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Friday, June 8, 2018
14:00 - 14:55  WS #44: Novel Psychotropic Substances
15:05 - 16:00  WS #56: Novel Psychotropic Substances (Repeated)
‘What Every Clinician Needs to Know About Novel Psychoactive Substances’

Assoc. Prof. David Caldicott
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Canberra, Australia.
Clinical Lead, Australian Drug Observatory,
ANU, Canberra, Australia
No, really... I AM a doctor...
‘Ajax and Cassandra’, 1886
Solomon J. Solomon,
Art Gallery of Ballarat
Hail, Hydra...
New Psychoactive Substances (NPS) – the Hydra monster of recreational drugs

Anders Helander\textsuperscript{a,b} and Matilda Bäckberg\textsuperscript{c}

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Jason & The Argonauts (1963)
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Figure 1. Quarterly illustration of NPS opioids reported during telephone consultation with the Swedish Poisons Information Centre (PIC) and in analytically confirmed acute intoxication cases from the Swedish STRIDA project. The time for national classification as a narcotic or harmful to health substance is indicated by a vertical solid line.
Were they ever really ‘novel’...?

• Not so much...

• Some are tweaks to known compounds

• Some are culls from the pharmaceutical research chemistry literature
  • Dr John Huffman, Clemson University
  • Dr David Nichols
  • Dr Alexa Makriyannis, North Eastern University
“We had no idea that anybody would be stupid enough to use [them]”
Many are less ‘novel’ than they used to be...

Underground pill testing, down under

Andrew M. Camilleri\textsuperscript{a,*,} \textsuperscript{a,} David Caldicott\textsuperscript{b}

\textsuperscript{a}Forensic Science South Australia, 21 Divett Place, Adelaide, Australia
\textsuperscript{b}Emergency Department, Royal Adelaide Hospital, Adelaide, Australia

Received 22 April 2004; received in revised form 7 July 2004; accepted 9 July 2004
Available online 1 September 2004
Club Health, Sydney, 2005...
There are now a lot of them out there...
There are now a lot of them out there...
Not just hurting people...
they’re killing people
Drug Induced Deaths

Mean age at death: 39 years

Age at death:
- <25: 10%
- 25-39: 43%
- 40-64: 44%
- >64: 4%

Number of deaths:
- EU: 7,929
- EU + 2: 9,138
Key approaches for reducing opioid-related deaths

Reducing fatal outcome of overdose

- Supervised drug consumption
  - Immediate first-aid in drug emergencies
- Take-home naloxone programmes
  - Improved bystander response

Reducing risk of overdose

- Retention in opioid substitution treatment
  - Reduce drug use and injecting
- Overdose risk assessments
  - In treatment facilities and prisons
- Overdose awareness
  - Knowledge of risk and safer use

Reducing vulnerability

- Outreach and low-threshold services
  - Accessible services
- Enabling environment
  - Removing barriers to service provision
- Empowerment of drug users
  - Enabling drug users to protect themselves
- Public health approach
  - Recognition of wider impact
Multiple attempts at classification...

- Structures
- Receptors
- Mechanism of action

Drugs Wheel- (Mark Adley)
Multiple attempts at classifications...

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<th>Hallucinogens</th>
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<td>Entactogen</td>
<td>Deliriant</td>
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Psycho-chemical classification: 3 classes & 9 families
(Measham & Newcombe 2015)
They emerge really quickly...

• “The drug revolution that no one can stop”
  https://medium.com/matter/19f753fb15e0

• Commissioned the manufacture of 6-CH₃ phenmetrazine

• Ordered 22nd August, 2013

• Delivered 18th September, 2013

‘Concierge Drug Design’
They emerge *really* quickly...

Accelerating Diffusion of Innovation: Maloney’s 16% Rule

Maloney’s 16% Rule: Once you have reached 16% adoption of any innovation, you must change your messaging and media strategy from one based on scarcity, to one based on social proof, in order to accelerate through the chasm to the tipping point.
Motivations for consumption are the same-and different.

• To Get High

• To enhance performance
Motivations for consumption are the same-and different.

• To Get High

• To enhance performance

• To avoid detection
This is not JUST a problem of the drugs, or the market....

...this is also a problem of how we’ve dealt with them to date.
It’s not just about the chemicals

• Market has changed too
It’s not just about the chemicals

• 100 years of prohibition of cumbersome ‘classic markets’

• Like treating a bug with the same antibiotic ALL OF THE TIME

• Forced the evolution of not just new drugs…

...but a whole new market...
So…?

• Brand new products, never seen before

• Manufactured to pharmaceutical purity

• Far more varieties than we can ever hope to ban

• Identified and sourced online by consumers
• Secure, untraceable payment

• Delivered by the postman

• Unrecognizable by ‘sniffer dogs’

• Completely new clinical presentations

• Cannot be identified in urine
Further Catalysts Driving Change...

Container traffic in the port of Rotterdam, 1990–2014

Further Catalysts Driving Change...

Understanding the web: the iceberg analogy

Surface web 4%
Also known as the 'Visible web'. This part of the internet can be found by link-crawling techniques used by a typical search engine such as Google or Bing.

Deep web 96%
Also known as the 'Invisible web'. Content here is not accessible to search engines and includes a wide variety of different types including dynamic web pages, private sites, blocked sites and limited access networks.

Dark net
Part of the deep web, also known as the 'Dark web'. Content is intentionally hidden and is accessible using only special web browsers such as the Onion Router (Tor)
Dangerous Place to Be...

- **MPTP** (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine)
  - Precursor to neurotoxic MPP+
  - accidentally produced during the manufacture of MPP,
  - Destroys dopaminergic cells of substantia nigra
  - 6 consumers affected in 1986

- **PMA** (p-methoxyamphetamine)
  - much more unpredictable and variable between individuals than those of MDMA
  - sensitive individuals may die from a dose of PMA that a less susceptible person might only be mildly affected by
  - 10% ICU admission rate

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Some work at receptors we know—but not with the effects you might think

- Most symptoms are similar to cannabis intoxication:
  - Tachycardia
  - Reddened eyes
  - Anxiousness
  - Mild sedation
  - Hallucinations
  - Acute psychosis
  - Memory deficits

- Symptoms not typically seen after cannabis intoxication:
  - Seizures
  - Hypokalemia
  - Hypertension
  - Nausea/vomiting
  - Agitation
  - Violent behavior
  - Coma

Classic toxicidromes are so 00’s...

- ‘Blended’ presenting complaints the new acute norm
- As well as...
  - Increased duration of action
  - Increased intensity of effect
They are not benign

RESEARCH ARTICLE

A systematic review of adverse events arising from the use of synthetic cannabinoids and their associated treatment

Robert J. Tait¹, David Caldicott².³.⁴, David Mountain⁵.⁶, Simon L. Hill⁷ and Simon Lenton¹

¹Faculty of Health Sciences, National Drug Research Institute, Curtin University, Perth, WA, Australia; ²Emergency Department, Calvary Hospital, Canberra, ACT, Australia; ³Department of Emergency Medicine, Australian National University, Canberra, ACT, Australia; ⁴Department of Health & Design, University of Canberra, Canberra, ACT, Australia; ⁵Academic Emergency Medicine, School of Primary, Aboriginal & Rural Health Care, University of Western Australia, Perth, WA, Australia; ⁶Department of Emergency Medicine, Sir Charles Gairdner Hospital, Perth, WA, Australia; ⁷National Poisons Information Service, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle University, Newcastle upon Tyne, UK
They are not benign

- 256 reports, 106 eligible studies
- 4000 cases
- Most cases not life threatening, <8 hours
  - Tachycardia
  - Agitation
  - Nausea
- Self limiting and discharged home
They are not benign

• Major cases are not trivial
  • AMI, ischaemic CVA, embolic events
  • Acute kidney injury
  • Acute neurological impairment (esp convulsions)
  • Acute psychiatric illness

• 26 deaths
Identification isn’t easy...

- Difficult analysis
  - Rare to have lab confirmations
  - Problem of standards
  - Many are heat labile
  - ‘Unknown unknowns’
Long / chronic term outcomes?
Contamination is usually not the problem

The Good Old Days...  New Kids on the Block...
Problematic Purities, Potencies and Doses...

MDMA tablets made for specific music events

 ecstasy tablet made for the Tomorrowland electronic music festival (Belgium). This tablet was analysed in Switzerland in 2015 and found to contain a dangerously high level of MDMA (more than 300 mg).

Photo © Pharmaceutical Control Laboratory, Office of the Control of Pharmaceuticals, Bern, Switzerland

 ecstasy tablet made for the Amsterdam Dance Event (ADE) electronic music festival, also found to contain dangerously high levels of MDMA (2015).

Photo © DIMS Trimbos Institute, the Netherlands
Problematic Purities, Potencies and Doses...

Note: Tested by the Drug Identification and Monitoring System of the Trimbos Institute in the Netherlands.
Source: DIAM, Trimbos Institute, the Netherlands.
Our International Drug Testing Service detects a dangerous mixture from Australia

Posted on Feb 4, 2017 in News

After several deaths, poisonings and severe intoxications in several Melbourne (Australia) clubs in 15-17 January, we have received a sample of capsules sold as MDMA from Australia, related to these health problems.

The complete drug testing has revealed the composition of the sample:

4-FA (4-fluoramphetamine) a psychoactive research chemical of the phenethylamine and substituted amphetamine chemical classes.

25C-NBOMe: a psychedelic drug and derivative of the psychedelic phenethylamine 2C-C. We have not been able to quantify the amount of this substance.

MDMA (3,4-Methylenedioxymethamphetamine) in a low dosage
Fluoroamphetamine is a substituted amphetamine.

- on the Dutch drugs market between 2007 and 2009, but became a drug of choice in recent years
- intermediate between amphetamine and MDMA
- between January and September, 2016, 16% of the acute toxic effects reported by first aid stations of large-scale events were related to the use of 4-FA
- 4-FA intoxications often complain of severe headache
- Several reports of severe cardiovascular and cerebrovascular complications, including intracerebral hemorrhages
- 4-FA was toxicologically confirmed in 4 of these patients
- In 2016, at least 2 deaths associated with 4-FA died in the Netherlands

http://dx.doi.org/10.1016/S0140-6736(17)30281-7

2SCNBOMe is a potent serotonergic hallucinogen

- Falsey referred to as ‘synthetic LSD’
- Considerably more dangerous
- Behavioural harms associated with hallucinations
- Toxicological harms
- Multiple deaths reported from both causes

DOI:10.1007/s854_2016_64

Together, the mixture of these products significantly potentiate the potential for harm.

The contents of this sample are similar to those analysed in association with that which caused multiple overdoses in Melbourne several weeks ago, with the absence of MDMA.

People in possession of these products should be aware that they have a high probability of causing harm if ingested, and they should dispose of them safely, and immediately.

In general consumers should be aware that the market in Australia is highly volatile and unpredictable.

There is no guarantee that the product purchased is what it has been sold as; in fact, this season, it is less likely than ever.

As always, the medical advice to young Australians intent on consuming products for recreational purposes is that the only way to guarantee your safety, 100%, is to not consume those products.

Should you or your friends choose to use drugs, and become unwell, please call an ambulance.

It could be a matter of life & death.
Police defend decision not to warn public of new drug after Melbourne club deaths

Tom Cowie | Nino Bucci | Cameron Houston

A toxic batch of drugs being sold as MDMA in Melbourne's nightclubs which resulted in three deaths was tainted with the powerful hallucinogen NBOMe, tests have revealed.

Victoria Police has defended its decision not to warn the public about what was in the deadly drug despite circulating an internal memo detailing its knowledge of the dangerous cocktail of powerful substances.
Analysis of Clothing and Urine from Moscow Theatre Siege Casualties Reveals Carfentanil and Remifentanil Use

James R. Riches, Robert W. Read, Robin M. Black, Nicholas J. Cooper and Christopher M. Timperley*

Detection Department, Defence Science and Technology Laboratory (Dstl), Porton Down, Salisbury, Wiltshire, SP4 0JQ, UK

Carfentanil

Fentanyl
For wild African elephants the following doses of carfentanil are recommended:
Calves with shoulder heights of 90-115 cm: 1 mg
Calves with shoulder heights of 116-114 cm: 3 mg
Calves with shoulder heights of 141-165 cm: 5 mg
Calves with shoulder heights of 166-200 cm: 7 mg
Adult females: 10 mg
Adult males: 13 mg
These doses can be reduced by 25% for elephants in captivity (Raath, 1999).

| Table 2: Chemical structure, calculated lowest ED<sub>n</sub> in mg/kg, calculated peak effect and duration of action in hours, relative potency, LD<sub>50</sub> (mg/kg) and safety margin of N-4-substituted 1-2-arylethyl)-4-piperidinyl-N-phenylpropanamides. |
|---|---|---|---|---|---|---|---|---|---|---|
| Serial number or genetic name | X | R<sub>1</sub> | R<sub>2</sub> | R<sub>3</sub> | R<sub>4</sub> | ED<sub>n</sub>| Peak effect | Duration at n×ED<sub>n</sub>| Relative potency | LD<sub>50</sub> | Safety margin |
| R 30 490 | -CH=CH- | H | -H | -H | 0.00069 | 0.15 | 1.64 | 1.69 | 1.61 | 4.652 | 10.2 | 14 783 |
| R 30 730 | -S- | H | -H | -H | 0.00071 | 0.14 | 0.58 | 1.00 | 1.48 | 4.521 | 17.9 | 25 211 |
| R 31 833 | -CH=CH- | H | -H | -H | 0.00033 | 0.29 | 1.00 | 1.55 | 2.13 | 10.031 | 3.39 | 10 594 |
| R 31 826 | -S- | H | -H | -H | 0.00037 | 0.23 | 0.88 | 1.40 | 1.97 | 8.676 | 2.80 | 7 568 |
| R 31 736 | -CH=CH- | H | -H | -H | 0.00064 | 0.33 | 1.20 | 1.94 | 2.75 | 5 016 | 2.38 | 3 719 |
| R 31 727 | -CH=CH- | H | -H | -H | 0.00089 | 0.34 | 2.59 | 7.55 | >8 | 3.607 | 0.16 | 189 |
| R 32 792 | -CH=CH- | H | -H | -H | 0.00070 | 0.55 | 4.39 | >8 | >8 | 4.896 | 0.20 | 286 |
| R 32 557 | -CH=CH- | H | -H | -H | 0.00057 | 0.25 | 0.84 | 1.31 | 1.79 | 5 632 | 3.21 | 5 632 |
| R 33 000 | -CH=CH- | H | -H | -H | 0.00070 | 0.26 | 0.92 | 1.46 | 2.03 | 3.675 | 0.13 | 1 971 |
| R 33 036 | -CH=CH- | H | -H | -H | 0.0012 | 0.15 | 0.64 | 1.06 | 1.58 | 2 675 | 3.00 | 2 500 |
| R 33 352 | -S- | H | -H | -H | 0.00056 | 0.12 | 0.42 | 0.71 | 1.05 | 5 732 | 2.90 | 5 179 |
| Fentanyl | -CH=CH- | H | -H | -H | 0.011 | 0.093 | 0.93 | 1.44 | 2.92 | 3.05 | 277 |
| R 26 800 | -CH=CH- | H | -H | -H | 0.00058 | 0.19 | 1.00 | 1.80 | 2.74 | 5 534 | 0.96 | 1 655 |
| Morphine | - | - | - | - | 3.21 | 0.31 | 1.48 | 2.61 | 3.94 | 1 | 223.0 | 69.5 |
| Pethidine | - | - | - | - | 6.04 | 0.11 | 0.55 | 0.92 | - | 0.531 | 29.0 | 4.80 |

* Calculated by polynomial regression analysis.
*" Calculated at the intersection with the polynomial at n×ED<sub>n</sub>.
*" Calculated at the intersection with the polynomial at n×ED<sub>n</sub>.
* Morphine = 1.
* LD50=lowest ED<sub>n</sub>.

There is no significant difference between the therapeutic indices [median lethal dose (LD<sub>50</sub>) / median antinociceptive dose (AD<sub>50</sub>)] between F and C: 858.1 (444.9–1654.7) and 918.5 (392.8–2147.5), respectively (Table 2). This finding suggested that F and C are equally safe in mice.
Could chest wall rigidity be a factor in rapid death from illicit fentanyl abuse?

Glenn Burns\textsuperscript{a}, Rebecca T. DeRienz\textsuperscript{b}, Daniel D. Baker\textsuperscript{b}, Marcel Casavant\textsuperscript{c} and Henry A. Spiller\textsuperscript{c}

\textsuperscript{a}Central Ohio Poison Center, Ohio State University Medical Toxicology, Columbus, OH, USA; \textsuperscript{b}Office of the Franklin County Coroner, Division of Forensic Toxicology, Columbus, OH, USA; \textsuperscript{c}Department of Pediatrics, Central Ohio Poison Center, College of Medicine, Ohio State University, Columbus, OH, USA
Fentanyl deaths in B.C.
From 2012 to Oct. 31, 2016

B.C. Coroners Service
Cuyahoga County Overdose Deaths 2013-2016
Most Common Associated Drugs

Source: Cuyahoga County Medical Examiner’s Office revised 5-25-17
Prepare for Multiple presentations...
Naloxone will be our friend…

- Use early...
- Use often...
- Don’t be afraid of doses
- Learn about infusions
Prepare for unusual presentations...
Article

7-Alkyl-3-benzylcoumarins: A Versatile Scaffold for the Development of Potent and Selective Cannabinoid Receptor Agonists and Antagonists

Viktor Rempel,§,†, Nicole Volz,§, †, Sonja Hinz,‡, Tadeusz Karcz,∥,¹, Irene Meliciani,+, Martin Nieger,⊥, Wolfgang Wenzel,∗, Stefan Bräse,§, and Christa E. Müller*‡

†Pharmaceutical Chemistry I, Pharmaceutical Institute, PharmaCenter Bonn, University of Bonn, An der Immenburg 4, D-53121 Bonn, Germany
‡Institute of Organic Chemistry, University of Karlsruhe, Karlsruhe Institute of Technology (KIT), Fritz-Haber-Weg 6, D-76131 Karlsruhe, Germany
∥Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), P.O. Box 3640, D-76021 Karlsruhe, Germany
⊥Laboratory of Inorganic Chemistry, Department of Chemistry, University of Helsinki, 00014, Helsinki, Finland

Supporting Information

ABSTRACT: A series of 7-alkyl-3-benzylcoumarins was designed, synthesized, and tested at cannabinoid CB1 and CB2 receptors in radioligand binding and cAMP accumulation studies. 7-Alkyl-3-benzylcoumarins were found to constitute a versatile scaffold for obtaining potent CB receptor ligands with high potency at either CB1 or CB2 and a broad spectrum of efficacies. Fine-tuning of compound properties was achieved by small modifications of the substitution pattern. The most potent compounds of the present series include 5-methoxy-3-(2-methoxybenzyl)-7-pentyl-2H-chromen-2-one (19a, PSB-SB-1201), a selective CB1 antagonist (K<sub>i</sub>: CB1, 0.022 µM), 5-methoxy-3-(2-methoxybenzyl)-7-pentyl-2H-chromen-2-one (21a, PSB-SB-1202), a dual CB1/CB2 agonist (CB1, K<sub>i</sub>: 0.032 µM, EC<sub>50</sub>: 0.056 µM; CB2, K<sub>i</sub>: 0.049 µM, EC<sub>50</sub>: 0.014 µM), 5-hydroxy-3-(2-hydroxybenzyl)-7-(2-methylcyclopt-2-yl)-2H-chromen-2-one (25b, PSB-SB-1203), a dual CB1/CB2 agonist that blocks CB1 but activates CB2 receptors (CB1, K<sub>i</sub>: 0.244 µM; CB2, K<sub>i</sub>: 0.210 µM, EC<sub>50</sub>: 0.054 µM), and 7-(1-butylcyclopentyl)-5-hydroxy-3-(2-hydroxybenzyl)-2H-chromen-2-one (27b, PSB-SB-1204), a selective CB2 receptor agonist (CB1, K<sub>i</sub>: 1.59 µM; CB2, K<sub>i</sub>: 0.068 µM, EC<sub>50</sub>: 0.048 µM).
Notes from the Field

Outbreak of Severe Illness Linked to the Vitamin K Antagonist Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018

Erin Moritz, PhD1,2; Connie Austin, DVM2; Michael Wahl, MD3; Carol DesLauriers, PharmD3; Livia Navon, MS2,4; Kelly Walblay, MPH2,5; Monica Hendrickson, MPH6; Angie Phillips, MSN7; Janna Kerins, VMD1,8; Audrey F. Pennington, PhD1,9; Amy M. Lavery, PhD1,10; Tharwat El Zahran, MD9,11; Judy Kauerauf, MPH2; Luke Yip, MD12; Jerry Thomas, MD12; Jennifer Layden, MD2
Case classification

Suspected case
One or more of the clinical criteria listed above in a patient, without an alternative explanation, and with reported use of synthetic cannabinoids or unknown drugs, or with some suspicion of previous or current drug use or exposure.

Probable case
• One or more of the clinical criteria listed above in a patient with reported use of synthetic cannabinoids in the 3 months preceding illness onset (by patient, proxy, medical record, or health care provider), and laboratory evidence of coagulopathy as measured by meeting the first laboratory criterion listed above, or
• One or more of the clinical criteria listed above, and meeting both laboratory criteria listed above, with no other explanation of results.

Confirmed case
One or more of the clinical criteria listed above in a patient, with reported use of synthetic cannabinoids in the 3 months preceding illness onset (by patient, proxy, medical record, or health care provider), and meeting the second laboratory criterion listed above.

Clinical criteria
Bruising, nosebleeds, bleeding gums, bleeding disproportionate to injury, vomiting blood, coughing up blood, blood in urine or stool, or excessively heavy menstrual bleeding.

Laboratory criteria
• Elevated international normalized ratios (INRs; ≥2.0) or abnormal coagulation profile (e.g., prothrombin time in absence of INR values) for which there is no other clinical explanation, or
• Detection of a long-acting anticoagulant (e.g., brodifacoum) in blood, serum, plasma, or urine, as determined by reference laboratory testing.
Synthetic Cannabinoids & Bleeding

• As of April 25, 2018:
  • 155 cases (76 confirmed and 79 probable)
  • 4 (2.6%) deaths, from major bleeding events.
  • Median patient age was 32 years (range = 18–65 years),
  • 115 (74%) were male,
  • 147 (95%) were hospitalized, 8 (5%) treated in an ED alone.
  • Hematuria commonest reported sign was (125; 81%);
  • all patients reported bleeding from at least one site.
  • INRs were elevated in all patients.
  • All 81 (52%) analyzed clinical specimens from patients with a confirmed or probable case were positive for brodifacoum, long-acting vitamin K antagonist used in rodenticides.
  • clustered in two geographic areas (the Chicago area and seven neighboring counties in central Illinois)
New Drug Packaging, Meet Old Consumption Patterns
We’re not coping at all well with them
Every cloud has a silver lining

• Novel problems call for novel solutions

• Offers opening for rapprochement

• Synergies between clinical & analytical environments

• Public engagement
### Examples of drug checking techniques and application

<table>
<thead>
<tr>
<th>Technique</th>
<th>Results</th>
<th>Broad objective</th>
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</thead>
<tbody>
<tr>
<td>Colorimetric reagents</td>
<td>Drug content, Public health alerts,</td>
<td>Individual harm reduction, Public</td>
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<tr>
<td>High-performance</td>
<td>Harm reduction information, Brief interventions</td>
<td>health action, Market monitoring</td>
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<tr>
<td>liquid chromatography</td>
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<tr>
<td>Gas chromatography– mass spectrometry</td>
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<table>
<thead>
<tr>
<th>Time to results</th>
<th>Testing for</th>
<th>Setting</th>
<th>Who tests</th>
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<tbody>
<tr>
<td>Immediate</td>
<td>Presence or absence of a chemical</td>
<td>At home</td>
<td>Consumers</td>
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<tr>
<td>Weeks</td>
<td>Information on range of substances present</td>
<td>On-site/mobile</td>
<td>Professionals</td>
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<tr>
<td></td>
<td>Quantitative information about all compounds</td>
<td>Remote site</td>
<td></td>
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</table>
CheckIt!’s Mobile drug testing lab

- 4 HPLCs + 1 LCMS
- running in parallel, Q-TOF available
Say hello to my little Friend
Over a decade ago...

“…The AMA recognize that there is no data from Australia on the usefulness of ecstasy pill testing at large events such as raves, as a harm minimization strategy although there is evidence from Europe that it might reduce consumption, morbidity and mortality.

Therefore, the AMA supports in principle targeted, ethically approved, medically supervised research to clarify if there is a role for pill testing within the Australian context”
Drug checking presents as a potentially valuable option for reducing harm at public events and governments should enable trials to be implemented as a matter of priority.
On Thursday 27 April 2018, ACT Minister for Health and Wellbeing, Meegan Fitzharris announced a pill testing service will be available during the Groovin the Moo Canberra music festival on 29 April 2018.
What we don’t know

is going to hurt us...
KEEP CALM AND MONITOR THE MARKET
With Many Thanks To...

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