

# Drugs: What's the risk?

---

ALUCA 19/4/07

# Lifetime prevalence NDARC 2000

---

- Use of cannabis, LSD, amphetamines and heroin
- Increases with each age cohort
- Born 1940-44 -14%
- Born 1975-79 – 63%



# First age of exposure

---

- Born 1940-59 - cannabis by age 15 – 4%
- Born 1980-84 – cannabis by age 15 – 31%

# MDMA (ecstasy-yuck!) use

---

- In 2001 National Drug Strategy Household Survey –
- 6.1% of all Australians had used MDMA
- 10.4% of 20-29 yo used in last 12 months
- 5% of 14-19 yo
- MDMA is the third most widely used drug in Australia

# Legal vs illegal

---

- MSIC stats:
  - 40% heroin
  - 15% cocaine
  - 5% methamphetamine
  - 40% prescribed drugs

# Use vs Disorder

---

- What matters?
- Do you care if I blow a joint after this talk?
- Or if I have had a one before it?
- In 1975????
- I think your shareholders only care if and when I want to claim.
- As use proceeds to abuse to dependence, problems accumulate and claims increase

# Substance Abuse

---

- Maladaptive **pattern** of substance use
- Clinically significant impairment or distress
- At least one of (recurrent) –
  - Role failure
  - Physically hazardous behaviour (driving)
  - Legal problems
  - Social or interpersonal problems
  - Never dependent

# Substance Dependence

---

- Maladaptive pattern of substance use
- Leading to clinically significant impairment or distress
- Manifested by three or more criteria
- Occurring at any time in the same 12 month period

# DSM IV Dependence criteria

---

- Tolerance
- Withdrawal
- Substance taken more or longer than intended
- Problem cutting down or controlling use
- Great deal of time spent obtaining, using, recovering from substance
- Important activities given up or reduced
- Continued use despite knowledge of harm



# Drug use

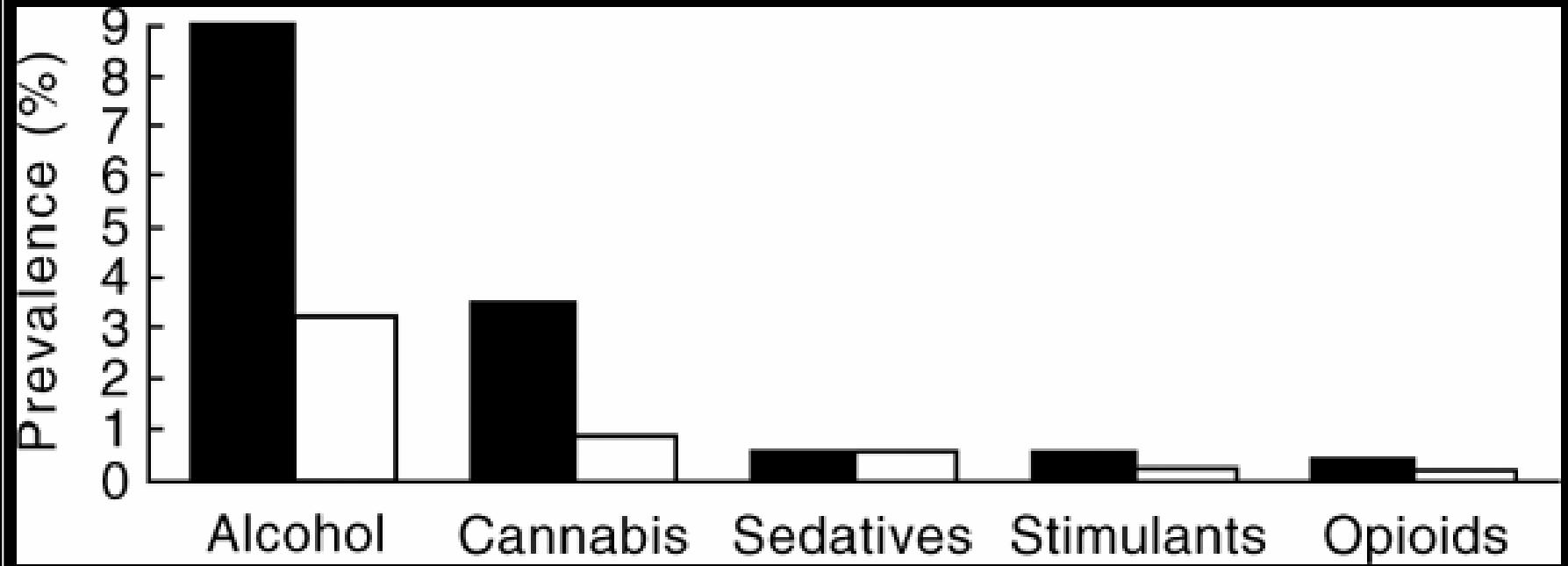
---

- Males (12.5%), females (6.9%) used one of (cannabis, stimulants, sedatives and opioids) 6+ times in the past year.
- Cannabis -10.3% males, 4.3% females.
- Stimulants, sedatives and opioids were reported by 1.3-1.9% of males, and 0.6-2.3% of females.

# Illegal drug use problems in Australia

---

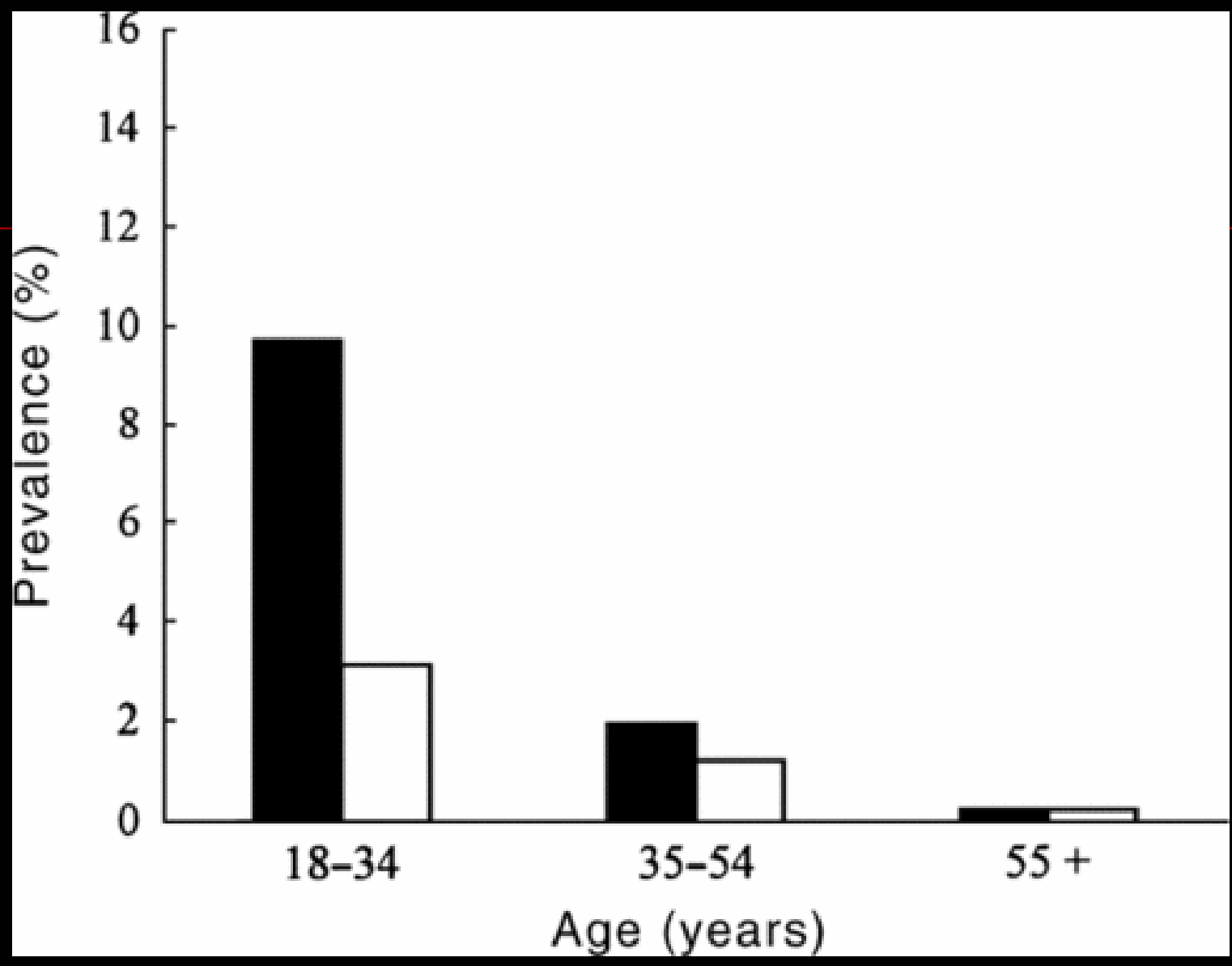
- Affects 2.2% of the community
- Dependence 2%, abuse 0.2%
- 1.7% cannabis
- 0.3% stimulants
- 0.2% opioids



# SUD decreases with age

---

- Cohort effect
- Maturation effect
- People change



# Outcomes

---

- ATOS – Sydney and Adelaide based heroin users entering treatment
- At 12 months 14% had not used once, associated with first treatment, readiness for treatment and intensity of follow up ie treatment 'dose'

2004



SPLASH MOUNTAIN  
Disney

# Ontario Doctors Health Program

---

- Good outcomes in 92% of enrollees
- 75% have no relapses
- Sophisticated assessment
- Comprehensive management
- Four levels of supervision – individual, group, workplace and path lab

# Predictors of Good Outcome

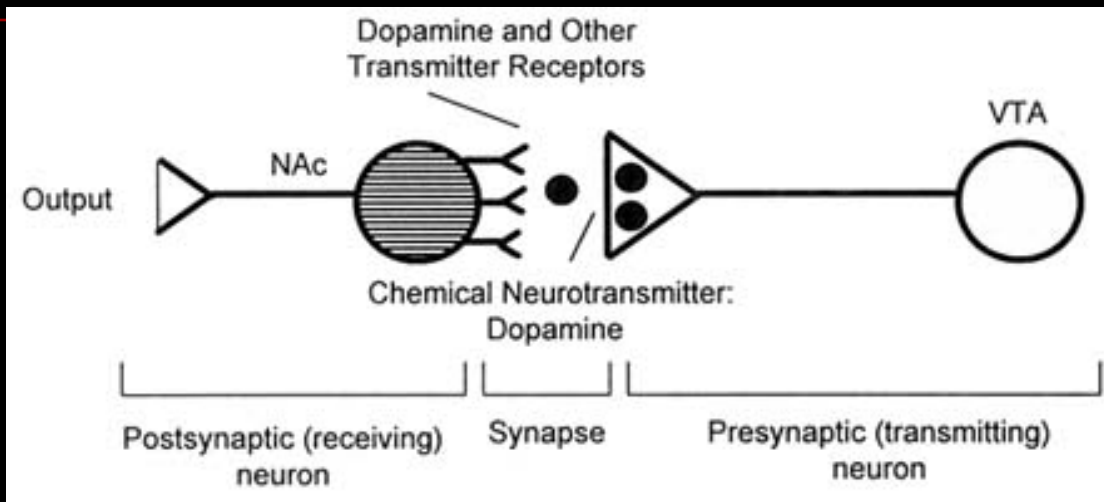
---

- Compulsory supervision
- Positive addictions
- New relationships
- Spiritual renewal

# Relapse after stability

---

- The annual relapse rate was 3% in a study of alcoholics over 5 years sober
- J Stud Alcohol. 1998 Nov;59(6):640-6.
- This is less than the prevalence of the disorder



Schematic diagram of the brain reward circuitry.

NOTE: NAc = nucleus accumbens; VTA = ventral tegmental area.

**GABA interneuron**  
tonically suppresses dopamine cell firing, resulting in reduced NAcc dopamine release.

**Opioids, nicotine and alcohol** can block the inhibitory control exerted by these neurons over the VTA dopamine cell bodies, resulting in increased VTA dopamine activity.

NAcc

**Dopamine**  
Released dopamine interacts with postsynaptic dopamine receptors, resulting in reward.

**Dopamine cell body**  
Activation results in the release of dopamine in the NAcc.

**Opioids, nicotine and alcohol** can stimulate the dopamine cell body directly by interacting with specific receptors on its surface and/or indirectly by altering the activity of other neurotransmitter inputs projecting from distal brain areas.

**Dopamine transporter**  
recycles some of the released dopamine back into the nerve terminal.

**Cocaine and amphetamines** block reuptake of dopamine, which accumulates in the synapse where it can further stimulate dopamine receptors. Amphetamines also cause dopamine release.

VTA

Schematic diagram that represents the dopamine pathway projecting from the ventral tegmental area (VTA) to the nucleus accumbens (NAcc), indicating how substances of abuse can alter the activity of this pathway to produce their rewarding effects.

# JAMA 2000;284:1689-1695

---

- This paper likens drug (including alcohol) dependence to asthma, hypertension and type 2 diabetes
- “Drug dependence should be insured, treated, and evaluated like other chronic illnesses.”