



P or Not to P... Substance Abuse

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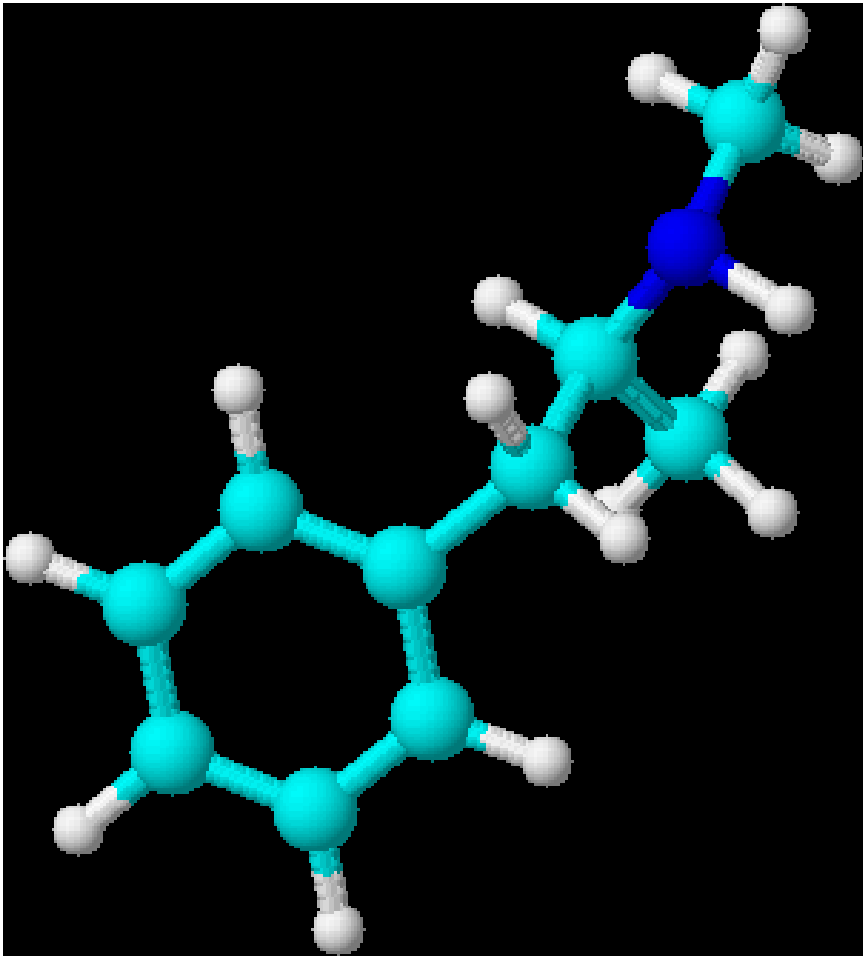
GPCME, Rotorua, 13 June 2009



Preview

- What is P – Methamphetamine (METH)?
- METH in New Zealand
- How does it exert its effect?
- What are its actions, adverse effects?
- Treatments and interventions
- Working with METH users in primary care

What is methamphetamine?



- Differs from amphetamine – addition of methyl group
- More potent euphoric effect than amphetamine
- Longer acting than cocaine or amphetamine

Terminology –

NB same terms mean different things in different countries!

“Speed”

- General terms for amphetamines, often used to mean METH

“P” “Pure” “burn”

- NZ name for high purity METH (around \$80-140/ “point”) – 0.1g

“Crystal” “Ice”

- Colourless, odourless and smokable. Rock-like crystals. Chemically same as powder, but almost completely pure.

“Yaba”

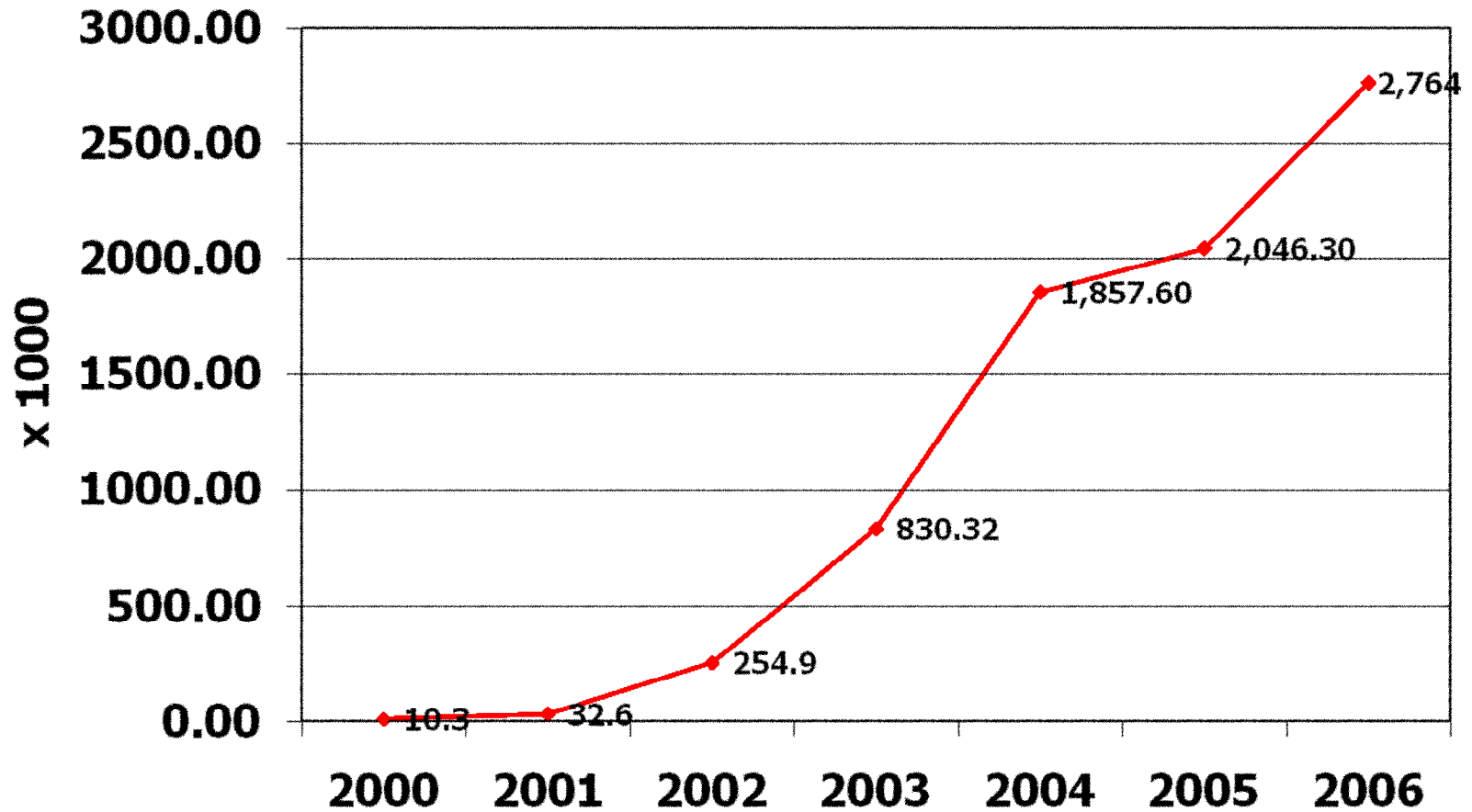
- Thai word meaning “crazy medicine”. METH in tablet form popular in SE Asia. May contain other drugs too.



Clandestine labs

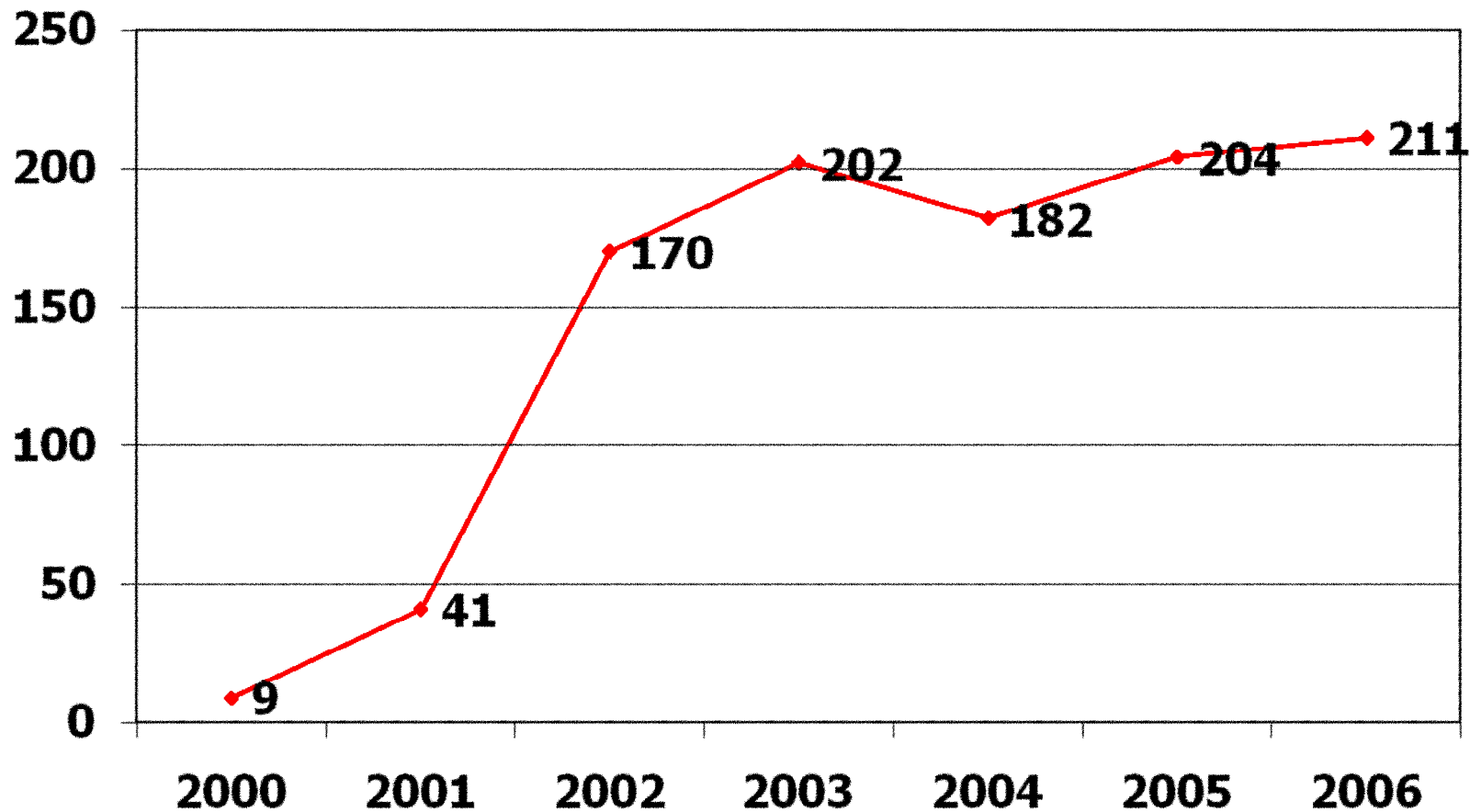
- Mainly using pseudoephedrine as precursor
- Creating huge problems for community pharmacists
- Labs vary in terms of location and safety
- Potential hazard within local community

Number of tablets/capsules of ephedrine precursors seized in New Zealand, 2000-2006



Source : IDMS 2007 report - National Drug Intelligence Bureau (NDIB) (2005, 2006)

Number of methamphetamine laboratories dismantled in New Zealand, 2000-2006



Source : IDMS 2007 report - National Drug Intelligence Bureau (NDIB)^{7/41}
(2005, 2006)

Methamphetamine chemicals



- alcohol (*Isopropyl or rubbing*)
- toluene (*brake cleaner*)
- ether (*engine starter*)
- sulphuric acid (*drain cleaner*)
- red phosphorus (*matches/road flares*)
- salt (*tablet/rock*)
- iodine (*test dip or flakes/crystal*)
- lithium (*batteries*)
- trichloroethane (*gun scrubber*)
- MSM (*cutting agent*)
- sodium metal
- methyl/alcohol (*gasoline additive*)
- muriatic acid
- anhydrous ammonia (*farm fertilizer*)
- sodium hydroxide (*lye*)
- pseudo ephedrine (*cold tablets*)
- ephedrine (*cold tablets*)
- acetone
- kitty litter

Methamphetamine in New Zealand

- Increase in size of METH seizures 1999-2006 (1.6kg-8.9kg)
- In Jan 2003 “ice” has been seized by Customs in small amounts¹
- Price has fallen¹
- Mainly smoked rather than injected¹

1. Data from Methamphetamine Action Plan. Ministerial Action Group on Drugs, May 2003.
<http://www.ndp.govt.nz/pubs/MethamphetamineActionPlan.pdf>



How methamphetamine is (mis)used

- Smoked – in “meth pipe”- heating/vapourising
- Snorting – effect in 5 minutes
- IV (crystals v. soluble) - almost instant “rush”
- Oral - effects after 20 minutes, no huge “rush”
- Long acting 10-12 hours – maybe up to 24?
- Often binge use – several days
- Often as part of poly drug use



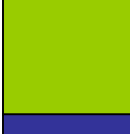
Binge use



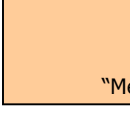
Sometimes, to extend the euphoria and avoid the negative effects of withdrawal, users often engage in prolonged binges (2-6 days) and forgo sleep and other needs. Average binge time in NZ is around 80 hours.

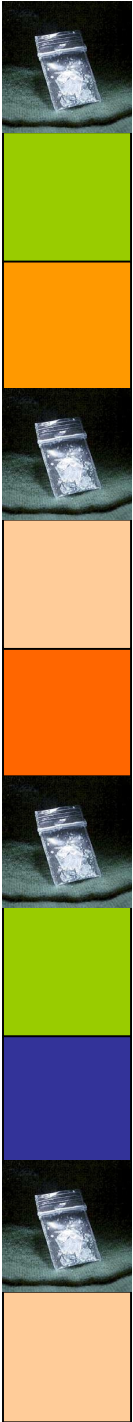


Binges tend to be followed by:



A pronounced crash/withdrawal where the resulting physical and mental exhaustion and psychotic effects are amplified due to the duration of the binge i.e. the longer the binge the harsher the comedown.







Reasons for Meth Use

Reasons for using meth were wide-ranging:

- To get high (56%)
- To get more energy (37%)
- To cope with mood (34%)
- To lose weight/feel more attractive (29%)
- To party (28%)
- To escape (27%)
- To enhance sexual pleasure (18%)



Pharmacology

- Increase of dopamine levels
- Blocks dopamine reuptake
- Increase in noradrenaline levels
- May reduce serotonin levels
- Over time depletes dopamine levels (possibly serotonin)
- Tolerance develops rapidly
- Sensitisation may occur (low, previously harmless dose causes toxic effect after multiple exposures)
- Dopamine transporter damage



Pharmacokinetics

- Drug is well absorbed from the digestive tract
- Clinical effects within 30 minutes
- Metabolised by CYP2D6
- The half-life around 12 hours
- Excretion occurs primarily in the urine (dependent on urine pH).
- Approximately 2/3 of an oral dose is eliminated in urine within first 24 hours



Acute effects

- Increased attention/decreased fatigue
- Euphoria
- Decreased appetite
- ↑ sexual arousal (risk-taking and STDS)
- ↑ BP, body temp, heart and breathing rate, sweating

Toxicity can lead to:

- Increased respiration
- Hyperthermia
- Convulsions
- Overdose



Negative and unpleasant effects

- Anxiety
- Paranoia
- Insomnia
- Anorexia
- Aggressive tendencies
- Stroke and other CV
- Hallucinations - “crawling skin” (formication)



Effects of chronic use

- Increased tolerance, more frequent dosing, binge use, change to injecting
- Psychotic features: e.g. paranoia, hallucinations, mood disturbances, and delusions thoughts
- Violent behaviour, anxiety, confusion
- Weight loss
- Dependence
- Cessation can result in depression, anxiety, fatigue, dysphoria, paranoia, aggression, and an intense craving for the drug.



Areas of health harmed

- Self-reported harms amongst those used in last 12 months:
 - Energy and vitality 15.2%
 - Financial 13.7%
 - Health 11.5%
 - Outlook on life 9.9%
 - Friend/social life 9.2%
 - Home life 6.9%

Ministry of Health. (2007). *Drug Use in New Zealand: Analysis of the 2003 New Zealand Health Behaviours Survey – Drug Use*. Wellington: Ministry of Health.



Medical complications

- Tachycardia, irregular heartbeat, ↑ BP, and irreversible stroke-producing damage to small blood vessels in the brain
- Hyperthermia
- Convulsions in overdose
- IV - damaged blood vessels and skin, abscesses, blood borne viruses
- Heavy users also show progressive social and occupational deterioration
- Psychotic symptoms can sometimes persist for months or years after cessation
- Increased libido and risk taking – sexually transmitted diseases



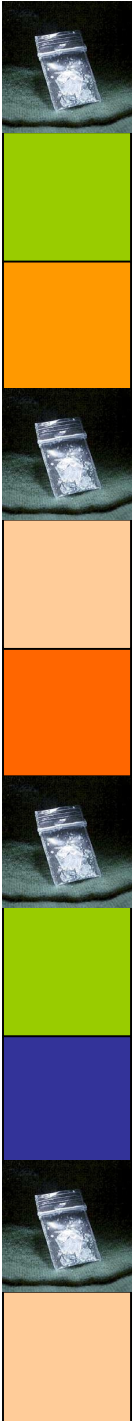
Drug interactions

- MAOIs – hypertensive crisis¹
- Protease inhibitors (ritonavir) – may ↑ potency and overdose risk of METH²
- Abnormal heart rhythms and increased blood pressure have been observed with TCAs and cocaine - possible with METH³.
- Care in diabetes mellitus – altered food intake with METH

1. Based on BNF – with dexamphetamine

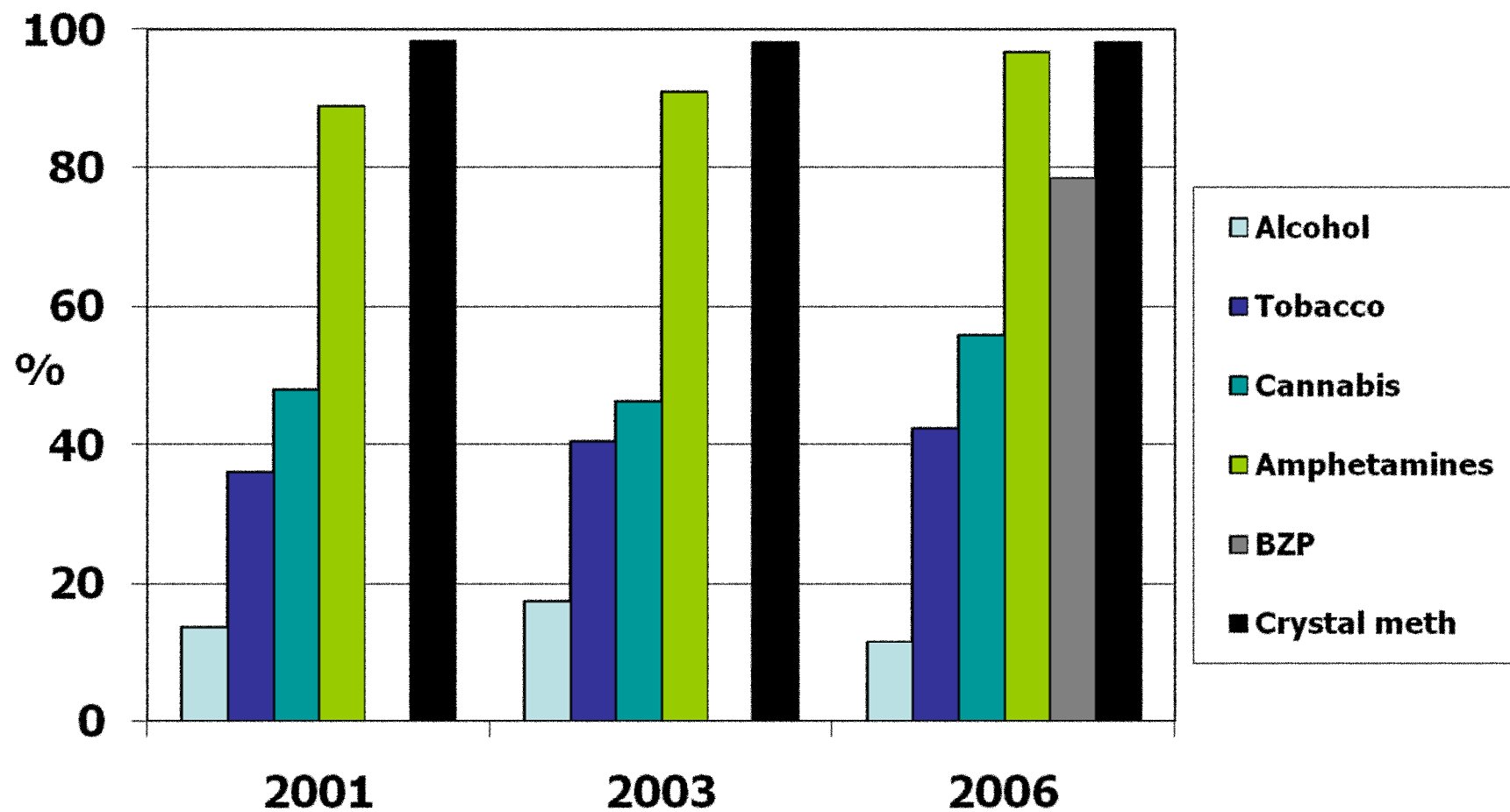
2. (from <http://www.projinf.org/pdf/druginteractions.pdf>)

3. http://www.holistic-online.com/Remedies/Depression/dep_interactions-TCA.htm



What do we know about METH in NZ?

Survey respondents who had NEVER tried different drug types: 1998, 2001, 2003, 2006



Adapted from: Wilkins et al, NZMJ 23 May 2008, Vol 121 No 1274;



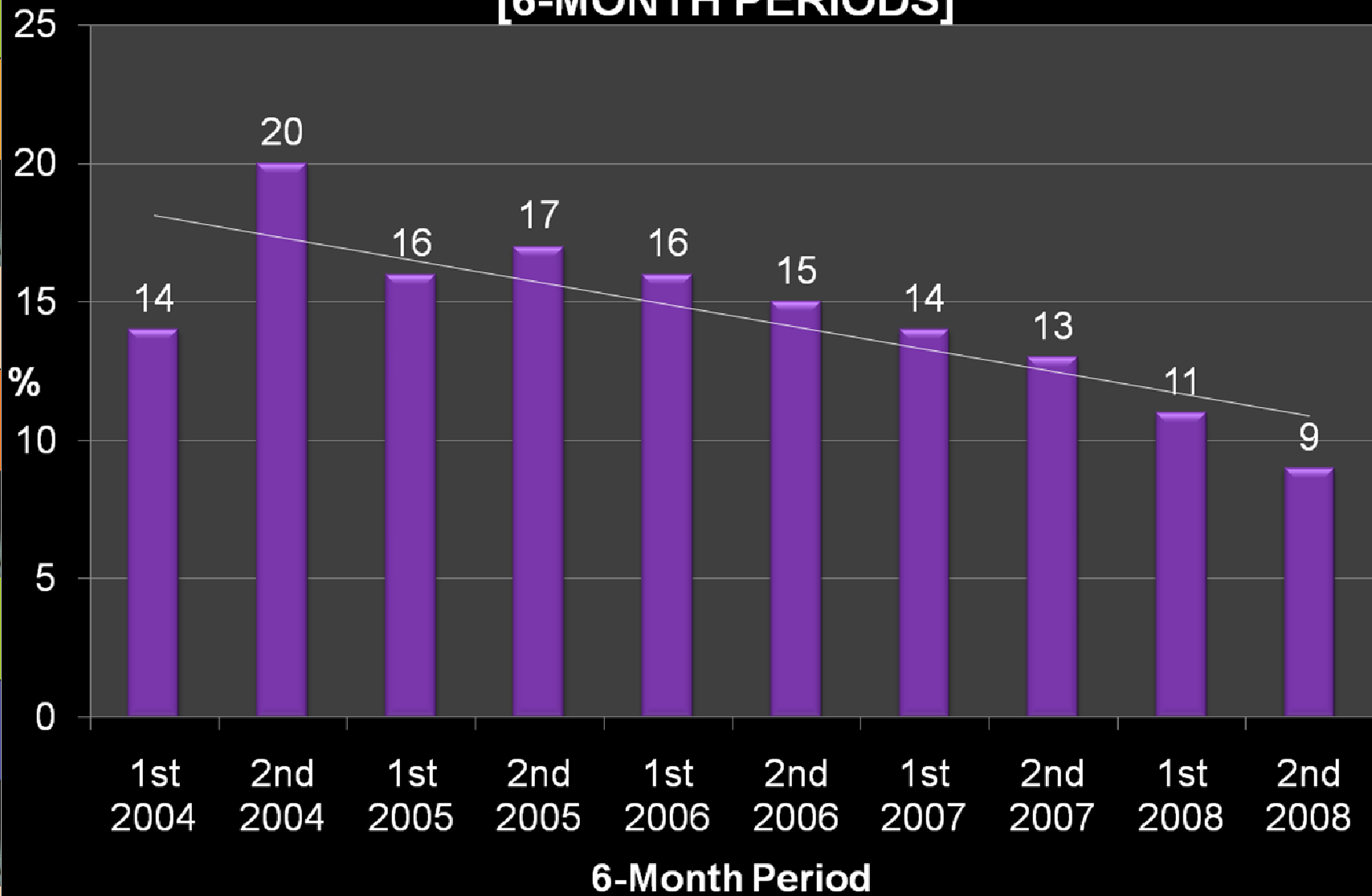
2007 IDMS data

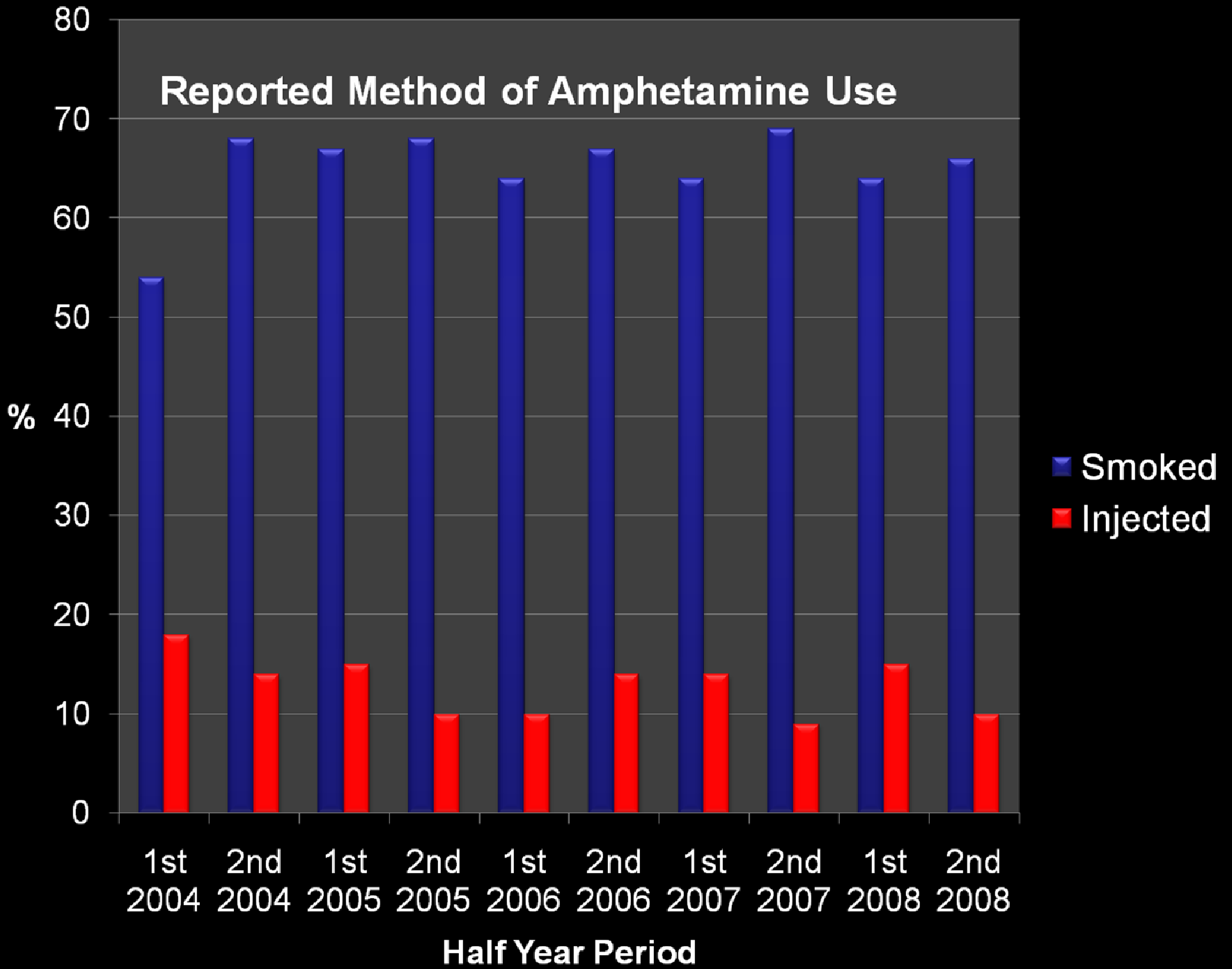
- Frequent drug users (N=324)
- Of those who felt competent to comment:
 - 85% said meth easy/very easy to obtain
 - Price around \$100 per 0.1g
 - Purity generally stable/fluctuating
 - Lots of poly drug use amongst frequent METH users
 - most commonly used in last 6 months: cannabis, alcohol, MDMA,
 - most commonly injected in last 6 months: opioids, Ritalin

History Taking

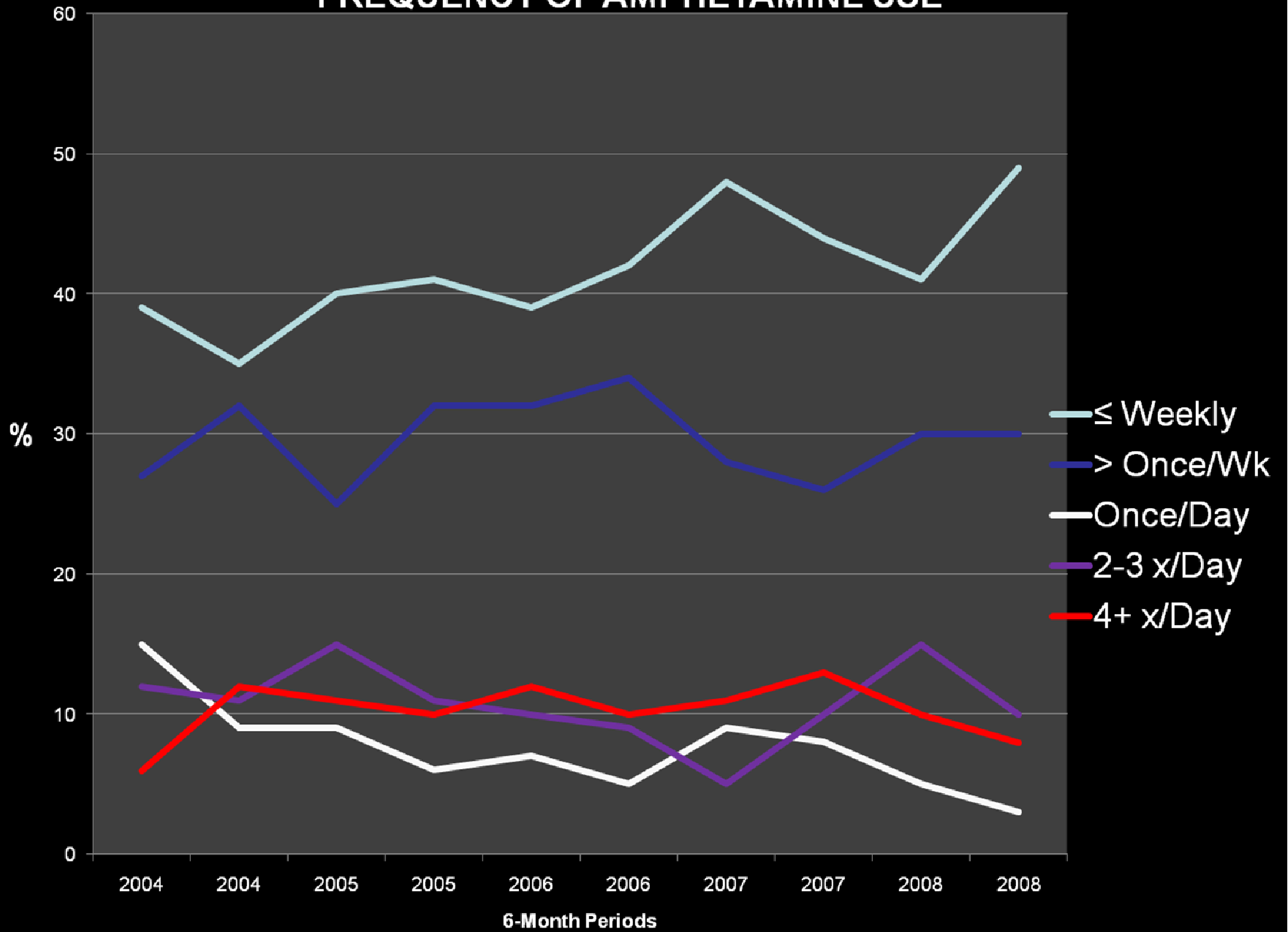
- Smoking
- Alcohol
- Other drugs

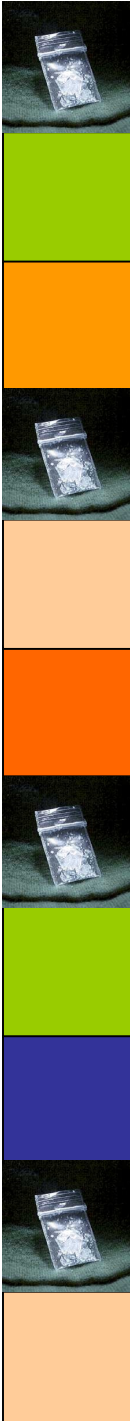
% OF CADS CLIENTS SEEN WITH DEPENDENT AMPHETAMINE USE [6-MONTH PERIODS]





FREQUENCY OF AMPHETAMINE USE





Interventions for METH misuse and dependence

Continuum Of Use

NIL	MODERATE	PROBLEMATIC	HAZARDOUS	HARMFUL [ABUSE]	DEPENDENCE
	<p>Experiential use / Social use</p> <ul style="list-style-type: none"> • No Major problems 	<p>Some Problems:</p> <ul style="list-style-type: none"> • Missed Work • Comedown /Hangover • Family/ Whanau quarrels 	<p>Problems and ↑ risk of long-term harm</p> <ul style="list-style-type: none"> • relationship problems • crime 	<p>Problems and ↑ risk of harm and long term damage</p> <ul style="list-style-type: none"> • Health • Violence • Break-ups • Loss of Job 	<p>All problems and 3 or more of the following:</p> <ul style="list-style-type: none"> • Withdrawal • Using to relieve withdrawals • Not able to predict or control use • Persist despite harm • Rapid return to dependence if relapse after abstinence

Prevention – drug seeking for pseudoephedrine containing products



Actifed tab

Codral (3)

Demazin

Duro-Tuss (2)

Phensedyl

Sinutab (2)

Sudomyl tabs

Clarinase (2)

Coldrex (3)

Dimetapp (2)

Nurofen Cold & Flu

Robitussin (3)

Sudafed (5)



Self management

Would you want to stop using something that gave: euphoria, increased energy & mental alertness, wakefulness, weight loss & increased libido???

- Non-dependent experimental or recreational use – majority of users
- Expense
- Tolerance
- Dysphoria, paranoia, the Crash, withdrawal
- Loss of relationships, family, job etc



Harm Reduction for 'P' – Brief Advice

- **No use** is the safest Use. Needle exchange if IDU
- **Awareness of your sources** re: potency
- **Small amount first** - to check potency and your response to the drug
- Methamphetamine is an **illegal drug** - An awareness of the potential legal ramifications as 'P' is a Class A drug
- **At risk sexual behaviours** - amphetamine consumers are far more likely than other drug consumers to engage in risky sexual behaviours
- Risk of **increased violent offending**. Consumers who are experiencing psychotic symptoms may also be more prone to irrational acts of violence



Harm Reduction for 'P'

- **Overdose** - is less likely with amphetamines than with many other drugs, especially CNS Depressants. Dysphoria, tachycardia, psychosis
- **Food, sleep and hydration** - amphetamine users may need to remind themselves/each other to eat, drink, sleep
- **Depression, suicide** –vulnerable during the Crash or withdrawal. Also vulnerability to psychosis. Consider support networks. Withdrawing from the drug may also reinforce feelings of hopelessness, guilt, or shame
- **Pregnancy** – low birth wt, behavioural changes
- **Breast feeding** – contraindicated
- **Driving** – Contraindicated!



Psychological Treatment

- Motivational interviewing
- CBT [problem solving, relapse prevention]
- Counselling
- Group work eg AA, NA
- Include whanau
- Lifestyle changes
- Refer, refer, refer



Pharmacological Treatments - Intoxication

- Calm supportive environment
- Hydration, cooling, monitor
- History. Urine Drug Screen (UDS)
- Acute agitation: diazepam 10-20mg q2h prn orally
- Extreme agitation/violence: **GET HELP.**
[IV BZs, olanzapine or quetiapine]

Trials

- Paroxetine
- Imipramine
- Bupropion
- Modafinil
- Dexamphetamine
- Methylphenidate



Trial of Treatment for Methamphetamine Dependence

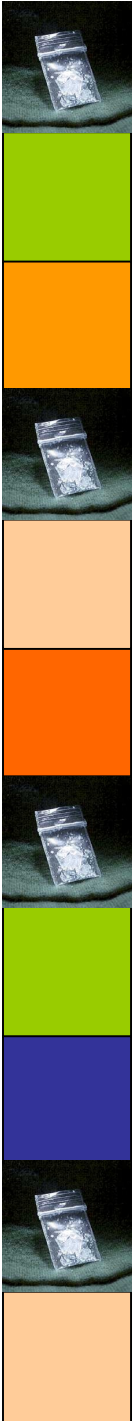
- Regular users
- Who find it difficult to stop using
- Over 18
- Interested in being part of a drug trial: methylphenidate vs placebo
- CONTACT Peta, research nurse

021 274 2659 [phone or txt]

Peta.hardley@waitematadhb.govt.nz

Treat Co-morbidities

- Poor self care
- Mental health
- Dental health
- Continuity of care



All you need to know:

**Contact your
local CADS**

[Auckland 09 845 1818]

Thanks to:

- Janie Sheridan (Pharmacy School, Ak)
- Carina Walters, Amanda Wheeler, Joe Wenham, Jeanette Elley, Esam Jumaa (CADS Auckland)
- Rebecca McKetin (NDARC, NSW)
- John Sowter – New Zealand Police
- Google/Medline etc etc