

New Drug Trends – Oxycodone/Ketamine/BZP/Fentanyl/Others ?

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Background information

- The Division of Analytical Laboratories(DAL) receives samples from drug driving incidents, sexual assaults and post mortems.
- All cases undergo a broad screen for both illicit and therapeutic drugs.
- The laboratory classifies post mortem cases according to case history from police and/or pathologists.



Screening

Screening is performed by

- Immunoassay(ELISA)
- Gas Chromatography/Mass Spectrometry
- Liquid Chromatography(photo diode array)

Quantitation

Depending on the initial screening technique, a second different technique such as Liquid Chromatography MS/MS is used for quantitation.

In most cases for the drugs discussed in this presentation there is a targeted quantitative analysis for the compound detected due to the low levels of detection required .

GHB(gammahydroxybutyric acid) is not detected by routine screening and requires a targeted analysis if it is suspected yo be present in a case.

Case Classifications

The main classifications used by DAL Forensic Toxicology for post mortem cases are:

- Obscure Death – including deaths in hospital
- Alleged Overdose – Illicit drugs
– prescribed medication
- Traumatic Deaths – self inflicted injuries eg. Hanging
- Motor Vehicle Accidents



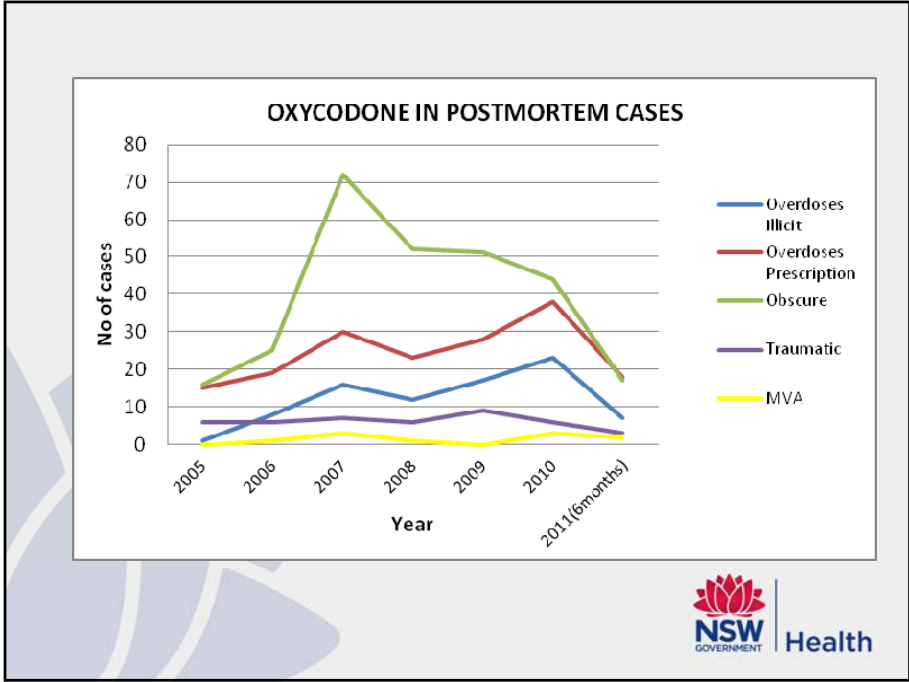
OXYCODONE

Oxycodone – is a semi-synthetic opioid analgesic

- used in pain management
- available in standard and sustained release formulations.

Over the period of January 2005 to end of June 2011 oxycodone was detected in 612 post mortem cases and 198 cases from drug driving and sexual assaults.





OXYCODONE

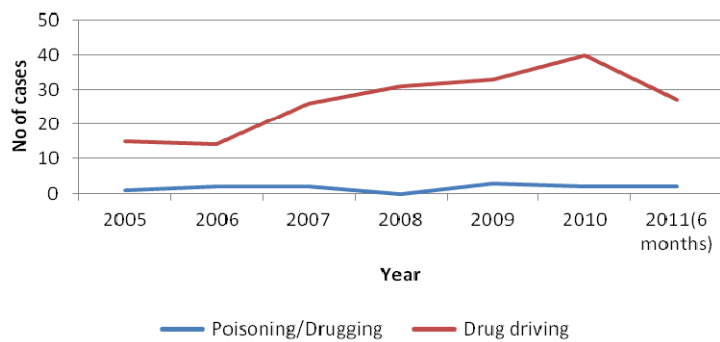
- The highest number of cases where oxycodone was detected is in the “obscure” classification where a deceased may have been prescribed oxycodone and was found deceased with no suspicion of overdose or where the death occurred in a hospital and oxycodone had been given to the patient.
- In cases where oxycodone was detected in alleged illicit drug overdoses, the deceased had often been prescribed oxycodone for pain relief. In most of these cases illicit drugs were also detected.

OXYCODONE

- Where there was and alleged prescription drug overdose, multiple drugs other than oxycodone were also detected in the majority of cases.
- In traumatic deaths oxycodone was often mentioned in case histories.
- Fatal motor vehicle accidents probably involved medical intervention using oxycodone .

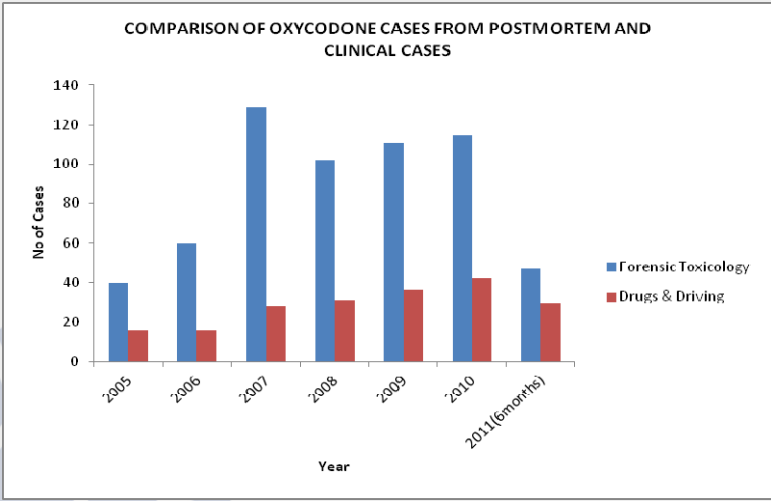


OXYCODONE IN CASES OF ALLEGED POISONING/DRUGGING AND DRUG DRIVING

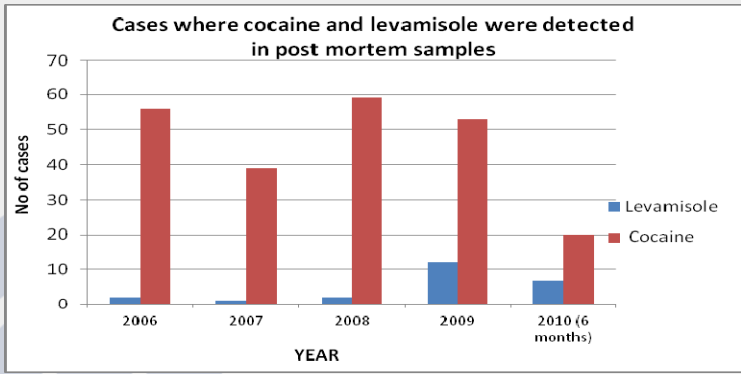


The Drug driving cases are mainly from people involved in car accidents, so medical intervention is the probable source of oxycodone. No case histories are available for these cases.





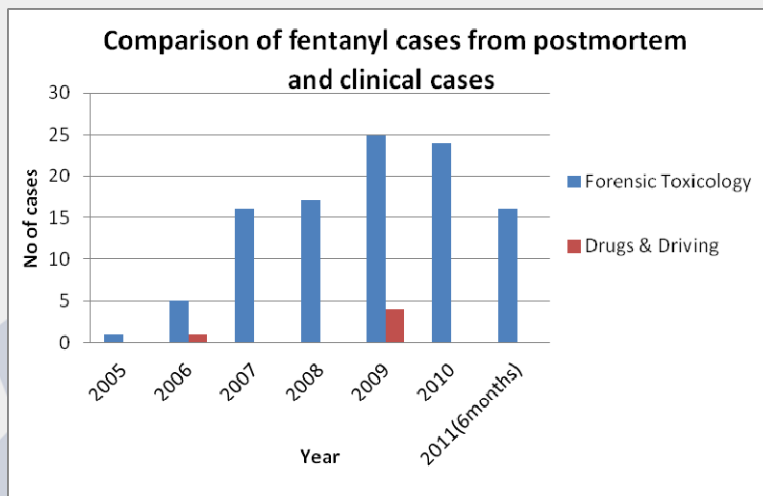
LEVAMISOLE* – a livestock de-wormer has been detected in cases where cocaine was also present. The numbers shown are for post mortem cases only. (*poster presented at 2010 ANZFSS conference)



Fentanyl

- a highly potent narcotic analgesic
- short duration of action
- used as an adjunct to surgical anaesthesia
- available as an injectable solution or transdermal patches.





Fentanyl

- Only five cases of fentanyl were detected in clinical samples in this period.
- Postmortem cases from 2005 and 2006 did not mention fentanyl patches in their case histories.
- In 2007 three cases had mention of fentanyl in case history
- In 2008 one case of an alleged narcotic overdose, fentanyl was detected in a syringe but no mention of fentanyl in case history

Fentanyl

- In 2009 six cases had mention of patches in their case history.. Another two cases were of deceased allegedly injecting fentanyl from patches.
- In 2010 eleven cases had mention of fentanyl patches. In one case the deceased was found with more than 40 patches on the body. Six cases where fentanyl was detected the case histories alleged illicit drug use and possible injection of fentanyl.
- In the first six months of 2011 three cases mentioned fentanyl injection possibly from patches.

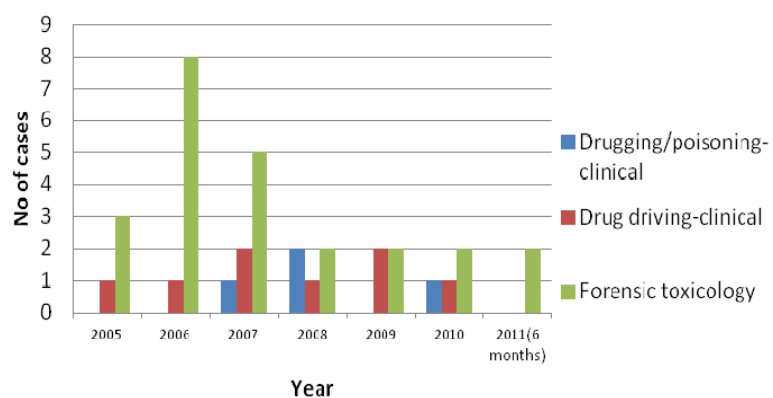
Benzylpiperazine

- This drug is not part of routine screening.
- Two cases from clinical drug driving samples in 2008 had BZP in urine.
- One case in 2009 from postmortem samples.

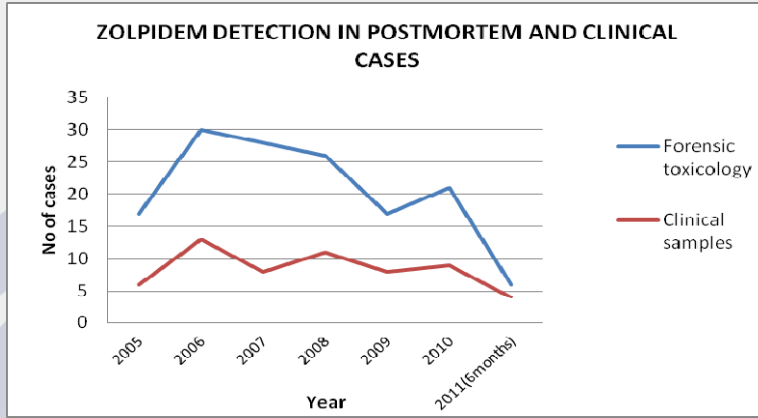
GHB-Gammahydroxybutyrate

- Can be present as an endogenous substance in the body
- Has been used as an anaesthetic and hypnotic agent
- Not screened by routine techniques
- Requires targeted analyses if mentioned in case history

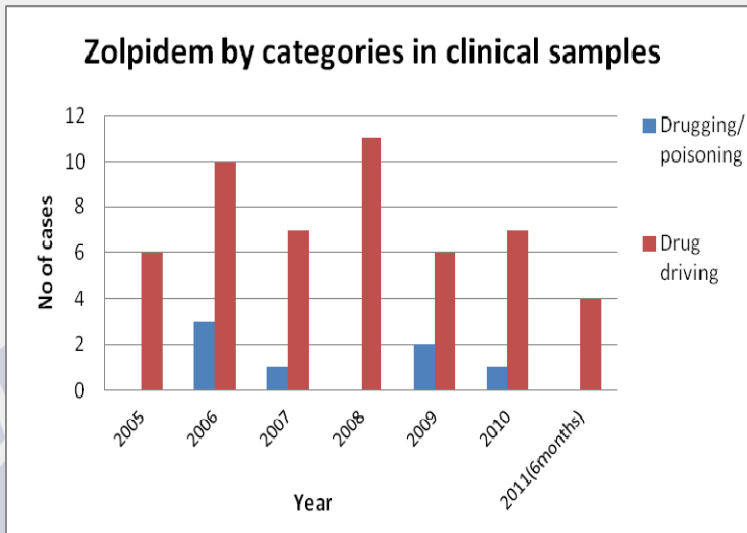
GHB IN CLINICAL AND POSTMORTEM CASES



ZOLPIDEM – used as a hypnotic agent
 – presence declining in post mortem cases



Zolpidem by categories in clinical samples



OTHER DRUGS

- Drugs such as ketamine and pethidine are detected regularly in cases where medical intervention is mentioned in case history and in motor vehicle accident cases where the patient is treated in hospital.
- Hydrocodone is rarely detected and confirmed.

NEW ZEALAND

- **Fentanyl** - Detected 8 times all legitimate therapeutic use
- **Oxycodone** - Detected 37 times most legitimate therapeutic use
 - 9 suspected overdose-all coronial no drug driving

NEW ZEALAND

BENZYLPIPERAZINE

All cases post mortem or involved in incidents, usually Sexual Assault. Drug made illegal in 2008 so numbers dropped dramatically.

| BZP | |
|------|----|
| 2005 | 15 |
| 2006 | 10 |
| 2007 | 20 |
| 2008 | 23 |
| 2009 | 1 |
| 2010 | 2 |
| 2011 | 1 |

ANY QUESTIONS?