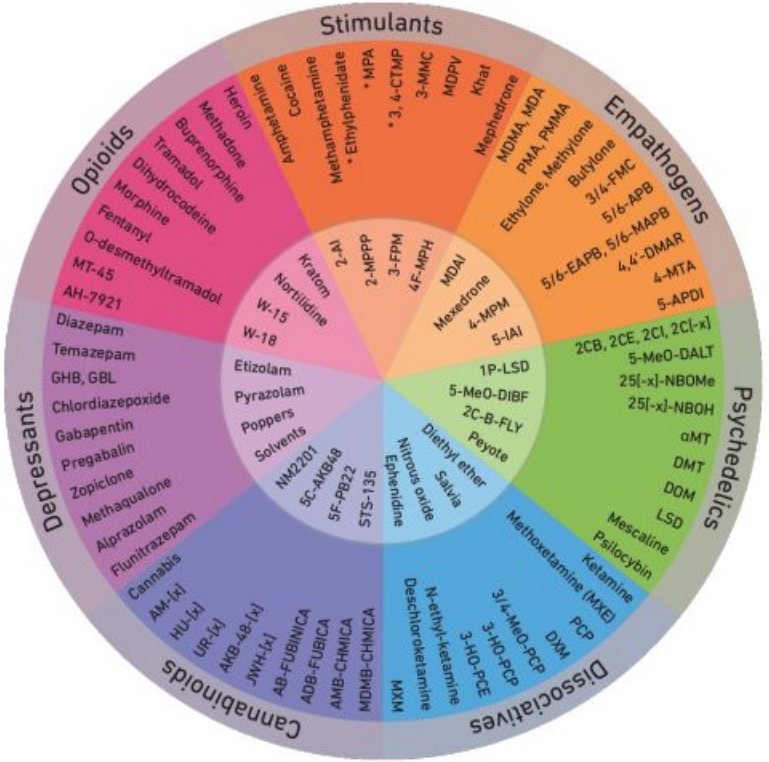
1 update
prevalence & trends

Overview





The Drugs Wheel

a new model for substance awareness

www.thedrugswheel.com

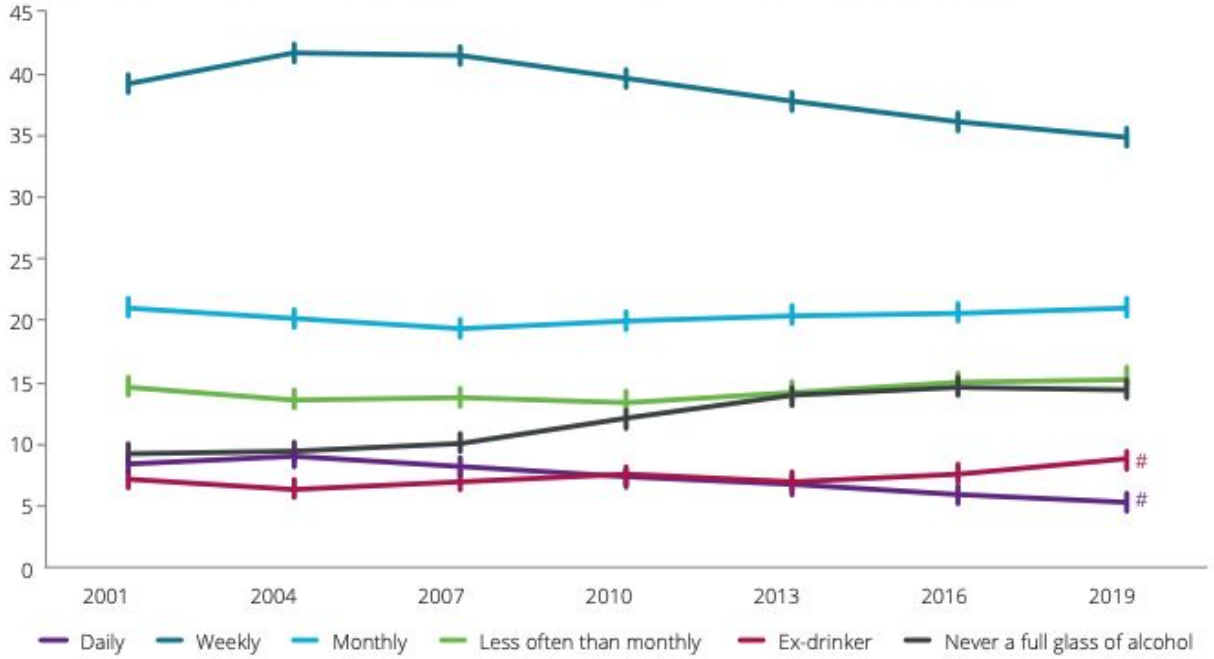
https://adf.org.au/drug-facts/#wheel

Australians & Alcohol

More Australians are giving up alcohol; between 2016 and 2019, the proportion of people who were ex-drinkers increased from 7.6% to 8.9%.

1 in 10 recent drinkers (9.9%) are likely to meet the criteria for alcohol dependence.

Figure 3.1: Drinking frequency among people aged 14 and older, 2001–2019 (per cent)



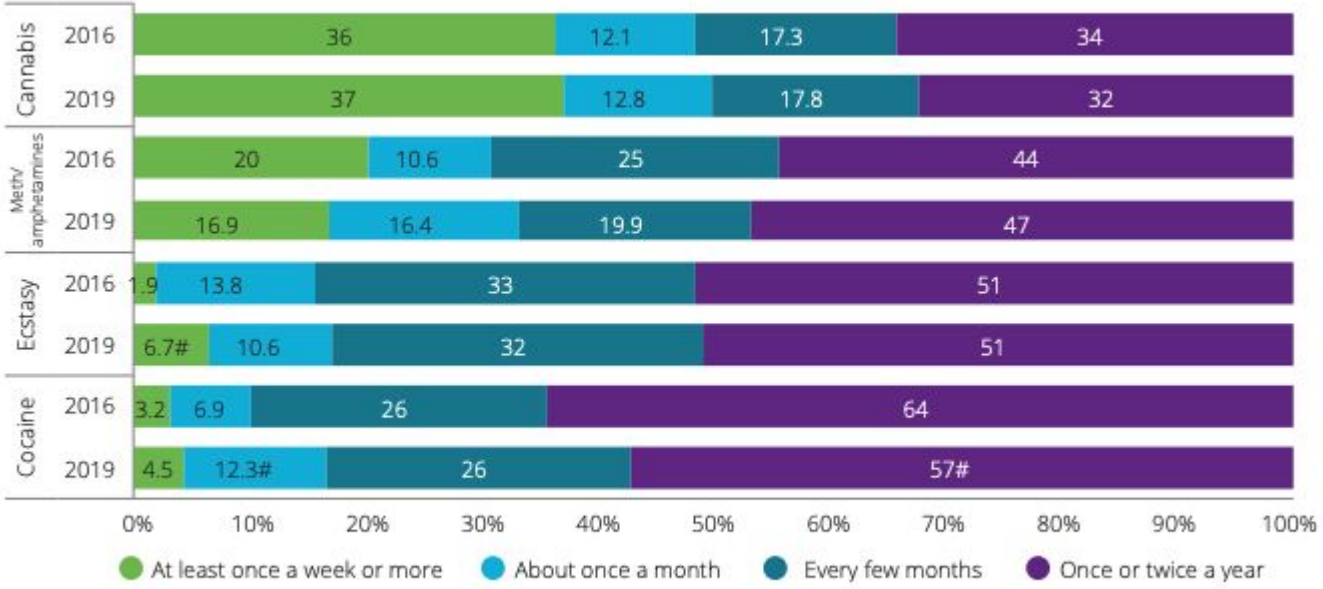
Statistically significant change between 2016 and 2019.

Source: Table 3.2.

People in 40s and 50s most likely to exceed lifetime risky drinking guideline

What are Australians using?

Figure 4.3: Frequency of illicit drug use, by specific illicit drug, people aged 14 and over, 2016 and 2019 (per cent)

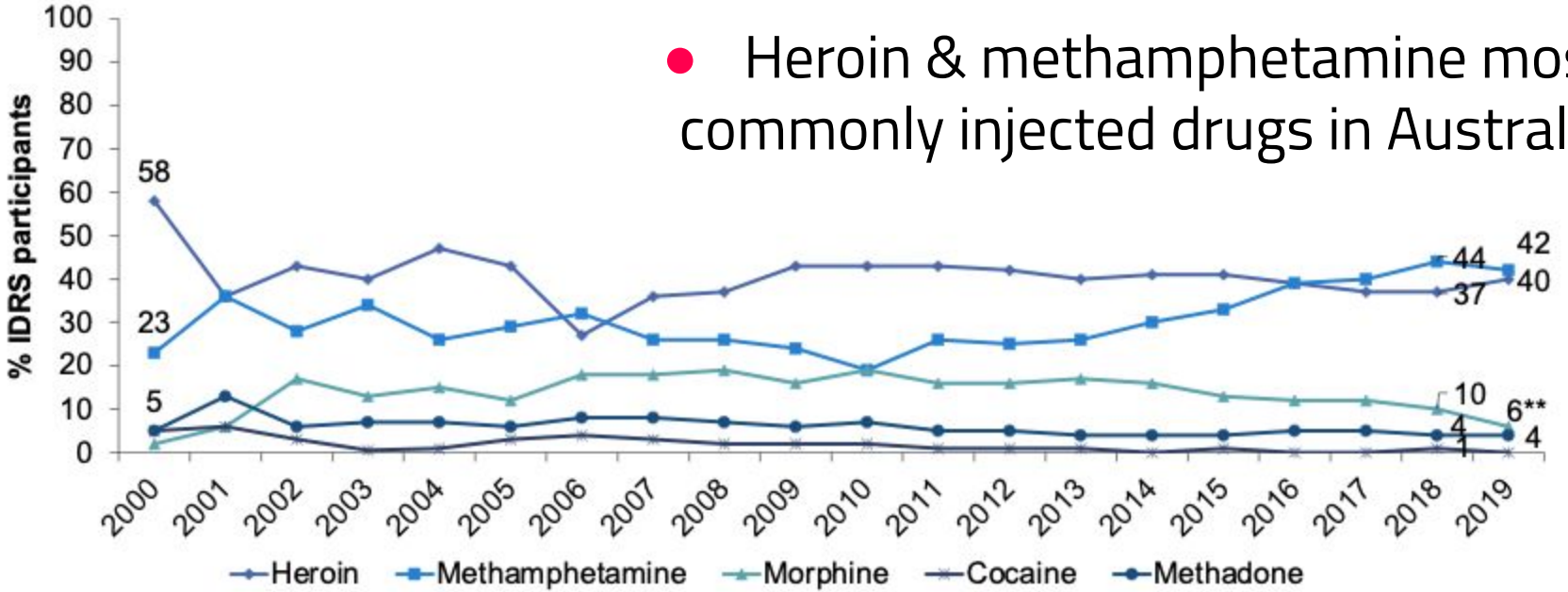


Statistically significant change between 2016 and 2019.

Note: The 2016 estimate for at least weekly ecstasy use and at least once a week or more cocaine use has a relative standard error between 25% and 50%.

Source: Table 4.20.

Figure 2: Drug injected most often in the past month, nationally, 2000-2019



- Heroin & methamphetamine most commonly injected drugs in Australia

Note. Substances listed in this figure are the primary endorsed; nominal percentages have endorsed other substances.
*p<0.050; **p<0.010; ***p<0.001 for 2018 versus 2019

DRUG TRENDS

Injecting Drug Use Complications

Drug and Alcohol Dependence 216 (2020) 108267

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

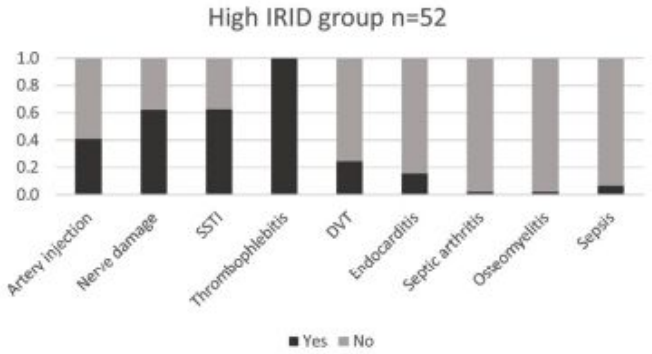
journal homepage: www.elsevier.com/locate/drugalcdep

Profile and correlates of injecting-related injuries and diseases among people who inject drugs in Australia

Samantha Colledge[a,*], Sarah Larney[b], Raimondo Bruno[c], Daisy Gibbs[a], Louisa Degenhardt[a], Wing See Yuen[a], Paul Dietze[d], Amy Peacock[a]

Table 1
Socio-demographic characteristics, injecting-related injuries and diseases (IRID) and risk behaviours of people who inject drugs (PWID) (N = 897).

IRID n (%)	Total N = 897
Skin and soft tissue infection	105 (12.0)
Thrombophlebitis	65 (7.0)
Artery injection	127 (14.0)
Nerve damage	172 (19.0)
Deep-vein thrombosis	20 (2.0)
Endocarditis	24 (3.0)
Sepsis/septicaemia	8 (1.0)
Osteomyelitis	6 (1.0)
Septic arthritis	4 (< 0.01)
Number of IRID…	
0	588 (66.0)
1	166 (19.0)
2	89 (10.0)
3	35 (4.0)
4+	19 (2.0)



LGB communities

How does this compare to heterosexual communities?

Since 2010, the proportions of LGB people who engage in substance use has been consistently higher than their heterosexual counterparts. Compared to heterosexual people, in 2019, LGB people were:

- 1.5 times as likely to smoke daily
- 1.5 times as likely to exceed the lifetime risk guideline to reduce the harm from drinking alcohol
- 9.0 times as likely to have used inhalants in the previous 12 months
- 3.9 times as likely to have used meth/amphetamines in the previous 12 months
- 2.6 times as likely to have used ecstasy in the previous 12 months.

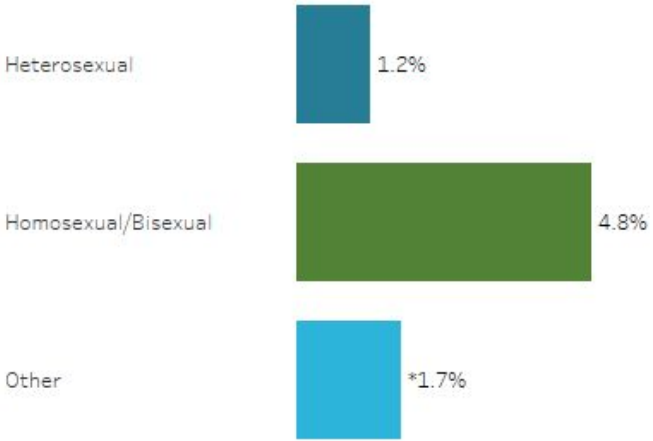
ACON; AIHW National Drug Strategy Household Survey 2019

National Drug Strategy Household Survey 2019

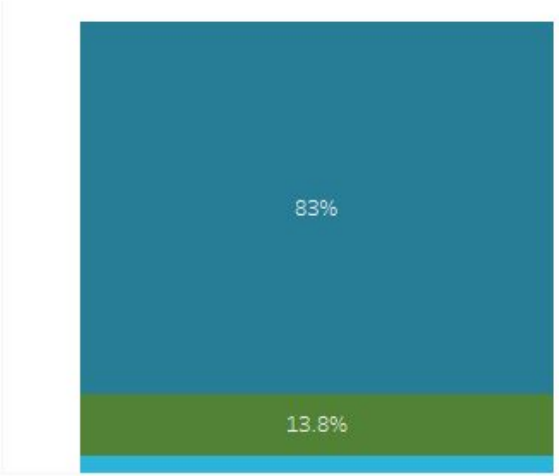
Characteristic	Drug/Behaviour	Unit
Sexual orientation	12. Illicit drug use - Meth/amphetamines	Crude per cent

How to interpret these results:
4.8% of people who are homosexual or bisexual had used meth/amphetamines (for non-medical purposes) in the previous 12 months. However, of all the people who had used meth/amphetamines (for non-medical purposes) in the previous 12 months, 13.8% of them were people who are homosexual or bisexual.

Proportion who used meth/amphetamines recently
by sexual orientation (2019)

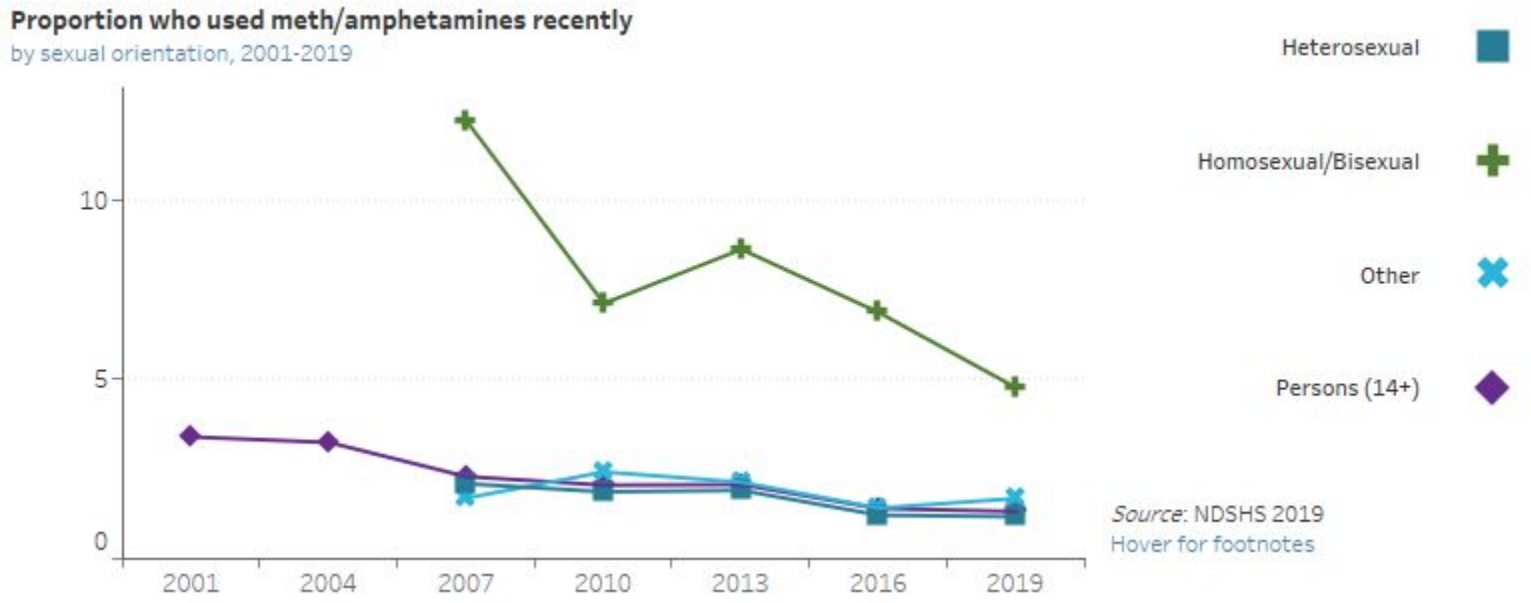


Breakdown of sexual orientation
people who used meth/amphetamines recently (2019)



Only show trends where 2019 is significantly different to:
No comparison

Methamphetamine Use



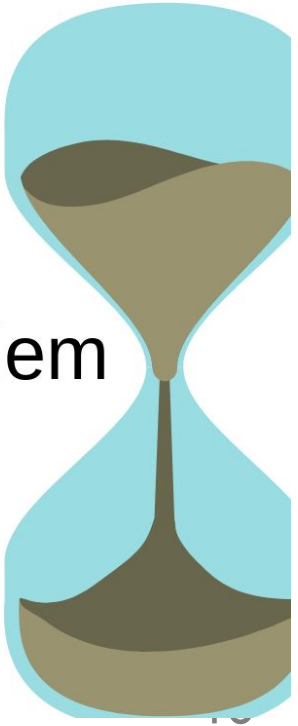
overview assessment & management

stigma

Single biggest barrier to engagement in treatment

Forging trust and rapport is *critical* to the next step in treatment journey

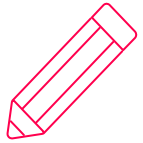
less than a **quarter** of people with substance use problems seek help



... with a median of **18 years** between problem onset and help-seeking

Teesson M 2010 Addiction
Chapman C et al 2015 Drug and Alcohol Dependence
Wang et al 2007 World Psychiatry

History, Examination, Investigations



- Frequency *(how often)*
- Amount *(less reliable than frequency as marker of dependence)*
- Duration *(years versus months versus days)*
- Route *(injecting, smoking, oral etc. to understand risks)*
- Co-use *(important for risks, withdrawal)*
- Physical & mental health risks & comorbidities
  - Including overdose and severity
- Physical & mental health risks & comorbidities
- Stage of change & goal (reduction versus abstinence)

Most importantly - **attitude, rapport, collaboration**

- Ex, Ix: BBV and STI screen

Aim Intervention Appropriately

Use without Use Disorder	Use Disorder (mild-moderate)	Use Disorder (severe)
• Harm reduction Incl. injecting use And overdose risk	• Reduce or cease? • Withdrawal & Post-Withdrawal Support • Medications- craving, relapse • Counselling • Peer Support	• Mental Health & Physical Health Comorbidities • Withdrawal & Post-Withdrawal Support • Medications- craving, relapse • Peer Support • ?Rehab

Longer term treatment
Staying stopped

Counselling, Peer Support, Rehab

- Mainstay of treatment---> AOD sector referral
- CBT, Relapse Prevention
- Consider therapist fit, rapport
  - LGBTIQ services e.g. Q Life, Switchboard, Twenty10 (12-25yo)
- Peer support important role esp. minority cultures
- Rehab
  - Multiple attempts at detox & counselling
  - Environmental factors perpetuating presentation

Consider interactions with ARVs

www.hiv-druginteractions.org

University of Liverpool

Antiretrovirals and Recreational Drugs

Charts revised October 2019. Full information available at www.hiv-druginteractions.org

	ATV/c	ATV/r	DRV/c	DRV/r	LPV/r	DOR	EFV	ETV	NVP	RPV	MVC	BIC/ F/TAF	DTG	EVG/c/ F/TAF	EVG/c/ F/TDF	RAL	ABC	FTC or 3TC	F/TAF	TBF	ZDV
Stimulants																					
Cocaine	↑[a♥]	↑[a♥]	↑[a]	↑[a]	↑[a♥]	↔	↑[b]	↑[b]	↑[b]	↔♥	↔	↔	↔	↑[a]	↑[a]	↔	↔	↔	↔	↔	↔
Ecstasy (MDMA)	↑[c]	↑[c]	↑[c]	↑[c]	↑[c]	↔	↔	↔	↔	↔	↔	↔	↔	↑[c]	↑[c]	↔	↔	↔	↔	↔	↔
Mephedrone	↑[d]	↑[d]	↑[d]	↑[d]	↑[d]	↔	↔	↔	↔	↔	↔	↔	↔	↑[d]	↑[d]	↔	↔	↔	↔	↔	↔
Methamphetamine	↑	↑	↑	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Poppers (Amyl nitrate)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Depressants																					
Alcohol	↔	↔	↔	↔	↔[a]	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	⇑41%	↔	↔	↔	↔
Alprazolam	↑	↑[f]	↑	↑[f]	↑[f]	↔	↓	↓	↓	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Codeine	↑[g]	↑[g]	↑[g]	↑[g]	↑[g]	↔	↓[g]	↓[g]	↓[g]	↔	↔	↔	↔	↑[g]	↑[g]	↔	↔	↔	↔	↔	↔
Diazepam	↑	↑	↑	↑	↑	↔	↓	↑	↓	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
GHB (gamma hydroxybutyrate)	↑[h]	↑[h]	↑[h]	↑[h]	↑[h]	↔	↔	↔	↔	↔	↔	↔	↔	↑[h]	↑[h]	↔	↔	↔	↔	↔	↔
Heroin (Diamorphine)	↔[i]	↓[i]	↔[i]	↓[i]	↓[i]	↔	↑	↔[i]	↔	↔	↔	↔	↔	↔[i]	↔[i]	↔	↔	↔	↔	↔	↔
Hydrocodone	↑	↑	↑	↑	↑	↔	↓	↓	↓	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Hydromorphone	↔	↓	↔	↓	↓	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ketamine	↑	↑	↑	↑	↑	↔	↓	↓	↓	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Methadone	↔♥	↔♥	↑	↓16%	↓53%♥	⇓5% ⇓26%	↓52%	↑6%	↓~50%	↓16%♥	↔	↔	↓2%	↑7%	↑7%	↔	↓	↔	↔	↑~5%	⇑
Midazolam (oral)	↑[j]	↑[j]	↑[j]	↑[j]	↑[j]	↓18%	↓[k]	↓	↓	↔	↔	↔	↔	↑[j]	↑[j]	↔	↔	↔	↔	↔	↔
Morphine	↔[i]	↓[i]	↔[i]	↓[i]	↓[i]	↔	↑	↔[i]	↔	↔	↔	↔	↔	↔[i]	↔[i]	↔	↔	↔	↔	↔	↔
Oxycodone	↑	↑	↑	↑	↑160%	↔	↓	↓	↓	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Pethidine (Meperidine)	↑	↓[m]	↑	↓[m]	↓[m]	↔	↓[m]	↓[m]	↓[m]	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↔
Temazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Triazolam	↑[j]	↑[j]	↑[j]	↑[j]	↑[j]	↔	↓[k]	↓	↓	↔	↔	↔	↔	↑[j]	↑[j]	↔	↔	↔	↔	↔	↔
Hallucinogens																					
Cannabis	↑[n]⇓	↑[n]⇓	↑[n]	↑[n]	↑[n]	↔	↑[o]	↑[o]	↔	↔	↔	↔	↔	↑[n]	↑[n]	↔	↔	↔	↔	↔	↔
LSD (Lysergic acid diethylamide)	↑[p]	↑[p]	↑[p]	↑[p]	↑[p]	↔	↓	↓	↓	↔	↔	↔	↔	↑[p]	↑[p]	↔	↔	↔	↔	↔	↔
Phencyclidine (PCP, angel dust)	↑[q]	↑[q]	↑[q]	↑[q]	↑[q]	↔	↓	↓	↓	↔	↔	↔	↔	↑[q]	↑[q]	↔	↔	↔	↔	↔	↔

Consider interactions with ARVs

TABLE 5. INTERACTIONS OF ILLICIT DRUGS AND ARVs

Drug	Primary metabolism site	Interaction	Recommendation
Amphetamines	CYP2D6	RTV ↑ levels ⇒ toxicity.	Do not prescribe RTV or lopinavir/ritonavir even in low doses if patients report amphetamine use.
Barbiturates	CYP3A4	Barbiturates such as phenobarbital are potent inducers of CYP3A4.	Consider avoiding concurrent administration of other potent inducers (e.g. EFV and NVP) in patients misusing barbiturates.
Benzodiazepines	CYP3A4 involved with midazolam, triazolam, alprazolam & flunitrazepam	PIs ⇒ over-sedation. NVP ⇒ withdrawals.	Avoid concurrent use of alprazolam, midazolam and triazolam with all PIs and EFV.
Cocaine	CYP3A4	PIs and EFV ↑ levels ⇒ overdose. NVP⇒hepatotoxic metabolite.	Monitor for increased hepatotoxicity.
Codeine	UGT 2B7	PIs ↑ or ↓ metabolism ⇒ possible overdose ⇒ loss of analgesia.	Interactions with ARVs are similar to those described for methadone. Thus, NNRTIs and some PIs may result in opioid withdrawal and loss of analgesia. Should be monitored.
Heroin	Plasma	NFV, RTV ⇒ withdrawal.	No clinically significant interactions reported however interactions with ARVs are similar to those described for methadone. Thus, NNRTIs and some PIs may result in opioid withdrawal and loss of analgesia and clinicians should monitor.
MDMA (ecstasy) GHB (gamma-hydroxybutyrate)	CYP2D6	RTV ↑ levels ⇒ toxicity.	Do not prescribe PIs even in low doses if patients report MDMA or GHB use. MDMA–ritonavir interactions can be fatal.
Morphine	UGT 2B7	NFV, RTV ⇒ withdrawals, loss of analgesia.	Interactions with ARVs are similar to those described for methadone. Thus, NNRTIs and some PIs may result in opioid withdrawal and loss of analgesia. Clinicians should monitor.
Phencyclidine	CYP3A4	PIs, EFV ⇒ toxicity.	Monitor for phencyclidine toxicity.
THC	CYP3A4	PIs may ↑ concentration. NNRTIs may ↓ concentration.	No clinically significant interactions reported.

WHO
HIV/AIDS Treatment and Care for Injecting Drug Users
https://www.euro.who.int/__data/assets/pdf_file/0009/78138/E90840_Chapter_5.pdf

alcohol

Foundation

- No level of alcohol consumption improves health (Burton, 2018, Lancet)

- Treatment is effective
  - Meta-analyses suggest abstinence rates up to 43% (Monahan & Finney, Addiction 1996)
- Alcoholic liver disease is the most common serious medical complication
  - Almost 50% of worldwide liver disease burden is attributable to alcohol
  - Risk is highest in: overweight & obese individuals, women, those with family history of ALD, comorbid Hep B and C

Connor, Haber & Hall (2016) Alcohol Use Disorders. Lancet

Foundation

- In routine practice FBE, LFTs ok **but** GGT can detect only about 1in 5 cases of heavy drinking
- In monitoring CDT

	Monitor abstinence	Identify high-risk drinking	Time to normalise	Usefulness for detection of high-risk drinking	
				Sensitivity	Specificity
Routinely available tests					
Alcohol concentration in breath or blood	Yes	No	Hours	Low	High
γ-glutamyl transferase	No	Yes	4 weeks	Low	Moderate
Mean corpuscular volume of red blood cells	No	Yes	3 months	Low	Moderate
Aspartate aminotransferase	No	Yes	4 weeks	Low	Low
Tests done in specialised laboratories*					
Carbohydrate-deficient transferrin	No	Yes	4 weeks	Moderate	High
Ethyl glucuronide and ethyl sulphate	Yes	No	2 days	High	High
Phosphatidyl ethanol	No	Yes	4 weeks	High	High

*May be costly.

Table 2: **Common biological markers**

Connor, Haber & Hall (2016) Alcohol Use Disorders. Lancet

Aim Intervention Appropriately

Use without Use Disorder	Use Disorder (mild-moderate)	Use Disorder (severe)
• AUDIT 0-10 • Brief intervention - education, self-help	• AUDIT 8-20 • Counselling Monitoring • +/- Medication • +/- Withdrawal support • Peer Support & Self Help	• AUDIT 20+ • Specialist Ax • Withdrawal support • Post-withdrawal support (>90% relapse w detox alone) • Medication • Peer Support • Rehab

AUDIT self check

www.auditscreen.org

Update on Treatments

	Proposed mechanism	Approved treatment goal	Typical dose*	Adverse reactions	Level of evidence‡
Naltrexone (oral)	μ-opioid antagonist; blocks endogenous opioid rewards and reduces alcohol-cue-conditioned reinforcement signals	Abstinence	50–100 mg per day orally	Nausea, vomiting, headache, dizziness, fatigue, anxiety, insomnia, tiredness, and joint or muscle pain	High[109,110]
Naltrexone (intramuscular injection)	μ-opioid antagonist; blocks endogenous opioid rewards and reduces alcohol-cue-conditioned reinforcement signals	Abstinence	380 mg gluteal intramuscular injection monthly	Same as above, in addition to risk of site infection or reactions	Moderate; reduces heavy drinking days but does not promote abstinence[109]
Acamprosate	Uncertain; glutamate system modulator. Normalises dysregulation of N-methyl-D-aspartate-mediated glutamergic neurotransmission in chronic alcohol use and might act through calcium	Abstinence	666 mg three times per day orally; reduce dose if weight <65 kg or if renal function is impaired	Gastrointestinal upset, especially diarrhoea, pruritus, rash, and altered libido	High[109,111,112]
Disulfiram	Aldehyde dehydrogenase inhibitor; alcohol use results in acetaldehyde accumulation, leading to nausea, flushing, sweating, and tachycardia	Abstinence	200 mg per day orally; dose may be reduced or increased as needed	Drowsiness, metallic taste, skin rash, headache, peripheral neuropathy, neuritis, polyneuritis, optic neuritis, mood change, impotence, seizure, and hepatotoxicity	Mixed for supervised dosing; low for unsupervised dosing[109,113,114]

- Emerging evidence base
  - Baclofen- renally excreted; sedative & risks in toxicity or abrupt cessation
  - Topiramate

Connor, Haber & Hall (2016) Alcohol Use Disorders. Lancet

heroin & other opioids

Foundation

- Heroin use in general population <0.1% (past 12-month)
- Prescription opioids/pharmaceuticals contributing to rising proportion of people seeking AOD treatment, people prescribed opioid pharmacotherapies, people experiencing overdose

- Opioid pharmacotherapy (methadone, buprenorphine) has >30 years established evidence base for reducing mortality & morbidity
  - Reduces overdose risk (through maintenance of tolerance)
  - Reduces risks associated with injecting use

Australian Institute of Health and Welfare. Non-medical use of pharmaceuticals: trends, harms and treatment, 2006-07 to 2015-16. In: Welfare, ed. Canberra 2017.

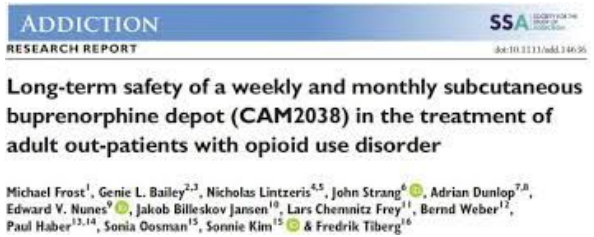
Aim Intervention Appropriately

Use without Use Disorder	Use Disorder (mild-moderate)	Use Disorder (severe)
• Harm reduction • NSP • Naloxone	• Pharmacotherapy (methadone, buprenorphine) • Withdrawal & Post-Withdrawal Support • Counselling • Peer Support • Naloxone	• Pharmacotherapy • Withdrawal & Post-Withdrawal Support • Peer Support • ?Rehab • Naloxone

Update on Treatments

- Long acting injectable buprenorphine
  - Buvidal ® and Sublocade ®
  - Available from Oct 2019 and Apr 2020
  - Weekly and monthly
  - Convenience, less cost to consumer (S100)

- Patient information
  - https://www.nada.org.au/wp-content/uploads/2019/10/Depot-Bupe-Infosheet-V4-031019.pdf


ADDICTION
SSA
RESEARCH REPORT

Long-term safety of a weekly and monthly subcutaneous buprenorphine depot (CAM2038) in the treatment of adult out-patients with opioid use disorder

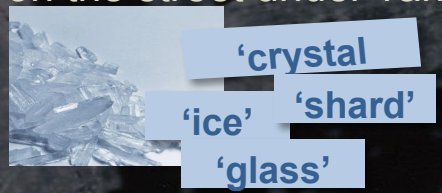
Michael Frost[1], Genie L. Bailey[2,3], Nicholas Lintzeris[4,5], John Strang[6], Adrian Dunlop[7,8], Edward V. Nunes[9], Jakob Billeskov Jansen[10], Lars Chemnitz Frey[11], Bernd Weber[12], Paul Haber[13,14], Sonia Oosman[15], Sonnie Kim[15] & Fredrik Tiberg[16]

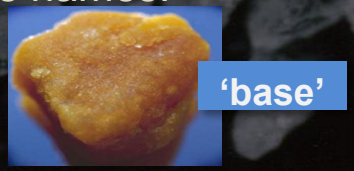
methamphetamine

Methamphetamine

Methamphetamine is a **potent synthetic stimulant drug**. It is part of a larger family of drugs known as **amphetamine-type stimulants (ATS)**, which also includes amphetamines and ecstasy.

Amphetamine was common in Australia until the late 1990s when it was supplanted by methamphetamine. In Australia methamphetamine is sold on the street under various names:





Methamphetamine is made in Australia and imported from other countries. It is manufactured in **clandestine laboratories** from chemicals, including those used in cold and flu medications (e.g. pseudoephedrine).

Powder and Crystal

Speed

- Powder form
- often smoked, snorted
- less pure

Ice

- Crystal form
- often smoked, injected
- usually purer

Table 1 Clinical pharmacokinetics of methamphetamine.

Route	*Dose*	*Bioavailability*	C_{max} *(μg/l)*	T_{max} *(minutes)*	$T_{1/2}$ *(hour)*	*Time to peak effect*	
Intravenous	30 mg	100%	108 ± 22 (64–164)	6 ± 11[b]	9.1 ± 0.8 (8–16)	<15 minutes[a]	[33,152,153]
Smoking	30 mg	67%[d]; 90 ± 10%[c]	47 ± 6	150 ± 30	12 ± 1 (8–17)	18 ± 2 minutes	[11,30]
Oral	30 mg[e]	67 ± 3%	94.1 (62–291)	216 (180–300)	9.1 (3–17)	180 minutes[a]	[154]
Intra- nasal	50 mg	79%	113 ± 8	169 ± 8	11 ± 1 hours[a]	≤15 minutes[a]	[32]

C_{max}: peak plasma methamphetamine concentration; T_{max}: time to reach peak plasma methamphetamine concentration; $T_{1/2}$: methamphetamine plasma half-life. Data are presented as mean ± standard error and/or (range) where available. [a]Peak effect estimated from published plots of subjective effect versus time. [b]Geometric mean, determined by non-compartmental analysis; may be overestimated due to sampling interval. [c]Based on the inhaled dose, does not include drug residue remaining on the pipe [11]. [d]Data from Harris *et al.* 2003 [32]. [e]Administered dose was 30 mg/70 kg.

Table 2 Detection times for methamphetamine in plasma, saliva and urine.

Matrix	*Dose*	*LLOQ/cut-off*	*Typical detection time (single dose)*	*Maximum detection time (repeated dosing)*	
Plasma	10 mg intravenous	1 μg/l	36–48 hours	Not reported	[32]
Plasma	35 mg[a] intravenous	1 μg/l	36–48 hours	Not reported	[31]
Plasma	10 mg oral, slow-release	2.5 μg/l	24 hours	Not reported	[155]
Oral fluid	10 mg oral, slow-release	2.5 μg/l	24 hours	3 days	[155]
Urine	10 mg oral, slow-release	2.5 μg/l	87 hours	7 days	[27]
Urine	22 mg smoking	300 μg/l	60 hours	Not reported	[11,156]

Adapted from Verstraete *et al.* 2004 [156]. LLOQ: lower limit of quantification. [a]The administered dose was 0.5 mg/kg, equivalent to 35 mg/70 kg.

- Peak effect 15-20 mins (IV or smoking)
- T 1/2 between 8-17 hours
- Detected for approx. 3 days in urine

Cruickshank and Dyer

A review of the clinical pharmacology of methamphetamine Addiction 2009

Methamphetamine
Prevalence, burden

- Population level past-year use is low, and has decreased
- But burden has increased
  - Among people who use regularly
  - **Hospitalisations**
    7.6% of all drug-related hospitalisations in 2017-18
    (3.1% in 2013-2014)
  - Contributes to **21% of burden** of all illicit drugs
  - 42% who used MA in the past year self-reported mental illness

In 2016, **over the last 12 months**, people aged 14+ used:

Ecstasy 2.2%
Cocaine 2.5%
Meth/amphetamine 1.4%[4]

Consumption of meth/amphetamine decreased among the general population

2.1% in 2013
1.4% in 2016.[4]

“Annually across Australia, over 90,000 emergency department visits and 50,000 psychiatric inpatient admissions are thought to relate to methamphetamine use

McKetin et al 2018

MA Use Disorder

- Tolerance, withdrawal symptoms
  - Last time you stopped- when?
    For how long?
    What happened?

- Frequency is a good marker
  - E.g. weekly or more for MA

Medication Approaches
Methamphetamine

No medication for use disorder

- Stimulant agonists may promote reduction in use in *some* individuals- but does not consistently promote retention, abstinence
- In reviews that include cocaine use disorder, agonist meds appear more effective for CUD than MUD
- Dose matters (tolerance)
- Retention difficult

ADDICTION

REVIEW

doi:10.1111/add.14755

Pharmacotherapy for methamphetamine/amphetamine use disorder—a systematic review and meta-analysis

Brian Chan[1,2], Michele Freeman[3], Karli Kondo[3], Chelsea Ayers[3], Jessica Montgomery[3], Robin Paynter[3] & Devan Kansagara[1,3,4]

Psychopharmacology (2020) 237:2233–2255
https://doi.org/10.1007/s00213-020-05563-3

REVIEW

Check for updates

Prescription psychostimulants for the treatment of stimulant use disorder: a systematic review and meta-analysis

Vitor S. Tardelli[1] · Adam Bisaga[2] · Felipe B. Arcadepani[1] · Gilberto Gerra[3] · Frances R. Levin[2] · Thiago M. Fidalgo[1]

Chan et al 2019
Addiction

Table 3 Brief summary of findings.

	Abstinence	Use	Retention	Harms
All Antidepressants	★★	Ø	★★	★
Aminoketone: Bupropion	★	★	★★	Ø
Atypical Antidepressant: Mirtazapine	NA	Ø	Ø	Ø
SSRI: Sertraline	Ø	NA	Ø	NA
Atypical Antipsychotics: Aripiprazole	Ø	★	Ø	Ø
Psychostimulants and Other Medications for ADHD				
All Psychostimulants: Modafinil, Dexamphetamine, Methylphenidate	★	Ø	★	NA
Methylphenidate	NA	★	★	NA
Atomoxetine	NA	Ø	Ø	Ø
All Anticonvulsant and Muscle Relaxants: Baclofen, Gabapentin, Topiramate	Ø	Ø	Ø	Ø
Topiramate	NA	★	★	★
Medications used for other substance use disorders				
Naltrexone	Ø	★	★	★★
Varenicline	NA	Ø	Ø	Ø

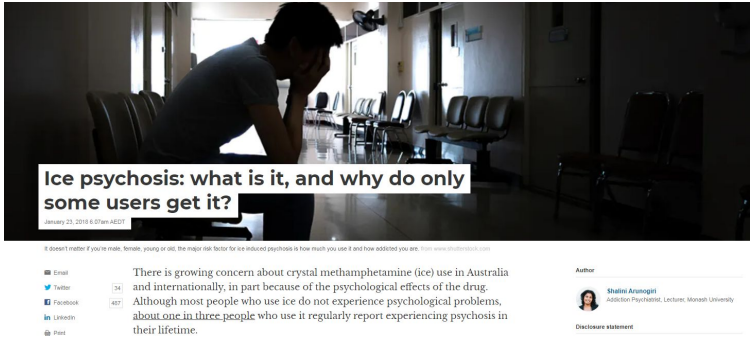
Shading represents the direction of effect:

(No color)	Unclear
Grey	No difference
Green	Evidence of benefit
Red	Favors placebo

Symbols represent the strength of the evidence:

NA	No evidence or not applicable
Ø	Insufficient
★	Low
★★	Moderate
★★★	High

Psychosis



MA Psychosis

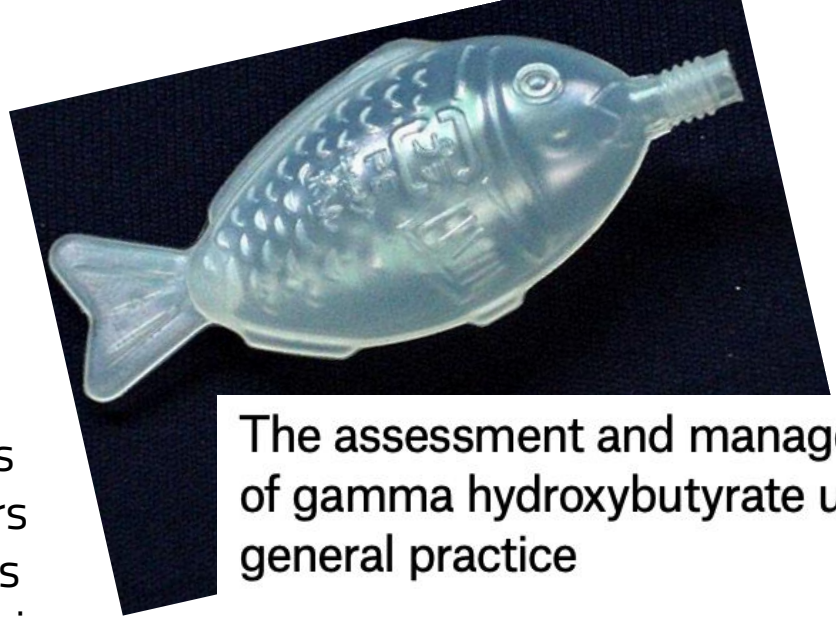
- Psychotic symptoms experienced by up to ⅓ of people who use MA regularly
- Persistent symptoms associated with risk, including risk of chronic psychotic illness
- MA use itself is the strongest risk factor, with frequency of use predicting risk of psychotic symptoms
  - Reducing or ceasing MA use will treat this in the majority of people
- Indicator for specialist referral +/- early intervention

Update on Treatment Resources

- Methamphetamine Treatment Guidelines
  www.turningpoint.org.au
- S-Check App
  https://scheckapp.org.au/
- Stimulant Clinic (St Vincent's, Sydney)
- Cracks in the Ice
  https://cracksintheice.org.au/

GHB

GHB



The assessment and management of gamma hydroxybutyrate use in general practice

Vicky Phan, Shalini Arunogiri, Dan I Lubman

GAMMA HYDROXYBUTYRATE (GHB) is an illicit drug that has a depressant effect

In Australia, GHB is commonly used within the dance and party scene, and by

- Oral ingestion
- Onset ± 15- 20mins
  Effects up to 4 hours
  Half-life 20-20 mins
- Usually multiple dosing per session
- Often co-ingested with other substances
  - Alcohol, MA

Phan et al
AJGP 2020

GHB
Prevalence, burden

- Harms have increased despite low use overall
- 147% increase over 7 yrs
- Co-use with MA

ADDICTION
SSA SOCIETY FOR THE STUDY OF ADDICTION
RESEARCH REPORT
doi:10.1111/add.14848

Trends in gamma-hydroxybutyrate-related harms based on ambulance attendances from 2012 to 2018 in Victoria, Australia

Shalini Arunogiri[1,2], Foruhar Moayeri[2], Rose Crossin[1,2], Jessica J. Killian[1,2], Karen Smith[3,4,5], Debbie Scott[1,2] & Dan I. Lubman[1,2]

Monash Addiction Research Centre and Eastern Health Clinical School, Monash University, Box Hill, VIC, Australia,[1] Turning Point, Eastern Health, Richmond, VIC, Australia,[2] Ambulance Victoria, Doncaster, VIC, Australia,[3] Department of Community Emergency Health and Paramedic Practice, Monash University, Frankston, VIC, Australia[4] and Department of Epidemiology and Preventive Medicine, Monash University, Richmond, VIC, Australia[5]

ABSTRACT

Background and aims Although the prevalence of gamma-hydroxybutyrate (GHB) use is relatively low globally, harms related to the drug appear to be increasing. Few existing studies present reliable, representative, population-level data on GHB-related harms. The aim of this study was to investigate trends in acute GHB-related harms within an ambulance database in Australia. **Design, setting and participants** Cross-sectional, retrospective analysis of data on all GHB-related ambulance attendances in the state of Victoria, Australia during a 7-year period (January 2012–December 2018) **Measurements** Presentations were characterized based on patient demographics, transport to hospital, co-occurring substance use (i.e. GHB only, alcohol, methamphetamine, heroin, benzodiazepine and cannabis) and clinical presentation (e.g. symptoms of anxiety, psychosis, depression). **Findings** There were 5866 GHB-related ambulance attendances between 2012 and 2018, with the prevalence rate increasing from 8.8 per 100 000 population in 2012 to a maximum of 21.7 per 100 000 population in 2017. Methamphetamine [odds ratio (OR) = 6.23, $P < 0.001$] and benzodiazepine-related (OR = 1.43, $P < 0.001$) co-occurrences; ages between 18–29 (OR = 6.58, $P < 0.001$) and 30–39 years (OR = 2.02, $P < 0.001$); and male gender (OR = 1.23, $P < 0.001$) were significant predictors of GHB-related attendances. **Conclusions** There has been a 147% increase in the prevalence of GHB-related ambulance attendances in Victoria, Australia between 2012 and 2019, largely attributable to a growth in the proportions of people using gamma-hydroxybutyrate alone or concurrently with methamphetamine.

Overdose

GHB overdose

- Up to 1 in 5 people with past year use report OD/ blackout *(GDS)*
- Narrow window
- Re-dosing too early
- Amnestic effects

- **Highlighting just how easy it is to overdose on GHB, 1 in 4 women and 1 in 6 men report passing out on GHB in the last 12 months.** 10% of people using once or twice report passing out, which increases to 1 in 3 who report using it more often. Women are also seeking EMT twice as frequently than men (4% v 2%).

https://www.globaldrugsurvey.com/gds-2018/ghb-1-in-5-pass-out-each-year-women-are-more-at-risk-than-men/

GHB withdrawal

- In 'heavy' users can be life threatening
- Due to short half-life, can present within hours of last dose
- Markers of high risk/ severe syndrome
  - Time between doses (high frequency)
  - >6 x /day
  - >4mL/ day daily

Lessons from practice

Severe GHB withdrawal delirium managed with dexmedetomidine

Tay et al
MJA 2016

Table 3
Comparison of pattern of GHB use between cases presenting with and without withdrawal delirium

	Withdrawal delirium		P^a
	Absent ($N = 18$)	Present ($N = 20$)	
Form of GHB taken, *n* (%)			1.00
GHB	13 (72%)	15 (75%)	
GBL	5 (28%)	5 (25%)	
Time between doses (h), mean (range)	7.0 (1–24)	2.3 (0.5–8)	0.03[b,*]
Estimated daily dose (g), mean (S.D.)			
GHB	39 (23)	58 (23)	0.09
GBL	10 (10)	31 (15–60)	0.21[b]
Years of use, mean (S.D.)	1.1 (0.8)	1.5 (1.0)	0.24
Duration of withdrawal (days), mean (S.D.)	8 (4)	10 (4)	0.08
Duration since last dose at presentation (h), mean (range)	45 (2–200)	46 (1–140)	0.54[b]
Presence of another psychoactive drug at presentation, *n* (%)	6 (46%)	4 (25%)	0.27

[a] Student's *t*-test for continuous variables; χ^2 or Fisher's exact test for categorical variables.
[b] Data skewed, so ln transformed.
[*] Significant at the 0.05 level.

McDonough et al

Clinical features and presentation of GHB withdrawal: a review
Drug and Alcohol Dependence 2004

Harm reduction & Resources

Chemsex/
Party and Play (PnP)

- Use of drugs to facilitate or enhance sexual activity & pleasure
- **Minority** of MSM engage in chemsex
- For arousal, libido, vasodilation, disinhibition/relaxation
- Commonly used drugs include:
  - GHB
  - Methamphetamine
  - Amyl nitrite (poppers)

SAFER WAYS TO PARTY AND PLAY...

PACK SOME PROTECTION

Always carry condoms and plenty of lube!

KNOW YOUR HIV STATUS

Keep yourself and others healthy

PARTY WITH PEOPLE YOU TRUST

Remember to look out for each other!

SET YOUR LIMITS

Be clear about what kinds of sex you're into

STAY AWARE

...of what drugs you've taken

SET REMINDERS

...so you don't forget to take your PrEP or ARVs

AVERT.org

Harm Reduction & Chemsex

GHB

LOOKS LIKE...

FEELS LIKE...

- YOU'RE RELAXED
- YOU'RE WARM
- YOU'RE AROUSED

BE AWARE THAT...

- Dosage is difficult – it's a fine line between fun and feeling foggy
- The wrong dosage can result in loss of consciousness and an increased vulnerability to sexual assault

BE CAREFUL TO...

- Avoid mixing with depressants like alcohol or ketamine
- Use a pipette to measure your dosage carefully
- Mix with a non-alcoholic drink and never drink straight from the bottle
- Make sure a friend is around in case you fall unconscious

Source: Pavilions 'Chemsex drugs'

CRYSTAL METH

LOOKS LIKE...

FEELS LIKE...

- YOU'RE WIDE AWAKE
- YOU'RE IMPULSIVE
- YOU'RE AROUSED

BE AWARE THAT...

- Crystal Meth interacts poorly with some HIV medicines and anti-depressants, and when they are mixed it can result in heart attacks or strokes
- It's easy to forget to sleep or eat when using which can leave you feeling exhausted and paranoid

BE CAREFUL TO...

- Avoid using if you are taking HIV medication (ARVs) or anti-depressants
- Take regular breaks between use
- Always use clean needles if slamming
- Dispose of injecting equipment safely

AVERT.org

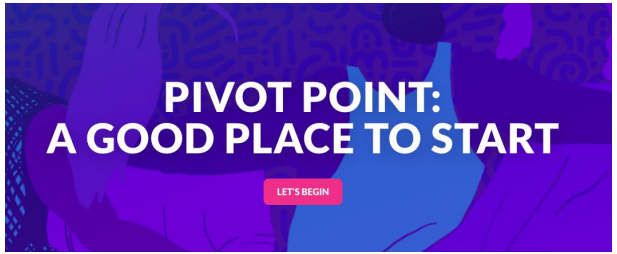
Source: Pavilions 'Chemsex drugs'

AVERT.org

Resources

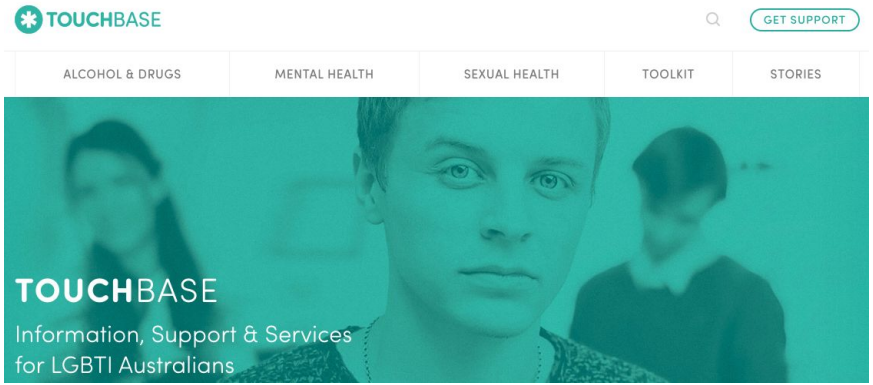
Pivot Point
pivotpoint.org.au

- Online resource for LGBTIQ community on substance use by ACON



Touch Base
touchbase.org.au

Thorne Harbour Health (prev VAC)



Avert
www.avert.org

How Hard
www.howhard.com.au

Resources

Peer support & Counselling

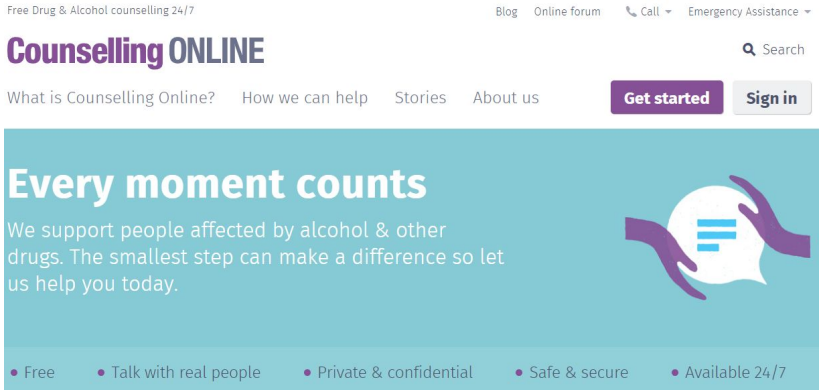
- ACON (NSW)
- Thorne Harbour Health (VIC)
- QuIHN (QLD)
- Switchboard (VIC)

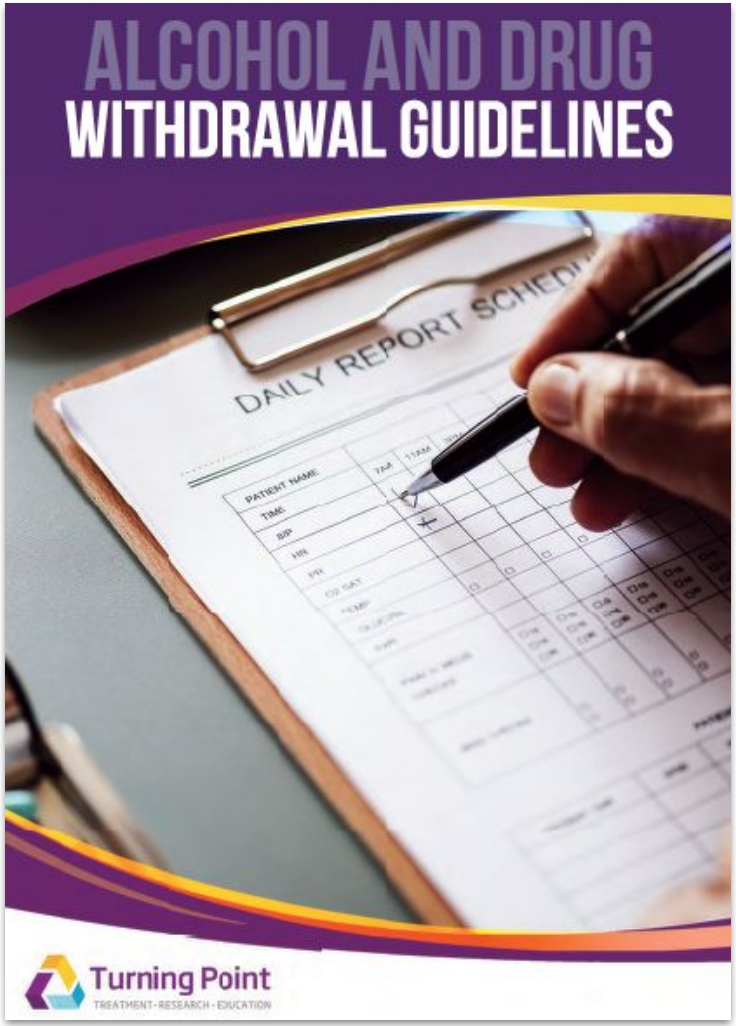
Resources

Turning Point Withdrawal Guidelines (2018) **Turningpoint.org.au**
Counsellingonline.org.au

If you need help- Call:

- DASAS (NSW) **(02) 9361 8006**
- DACAS (Vic, Tas, NT) **1800 812 804**





Thank You!

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26-28 February 2021

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