



*Industry Health & Safety
Testing, Training & Prevention*



How Drugs Affect Your Health & Safety

Presentation Outline

- Introduction
- Workplace Health and Safety
- What are Drugs?
- Health Effects of Psychoactive Drugs
- Snapshot of data and emerging issues

- Workplace drug and alcohol testing, combined with worker education programs, represent an effective strategy to improve workplace health and safety
- The 3 aims of the strategy are;
 - *Improving worker knowledge about the harmful effects of drugs and alcohol*
 - *Identifying workers consuming drugs and alcohol*
 - *Providing a disincentive to drug and alcohol consumption through random testing*

Drug Safe Workplace

- 1 • Policy
- 2 • Employee Education
- 3 • Supervisor Training
- 4 • Drug Testing
- 5 • Employee Assistance

Did You Realise?

Alcohol and other drugs cost Australian workplaces an estimated \$6 billion per year in lost productivity¹.

Recent research has estimated that 2.5 million days are lost annually due to alcohol and other drug use, at a cost of more than \$680 million².



¹Manning, M., Smith, C. & Mazerolle, P. (2013). The societal costs of alcohol misuse in Australia. Trends and Issues in Crime and Criminal Justice. 454. Canberra: Institute of Criminology.

²Roche, A., Pidd, K. & Kostadinov, V. (2015). Alcohol – and drug-related absenteeism: a costly problem. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/1753-6405.12414/full>

Did You Realise?

One in 10 workers state they have experienced the negative effects associated with a co-**worker's misuse of alcohol.**

These negative effects include:

- reduced ability to do the job
- being involved in an accident or near miss
- working extra hours to cover for a co-worker
- taking at least one day off work.



Dale, C. & Livingston, M. (2010) The burden of alcohol drinking on co-workers in the Australian workplace, Medical Journal of Australia, 193(3), 138-140.

Did You Also Realise?



Employees with Drug and/or Alcohol problems are :

- 20-25% less productive
- 3.6 times more likely to be involved in an accident
- 5 times more likely to file a workers compensation claim
- 3 times more likely to be late for work
- 2.2 times more likely to require early dismissal
- 3 times more likely to abuse sick leave.

National Centre for Education and Training on Addiction (NCETA) www.nceta.flinders.edu.au

Drug and Alcohol Policy and Procedures



- Policy outlines expectations for all workers.
- Written document for procedures.
- Prevention, education, counselling, rehabilitation.
- **Not about ‘dobbing in’** colleagues
- **It’s about managing your** health and wellbeing and ensuring a safe workplace.
- Only becomes an issue if people choose to use or are affected by drugs or alcohol in the workplace.



Overview of Drugs and Alcohol

What is a Drug?

- Substances that change a person's physical or mental state.
- Majority are used to treat medical conditions (both physical and mental).
- Some are used outside the medical setting for their effects on the mind. These are referred to as recreational drugs, and many of them are illegal in Australia.

Overview of Drugs and Alcohol

Legal Drugs	Illegal Drugs	'Other' Drugs
Pharmaceutical	Cannabis	New Psychoactive Substances
Ethanol	Amphetamine Type Stimulants/Substances	Herbal and Sports Supplements
Caffeine	Cocaine	
Nicotine	Heroin	

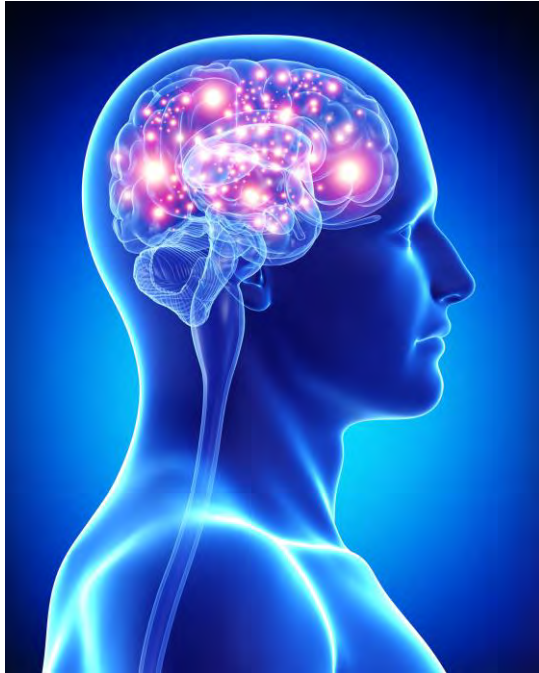
Why do People use Drugs?

Some of the reasons why people use alcohol and other drugs include:

- *For enjoyment*
- **To** socialise
- **To** relax or relieve stress
- **Because of** boredom
- **To relieve physical or emotional** pain
- **Because of** peer pressure/cultural norms



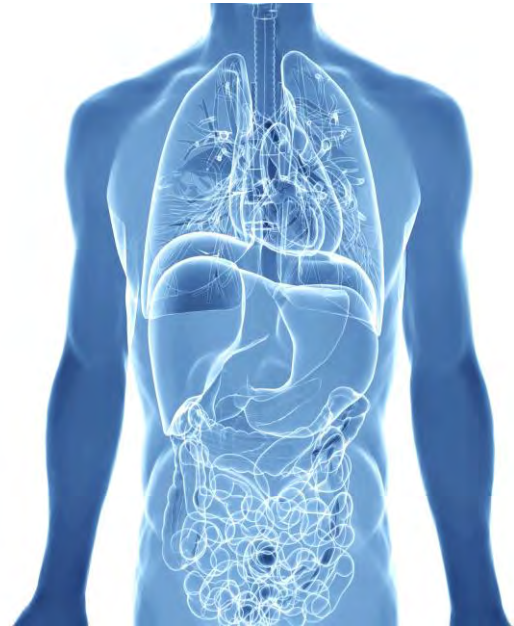
How do Drugs Enter the Body?



- Mainly taken orally, intravenously or by inhalation.
- Absorbed into bloodstream.
- Circulate to target tissue (brain) but hits all other parts of the body too.

How do Drugs Leave the Body?

- Secreted in saliva within minutes. Determines the detection time in drug testing.
- Eliminated via liver and kidneys into urine within hours. Determines the detection time in drug testing.
- Age, gender, size and genetics influence overall rates of elimination.



Effects of Drugs



Experience that a person has when using drugs can be affected by:

- The Person.
- The Drug.
- The Environment.

Drug Classes

Drugs act on the Central Nervous System (CNS) and can be broadly classified as:

- Stimulants.
- Depressants.
- Hallucinogens.



Stimulants

- Speed up the messages transmitted between the CNS and the body.
- Two common stimulants are:
 - *Amphetamine type stimulants*
 - *Cocaine*



Amphetamine Type Stimulants

Synthetic class of drug that act as stimulants. Can be taken orally, by injection, smoked or snorted.

Examples include:

- Dexamphetamine (amphetamine)
- Ecstasy (MDMA)
- Ice/Speed (methamphetamine)
- Phentermine (Duromine)
- Ephedrine
- Pseudoephedrine (Sudafed).



Amphetamine Type Stimulants

- Commonly manufactured in backyard laboratories.
- Labs are not regulated and apply no standards of purity or quality control.

Do you know what it can do to you?



Workplace Example

INCIDENT: Piece of rock got stuck in the conveyor belt.

Instead of hitting emergency stop button, the worker stuck his hand in to fix the problem.

OUTCOME: Worker lost 3 fingers – post incident testing confirmed he was methamphetamine positive.



Cocaine



- Leaves of the *Erthroxylon coca* plant.
- 3 main forms:
 - Paste
 - Powder
 - Crystal rock (*crack*)
- In Australia, cocaine is most commonly in a powder form which is often used by snorting.

Depressants



- Do not make you depressed.
- Slow down the messages from the CNS to the rest of the body.

Examples include:

- Cannabis.
- Opiates.
- Benzodiazepines.
- Alcohol.

Cannabis

- Derived from the plant *Cannabis sativa*.
- Cannabis is produced in three main forms:
 - *Cannabis herb*.
 - *Cannabis resin*.
 - *Cannabis oil*.
- Cannabis is typically smoked and often mixed with tobacco, sometimes added to food and eaten.



Medicinal Cannabis vs Recreational Cannabis



- Medicinal – prescribed to relieve symptoms of medical condition. *May not include THC (psychoactive ingredient in cannabis).*
- Recreational – form of cannabis used to get ‘high’, **contains psychoactive component.**

Workplace Example

INCIDENT: Workers dropping shipping containers on vehicles, racing each other in cranes and cranes falling off the wharfs.

OUTCOME: Post incident testing confirmed workers were positive for cannabis.



Opiates



Derived from the opium poppy.

Morphine and codeine:

- naturally derived from opium.
- prescribed legally.

Heroin:

- chemically modified morphine.
- illegal.
- usually injected but can be smoked or snorted.

Codeine

Codeine is contained in strong painkillers only available through a pharmacy, including:

- Panadeine.
- Nurofen Plus.

Or available in prescription medicines such as:

- Panadeine Forte.
- Mersyndol Forte.



Workplace Example

EMPLOYER: Mining company – worker operates heavy machinery.

BACKGROUND: At education session worker **admitted to using his wife's migraine tablets** to help with his back pain. The tablets were Panadeine Forte.

Worker said *'wife is only a little thing – she **takes half a tablet but I'm a pretty big bloke** with a pretty crook back so I take 6'.*



Benzodiazepines



- Prescribed for insomnia and anxiety.
- Prescribed in a tablet or capsule form.
- Common forms include:
 - Valium (Diazepam).
 - Xanax (Alprazolam).
 - Oxazepam (Serepax).

Hallucinogens



- Drugs that cause hallucinations.
- Users see images, hear sounds and feel sensations that are not real.
- Some can produce sudden and unpredictable changes in mood.

Examples include:

- LSD (Lysergic acid diethylamide).
- Magic mushrooms.
- Mescaline (peyote cactus).

SUMMARY: Approximate Duration of Detectability

Drug	Oral Fluid Drug Testing	
	On-site Testing	Lab-based Testing
Amphetamine Type Stimulants	Up to 36 hours	Up to 3 days
Benzodiazepines	Up to 12 hours	Up to 3 days
Cannabis (THC)	Up to 12 hours	Less than 24 hours
Cocaine	Up to 6 hours	Up to 3 days
Opiates	Up to 36 hours	Up to 3 days

SUMMARY: Approximate Duration of Detectability

Drug	Urine Drug Testing	
	On-site Testing	Lab-based Testing
Amphetamine Type Substances	Up to 5 days	Up to 5 days
Benzodiazepines	Up to 2 weeks	Up to 2 weeks
Cannabis (THC) <ul style="list-style-type: none">• Infrequent user• Chronic user	Up to 14 days Up to 3 months	Up to 14 days Up to 3 months
Cocaine	Up to 3 days	Up to 3 days
Opiates	Up to 4 days	Up to 4 days

New Psychoactive Substances (NPS)

Refers to substances produced to mimic the effect of an illicit drug.

The 3 most common types of NPS are known as:

- Herbal highs or party pills.
- Synthetic cannabis.
- Research chemicals and drug analogues.

Prescription Drugs



Prescription drugs, when used without a prescription and without the supervision of a doctor, can have adverse effects including:

- Sleepiness.
- Anxiety.
- Depression.
- Confusion.

This can pose risks to employees, their co-workers and the overall workplace.

Misuse of Prescription Drugs

When taken for non-medical or recreational purposes, prescription drugs are no safer than illicit or street drugs:

- Painkillers.
- Sedatives.
- Stimulants.





Alcohol

Alcohol: The Facts

Alcohol is implicated in:

- 18% of all injuries presenting to emergency departments.
- 50% of assaults.
- 44% of fire injuries.
- 34% of falls and drownings.
- 10% of industrial accidents.



What is Alcohol?

- Most widely used **social drug** in Australia.
- Causes most self harm and harm to others of all drugs available in the community.
- Refers to drinks such as beer, wine or spirits.
- Contains ethyl alcohol (ethanol).
- Affects people in different ways.



Stimulant and Depressant Effects



- Most people drink for the *stimulant* effect, to **'loosen up' and 'relax'**.
- If a person consumes more than the body can handle, they then experience **alcohol's** depressant effect.

Alcohol and the Body

Alcohol is absorbed into bloodstream.

Rate of absorption can differ:

- Gender.
- Body size.
- Composition.
- Age.
- Experience of drinking.
- Genetics.
- Nutrition and individual metabolism.



Alcohol Excretion



- Liver responsible from removing alcohol from bloodstream. Processed at a fixed rate.
- Approximately one hour to break down the alcohol content of one standard drink.
- Cannot remove alcohol by vomiting, having a cold shower or drinking coffee or other caffeine drinks.

Alcohol issues

- Binge Drinking
 - *Drinking heavily on a single occasion.*
 - *Drinking continuously over a number of days or weeks.*
- Tolerance
 - *Need to consume more to achieve the same effect.*
 - *No tolerance to toxic effects*
- Dependence
 - *Psychological*
 - *Physical*

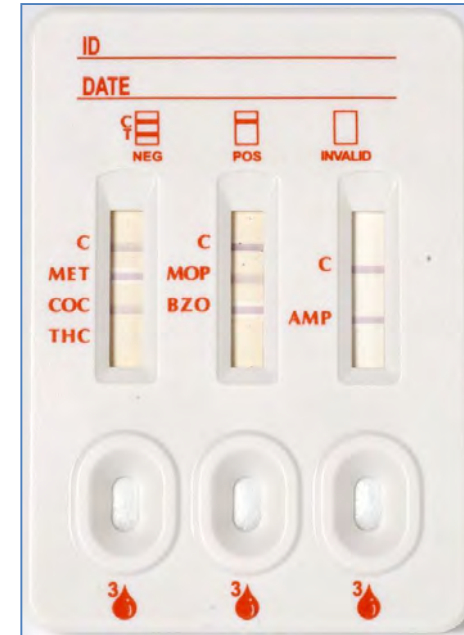


- **Some recent data....**

- Collection and critical evaluation of drug testing data can provide key information for businesses regarding;
 - *The current rates of drug use in worker populations*
 - *the drugs of choice in worker populations*
 - *Trends in drug consumption relating to*
 - *Differences between industry sectors*
 - *Regional variations in drug use*
 - *Changes in drug use over time*
- These data can help inform businesses about the effectiveness of intervention and education programs and how to target specific needs in this testing environment

- The current data set represents a preliminary analysis of drug testing results from a single Australian service provider.
- Data include 4 main industry participants
- Data were compiled from
 - *On-site screening tests using immunoassay methods*
 - *Laboratory confirmation analysis of specimens requiring further investigation*
 - *Procedures compliant with*
 - *AS/NSZ 4308:2008 Procedures for specimen collection and the detection and quantitation of drugs of abuse in urine*
 - *AS 4760:2006 Procedures for specimen collection and the detection and quantitation of drugs in oral fluid*

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Client:		Certificate Number:		RS17/11	
Specimen No:	46	Accession No:	RS17/11	Date	Time
Specimen:	Urine	Sealing Tag No:	MX00001	Collected	19 17 12:02
Temperature °C:	34	Seals Intact:	Yes	Received	20 17 13:27
Kit Number:	21	Employee Name:		Date of Birth:	Jun 92
Testing Site:					

Urine Integrity Test	Test Method	Normal Range	Result
Creatinine	CD11	>200mg/L - 50 - 200mg/L (dilute specimen)	2.647
Specific Gravity	CD12	1.003g/mL - 1.035g/mL	1.025
Sample Check	CD13	80% - 100%	96
pH	CD14	4.7 - 7.8	5.3
Urea	CD15	>50mmol/L	323

DRUG TEST PANEL	SCREENING	Confirmation	Threshold	Result
Test Name	Test Method	Test Method	(µg/L)	
Amphetamines	CD01	300	MS102/MS110	150 POSITIVE
Benzodiazepines	CD02	200	MS104/MS110	200/100 POSITIVE
Cannabinoids	CD03	50	MS105/MS109	15 Negative
Cocaine Metabolite	CD04	300	MS103/MS110	150 POSITIVE
Opiates	CD05	300	MS101/MS108	300 Negative

This sample screened non-negative in the laboratory for amphetamines, benzodiazepines and cocaine and metabolites. Methamphetamine confirmed **POSITIVE** by LCMS at 187µg/L using method MS110. Ecgoninmethylester confirmed **POSITIVE** by LCMS at >1200µg/L using method MS110. Benzoylscopolamine confirmed **POSITIVE** by LCMS at >1200µg/L using method MS110. alpha-hydroxypropylpiperazine confirmed **POSITIVE** by LCMS at 653µg/L using method MS110.

Signed: 
(Acting Human Operations Supervisor)

Dated: 22 2017

Laboratory testing has been carried out in compliance with AS/NZS 4308:2008, Section 4: Laboratory screening procedures and Section 5: Laboratory confirmatory procedures.
This sample was received from a collection facility which is accredited for compliance with AS/NZS 4308:2008, Section 2: Specimen collection, storage, handling and dispatch.
ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025-TESTING THIS REPORT MAY NOT BE REPRODUCED/EXCEPT IN FULL
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
RADL form number: 5, Issue date 11 May 2016, Approved by

Drug classes tested and reported

	Cut-off concentrations ug/L Screening (laboratory confirmation)	
	Urine	Oral fluid
Amphetamine type stimulants	300 (150)	50 (25)
Opiates	300 (300)	50 (25)
Cannabinoids (THC)	50 (15)	25 (10)
Benzodiazepines	200 (200/100)	
Cocaine	300 (150)	50 (25)

Results



Test type	Oral fluid			Urine			total		
	N	N medication	N Illicit	N	N medication	N Illicit			
Blanket	1,186	1	2	732	38	11	1,918	39	13
Reasonable cause	23	0	4	24	1	7	47	1	11
Post incident	944	5	7	1,521	84	32	2,465	89	39
Pre employment	3	0	0	1	0	0	4	0	0
Random	11,213	57	36	7,590	289	72	18,803	346	108
Retest	80	1	5	112	8	13	192	9	18
Other	3	0	0	22	3	0	25	3	0
Total	13,452	64	54	10,002	423	135	23,454	487	189

Results



Test type	Oral fluid			Urine			total		
	N	N medication	N Illicit	N	N medication	N Illicit		N	N medication
Blanket	1,186	1	2	732	38	11	1,918	39	13
Reasonable cause	23	0	4	24	1	7	47	1	11
Post incident	94	0.40% illicit		1,000	1.35% illicit		2,000	0.81% illicit	
Pre employment	3	illicit			illicit			illicit	
Random	11,213	57	36	7,590	289	72	18,803	346	108
Retest	80	1	5	112	8	13	192	9	18
Other	3	0	0	22	3	0	25	3	0
Total	13,452	64	54	10,002	423	135	23,454	487	189

Results



Sector	No tests	N (%) non-neg	% lab neg	% med	% illicit	%				
						ATS	coc	THC	opi	bzo
aviation	1910	31 (1.62)	0.31	1.15	0.16	33		67		
logistics	7284	65 (0.89)	0.18	0.42	0.29	62	19	24		
freight	2915	174 (8.00)	3.16	3.57	1.24	37	11	67		4
enforcement	3619	107 (4.64)	2.08	3.03	0.30	14		86		

Results - logistics



State/Territory	No tests	N (%) non-neg	% lab neg	% med	% illicit	%				
						ATS	coc	THC	opi	bzo
ACT	48	1 (2.08)	0	2.08	0	62	19	24		
NSW	1805	14 (0.78)	0.11	0.22	0.44	44	44	11		
NT	138	2 (1.45)	0.73	0	0.73		100			
QLD	1527	11 (0.72)	0.20	0.39	0.13	100				
SA	413	8 (1.93)	0	1.21	0.73	67		33		
TAS	486	1 (0.21)	0	0.21	0					
VIC	2020	21 (0.54)	0.25	0.54	0.25	60		40		
WA	1141	8 (0.35)	0.09	0.35	0.26	33	33	33		

Conclusions



- A large workplace drug testing compilation across Australia
- Complements other data relating to drug use (e.g. Australian Criminal Intelligence Commission annual Reports)
-
- Provide support to businesses for
 - *Benchmarking*
 - *Demonstrating effectiveness of drug programs*
 - *Identifies areas for intervention for worker education*
-
- Emerging issues include
 - *Increasing community use of drugs including methamphetamine*
 - *Introduction of medicinal cannabis in Australia (2016)*
 - *Reduction of cut-off threshold for THC in Australian Standards (2018)*
 - *Availability of codeine medications (prescription only from 2017).*
- Planned electronic tablet technologies applied to data collection (2018)

Any Questions?



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