

Emerging Drugs Network of Australia

Dr Jessamine Soderstrom Royal Perth Hospital One not so quiet Saturday evening.....

- 9 ambulances are dispatched to Northbridge and surrounding areas
- 6 patients are brought into ED with suspected MDMA ingestion

The WISE Study



Western Australian Illicit Substance Evaluation



Blood sampling of ED patients suspected of being intoxicated with **stimulant**, **hallucinogenic** or **cannabinoid** drugs.



Measuring drugs, their concentrations and the clinical effects



Over 600 patients enrolled, commencing Aug 2016

Which Sample?



- Whole blood in gel-free 9ml
 EDTA BD Vacutainer tube
- Filled ¾ full
- Gel adsorption?
- Frozen to preserve unstable molecules (eg cathinones)
- ChemCentre analysis validated using whole blood

Methodology - ChemCentre



ChemCentre WA



Storage of samples at -20°C



Solid supported liquid extraction (SLE)



Screening analysis LC-QTOF-MS



Database of over 700 compounds, constantly updated



Methamphetamine, amphetamine, MDMA, MDA quantified using LC-QQQ-MS



Targeted screening of high potency/low dose drugs using LC-QQQ-MS

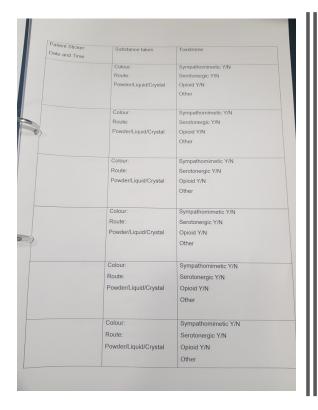


Validated quantification of NPS using reference standards

Methamphetamine	229
Amphetamine (without meth)	7
MDMA	37
MDA (without MDMA)	6
NBOMe drugs (25C-NBOMe, 25I-NBOMe)	17
4-fluoroamphetamine	16
LSD	11
Cathinones (flakka [alpha PVP], methylone, ethylone, methcathinone)	10
Cocaine or metabolites	8
Diphenidine	3
Synthetic Cannabinoids (FUB-AMB, AB-FUBINACA)	2
Paramethoxymethamphetamine (PMMA)	2
Gammahydroxybutyrate (GHB/fantasy)	2
Paramethoxyamphetamine (PMA)	1
Psilocin	1

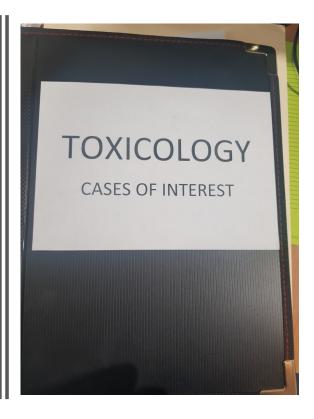
Lessons learnt so far from WISE

- Metamphetamines
 - Impact on the Emergency Dept
 - 77% present agitated and psychotic
 - 87% requiring some form of sedation
 - Psychosis not related to Meth levels
 - Novel psychoactives
 - Largest MDMA case series
 - NBOMBe 5FA clusters
 - Synthetic cannabinoids: Not seen with change of legislation









WISE Project

EDNA: Translation from WISE



Clinical protocol rolled out to all metro hospitals in the last 8 months. Included in this are opioids and stimulants



Consent required prior to blood analysis



135 patient recruited so far



54% excluded due to lack of consent



Of samples analysed, metamphetamines and MDMA most common

Process in WA

FD

- Standardised Clinical Protocol
- A simple log in the ED with a patient sticker
- •Blood sample frozen immediately
- Every lab has a freezer. Having a standard form

Transport to RPH

- Each Clinical lead from all metro hospitals to check that consent has been obtained and to determine what samples to be analysed
- Clinical details to be entered into database
- •Internal transport to RPH and bloods to be stored in research freezer

Transport to ChemCentre

At the moment, still manual transport by one of research staff member

Analysis by ChemCentre

•Results sent back to RPH and it goes into patient record and database

EDNA

State level

Hospital Emergency Departments

Forensic laboratories

Toxicology Units

National level

National Poisons Network

ToxSAG

National Registry

WA, SA, NSW, VIC, ACT and QLD

EDNA representatives

Emergency Dept/Clinical Toxicology

- WA: Dave Mccutcheon, Jess
- SA: Sam Alfred
- NSW: Kylie McArdle, Thanjira
- Vic: Shaune Greene
- Qld: Katherine Isoardi
- ACT: David Caldicott

Forensic Laboratory

- Chem Centre
- Forensic Science SA
- FASS
- VIFM
- Qld Health Forensic
- Calgary Hospital

Where are we up to nationally

- South Australia
- NSW

- Victoria
- QLD
- WA

- Metro wide, 15 samples/month
- Public health approach of targeting all ICU admissions
- VIFM working with VicPIC to be able to turn around samples quickly
- Collaboration with the Qld forensics and PIC
- New Project officer to bring it together. NCCRED funded



153 patients recruited

EDNA Preliminary results

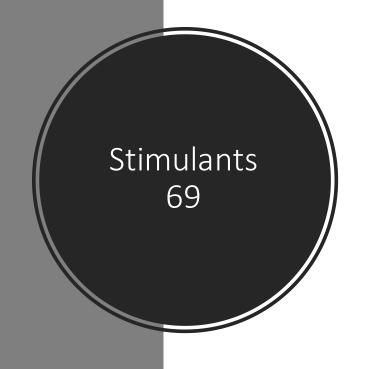


69 included

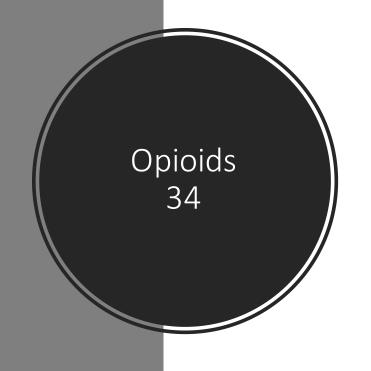


84 excluded

38/72:53% excluded as unable to get consent

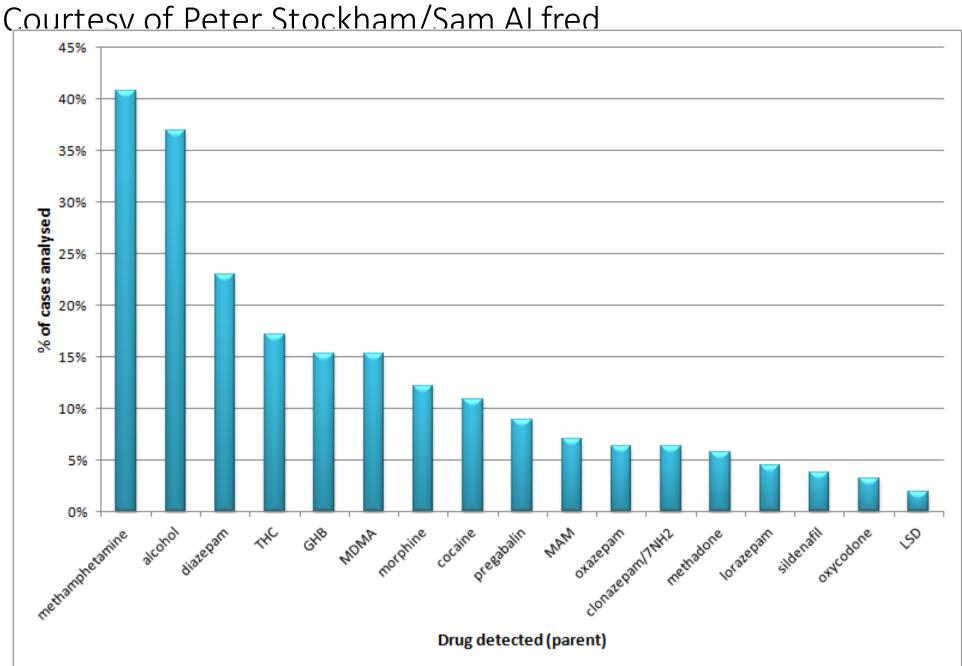


Synthetic cannabinoids	12
Metamphetamines	34
amphetamines	29
Ketamine	1
Methylenedioxyamphetamine (MDA)	11
Methylenedioxymethylamphetamine (MDMA)	13
Cocaine	3
Psilocin	1

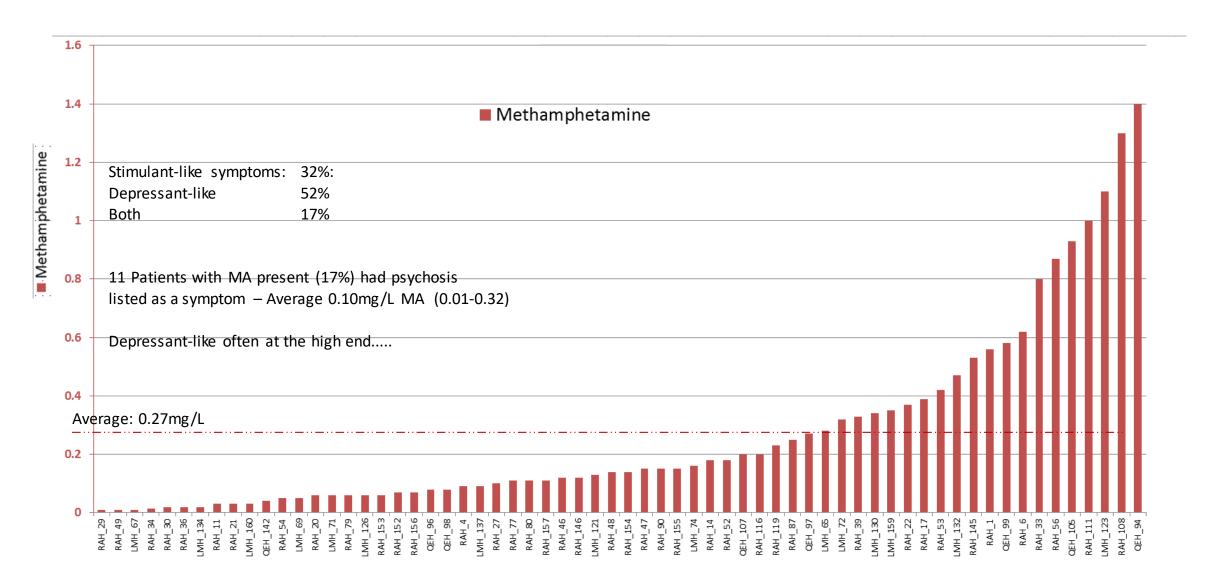


Opioids	34
Codeine/Norcodeine	1
Methadone	4
Morphine	4
Morphine/Codeine	15
Tapentadol	2
Fentanyl	1
Tramadol	2
Tramadol/Desmethyltramadol	1
Tramadol/Metabolite	4
6-Monoacetyl Morphine	4

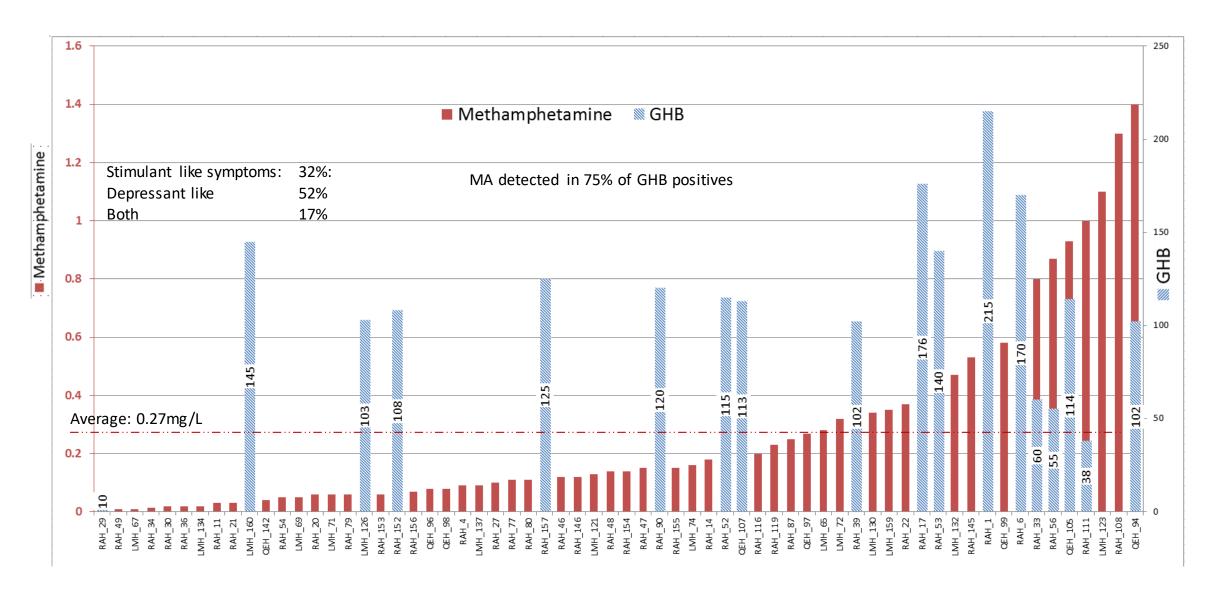
SA experience: Preliminary results 3-Mar to 15-May



SA: Methamphetamine positive samples (mg/L)



SA: Methamphetamine samples with GHB (mg/L)





EDNA: National Registry

- Federation of state registries
- One point of contact between ED and the Forensic laboratory
- Red cap database
- Curtin University and WAHTN

EDNA



Prehospital: Ambulance



Hospital: WISE



Health Departments



User Groups

EDNA

Surveillance
Early warning
system
Prompt Response
Network

Prehospital

Hospital

Poisons Information Network

Police

Health Departments

Coroners

Government

User groups



Back to the MDMA Cluster

CASES	Results	Clinical features
22 yo female2 MDMA capsules and alcohol	MDMA, lignocaine BAL 0.15	Found unresponsive, myoclonic jerks
22 yo male 1MDMA capsule and alcohol	MDMA BAL 0.26	GCS 7/15. Unresponsive, brisk reflexes
19 yo male ?MDMA	No illicit drugs found BAL 0.14	GCS 12/15. Combative, agitated
21 yo man 2 x MDMA capsules and alcohol	MDMA BAL 0.2	GCS 14/15, abnormal dystonic movements, confused, agitated, clonus, tachycardic
21 yo man 2 x MDMA and alcohol	MDMA, Cocaine, Levimasole BAL 0.32	GCS 7/15 which quickly improved to 14/15, confused, agitated with abnormal dystonic movements
23 yo female Alcohol, found outside of carpark of nightclub	No illicit drugs found BAL 0.19	GCS 9/15, status epilepticus, CT head normal

- 23 yo lady with Status epilepticus:
 Neurology to work out why
- Others: A part of a larger group of friends who were also all unwell with it



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 - ACT: Dr David Caldicott
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Questions?