

# Informing the development of cannabis driving policy: Reflections on developments in the UK.

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# Department of Transport Expert Technical Panel

2012

- Department for Transport established an expert Panel on Drug Driving
- **Chair (April 2012 – March 2013)**
- To provide an evidence base to inform proposed new legislation  
<https://www.gov.uk/government/publications/driving-under-the-influence-of-drugs-2>
- Recommendations based on increased risk of road traffic collision under the influence of drugs



# Work of Technical Panel: Which drugs used, and by whom (rates in general population)

**In 2013 as today: Cannabis** most commonly used drug in UK 2016/17 - **6.6%** adults aged 16 to 59 used last year (around 2.2 million people); similar to 2015/16 survey (6.5%)

Trend from the 2009/10 survey onwards is relatively flat – 6-7%

Adults aged 16 to 24, greater cannabis use **16.4 %** in the last year (around one million young adults): similar to 2015/16 estimate (15.8%)

Second most commonly used drug was **Cocaine powder** (**2.3%** in the 2016/17 survey, equating to around 760,000 people).

Young adults aged 16 to 24 (**4.8%** or 297,000 young adults): Both similar to last year (2.2% of 16 to 59 year olds and 4.4% of 16 to 24 year olds in the 2015/16 survey

Also: proportion of 16 to 24 year olds reporting **ecstasy** use in last year was **4.3 %** (around 262,000 young adults), a similar level to the 2015/16 survey.

# Considered scientific literature : Cannabis - impaired driving

Currently, there is no impairment standard for driving under the influence of Cannabis.

Nevertheless evidence of impairment does exist

Laboratory, simulator and instrumented vehicle studies show THC can impair critical abilities necessary for safe driving, such as:

**Slow reaction time**, (such as to unexpected events - emergency braking (Casswell, 1977; Smiley et. al., 1981; Lenné, M.G., et al., 2010);

**Problems with road tracking** - lane position variability (Smiley, et. al., 1981; Robbe and O'Hanlon, 1993; Ramaekers, 2004);

**Decreased divided attention** - (Smiley, 1999; Menetrey, et. al., 2005);

**Attention maintenance** (Ramaekers, et. al., 2004);

**Impaired decision making**, and risk taking (Dott, 1972, Ellingstad et al, 1973; Menetrey, et al., 2005).

Compton, R. (2017, July). Marijuana-Impaired Driving - A Report to Congress. (DOT HS 812 440).

Washington, DC: National Highway Traffic Safety Administration

**The technical Panel looked at risk for each drug of interest**

# Considered the increased risk to road users from cannabis use

The Technical Panel noted:

- The acute use of cannabis and the risk of a motor collision has been assessed in a meta-analysis
- 9 research studies summatively including 49, 411 participants
- The pooled risk of a road traffic collision whilst driving under the influence of cannabis was almost twice the risk while driving unimpaired
- Odds Ratio 1.92 (CI 1.35 to 2.74%; P = 0.0003)
- **Asbridge et al, 2012**
  
- **DRUID studies also concluded cannabis use doubles risk RTC**

# Risk of RTC when under the influence of THC

THC concentration in blood	Odds Ratio (OR)	95% CI (unless otherwise stated)	Basis of the OR	Reference
THC < 1 microgram/l blood	1.57	0.84 – 2.95	Population-based case control study of 10748 drivers involved fatal crashes in France 01-03	Laumon et al, 2005 (BMJ)
THC 1-2 micrograms/l blood	1.54	1.09 - 2.18	<i>As above</i>	
THC > 1 microgram/l blood	2,5	1.24 – 4.2	French case control study comparing prevalence of drugs in 900 injured drivers and 900 controls	Mura et al, 2003 (For Sci Internat)
THC > 5 micrograms/l blood	6.6	1.5 – 2.8	Case-control study of 3398 fatally-injured drivers in Australia to assess the effect of alcohol and drug use on the likelihood of them being culpable	Drummer 2004 (Acid Prevent Anal)

Conclude that the higher the blood concentration of THC the more likely to have a RTC

# Home Office Expert Advisory Committee on Drug Driving

**2013 - 2014**

Government Home Office Centre for Applied Science and Technology (**CAST**) established Expert Advisory Committee on Drug Driving



Discussed possibility of cut-offs based on **‘pharmacological effect’**  
Agreed that the pharmacological effect cut-off could represent a **‘middle ground’** between zero tolerance and increased risk of a road traffic collision  
Also allowed for accidental exposure

# Cut-off levels for Cannabis

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**Panel recommendations based on increased risk  
(Odds Ratio) of having a road traffic collision**

Panel recommendations  
THC 5 ug/L

## **LEGISLATION**

Cut-offs set to take into  
account accidental  
exposure  
THC 2 ug/L

**For instance, Exposure of volunteers to cannabis smoke under real-life conditions (coffee shop/small van) failed to demonstrate blood THC concentrations at, or even near, those associated cut-off (Röhrich et al, 2010; Toennes et al, 2010)**



# Significance 5 ng/mL cut-off

Significant increased accident risk when concentration THC  $\geq 5 \mu\text{g/L}$  blood

whether or not ingestion had occurred recently and regardless of the origin of the drug (medicinal or illicit). DRUID 2011-2012; Drummer et al, 2004; Watchel et al, 2012  
Population-based case control study of 10 748 drivers, with known drug and alcohol concentrations, involved in fatal crashes in France between 2001 and 2003. Risk OR 2.12 (CI 1.32–3.38) when THC blood  $\geq 5 \mu\text{g/L}$  (Laumon et al, 2005)

Swiss study DUID suspects (440 positive for THC only) found average blood THC concentrations  $5 \mu\text{g/L}$  at the time of testing: residual THC concentration  $5 \mu\text{g/L}$  'would appear to correlate with earlier observable driving impairment' [Sewell et al, 2009]

Grotenhermen et al. suggested range equating to a range of 3.5 to 5.0  $\mu\text{g/L}$  of THC in whole blood 7.0 to 10  $\mu\text{g/L}$  THC in serum for an initial non-zero per se limit

# PRESCRIBED CONTROLLED DRUGS

**Controlled Drug** - this is a legal definition and refers to those Drugs that are controlled under the 1971 Misuse Drugs Act - this regulates the import, export, possession, supply, and other aspects of activities relating to those drugs specified in the 1971 Act

Nabilone (Cesamet®) a synthetic analogue of THC licensed in the UK, (usual dose 2-4 mg/day). Oral administration of a 2-mg achieved peak plasma THC concentrations of about 2 µg/L within 2.0 h (**1 µg/L whole blood**).

Nabiximols (Sativex®), an oromucosal spray containing THC and cannabidiol (CBD). Spray delivered in fixed dose 2.7 mg THC and 2.5 mg CBD. 12 subjects received a single dose of THC/CBD spray (4 sprays, 10.8 mg THC and 10 mg CBD). Took about 2 h to reach the mean peak THC THC blood concentration, fed subjects ranged from **1.4 to 7.45 µg/L** compared with 0.5 to 4.7 µg/L observed in the fasted state.

# The Legislation

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**2015**

**The new offence of driving with *certain specified controlled drugs*\* *in excess of specified levels in the body* came into force during March 2015.**

**Strict Liability Offence (do not have to prove intent)**

**This offence is an addition to the existing rules on drug impaired driving and fitness to drive.**

**The legislation also provides statutory “medical defence” for this new offence, for patients taking their medicines in accordance with instructions.**

**\* Only pertains to drugs controlled (defined) in the Misuse of Drugs Act 1971**

# Cannabis Drug Driving in Practice

- ▶ Stopped by police for driving offence
- ▶ Breathalysed first
- ▶ Then drug screen
- ▶ Oral Fluid (saliva test) – only test for cannabis or cocaine at roadside
- ▶ If deemed unfit or impaired or positive
- ▶ **Blood sample** at Police Station will test for all drugs



Image – [www.mirror.co.uk](http://www.mirror.co.uk)

# Demographics:

- **Cases were predominantly male (94%);**
- **Nearly half White British (48%); a quarter (25%) White Northern European origin and 7% Asian**
- **Mean age for males  $29 \pm 9$  yrs and female  $32 \pm 10$  yrs;**
- **Youngest recorded offender was 15 years of age: below the legal limit for driving;**
- **The oldest case recorded was a male aged 79 yrs**

# Screening at roadside only detects Cannabis(THC) and Cocaine (+BZE)

## RESULTS

51% individuals (n = 1949) required no-further-action (NFA).

## SCREENING TESTS

2028 screening tests were undertaken

Of these - 54 % led to an arrest



## CONFIRMATORY TESTS

1718 individuals provided a blood sample for a confirmatory test at a police station.

## IMPAIRMENT

- Of total number of blood sampled analysed 94 were charged section 4 offence (6 %)

## Section 5A New Offence

750 drivers with a section 5A offence (49 %); 81 individuals failed to provide a sample

# Screening at roadside only detects Cannabis(THC) and Cocaine (+BZE)

The mean age for those who tested positive for cocaine for males was 33 years; for females was 36 years

From all the cases recorded, 11% were positive for both cannabis and cocaine



There were 1085 positive test results for a single drug and multiple drug cases.

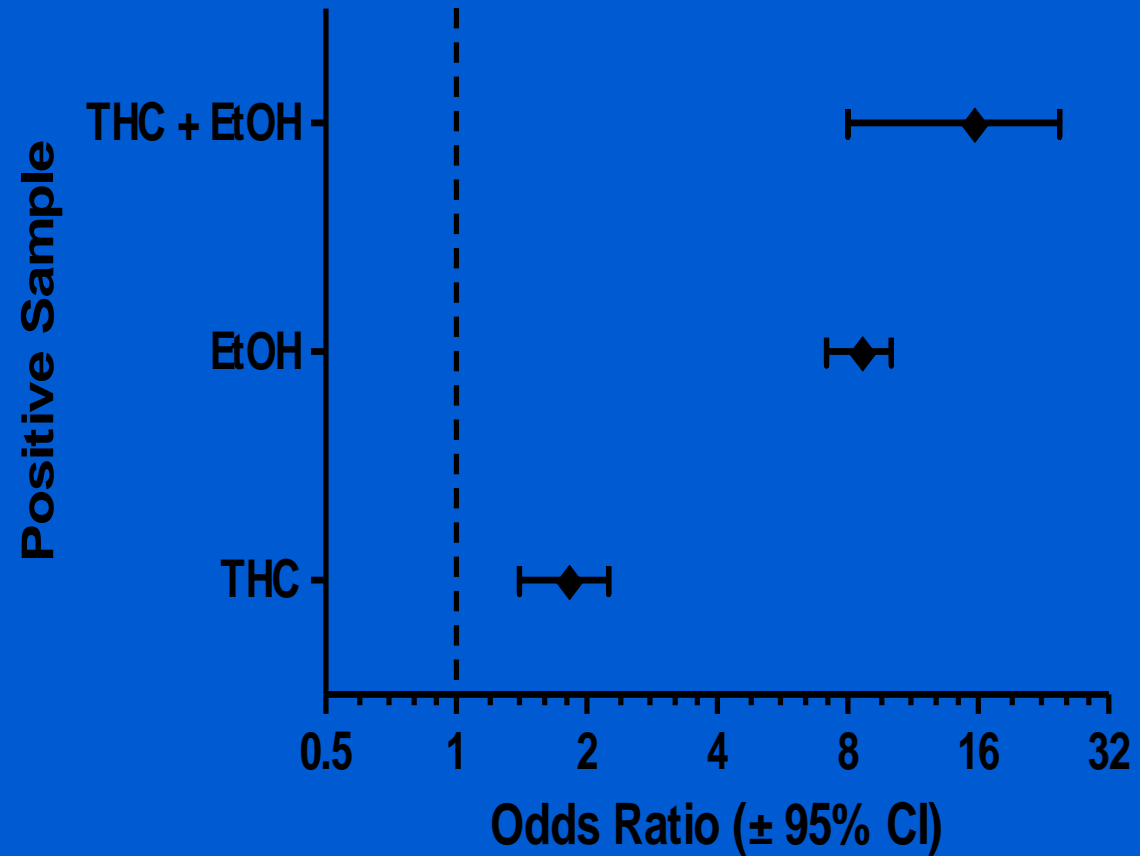
Results showed 771 cases were positive for the presence of one drug.

**A 314 cases (29%) involved polydrug use; 36 cases showed people positive for consuming four or more drugs.**

THC-COOH (the main derivative of THC) was not included as it is not a controlled drug

# Drug and alcohol use and driving

Laumon et al, 2005





# Drugs Detected -

1718 positive blood tests submitted for analysis: 68.4% (1175) were above the section 5A limits.

LSD, Flunitrazepam and clonazepam were not detected

**Cannabis most common substance detected** (57 % of the total positive tests).

If **BZE and cocaine were combined** 32 % of blood tests were above the cut-off and this was 29 % of the total positive tests.

# Confirmatory Test Results - THC

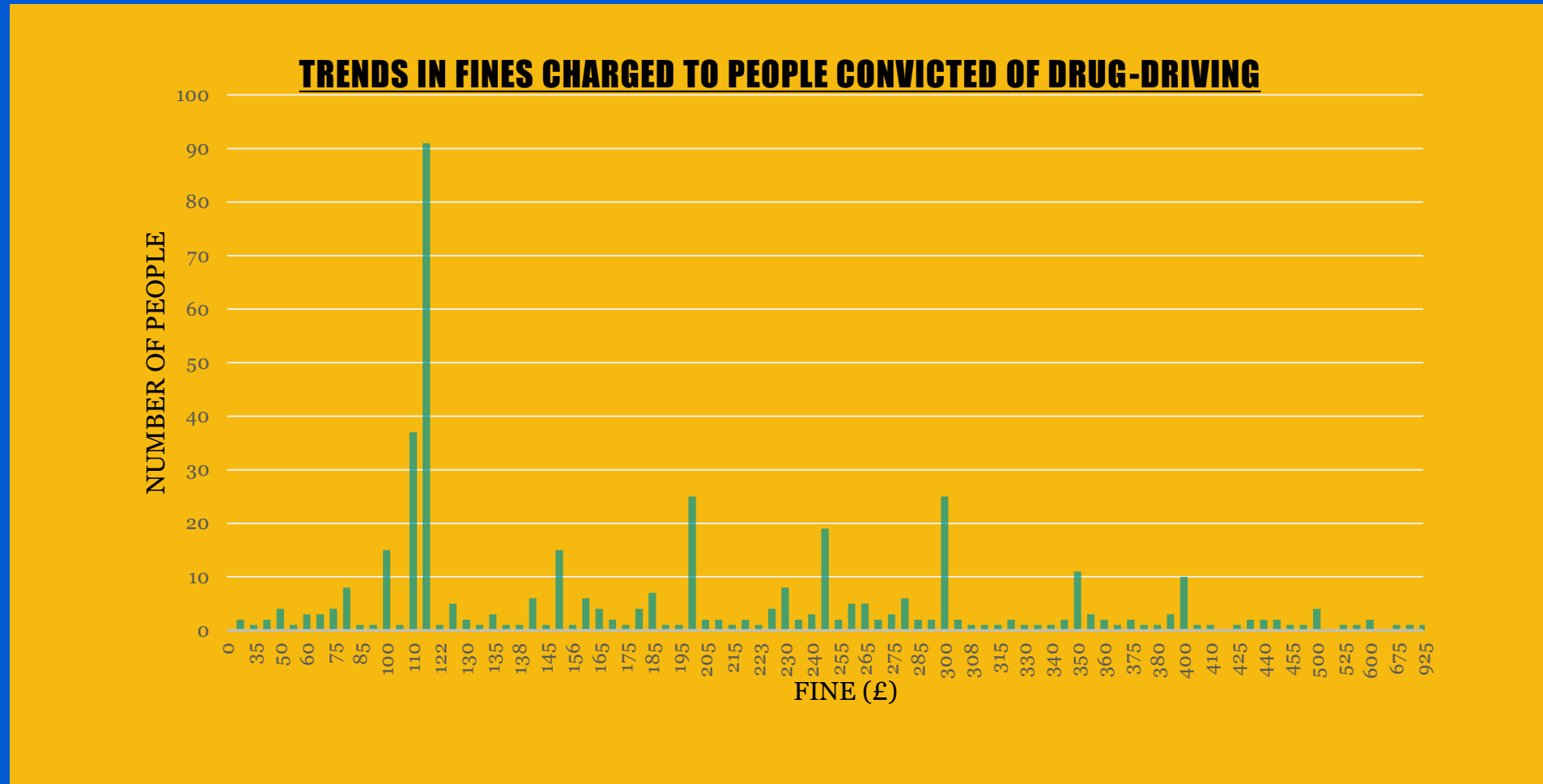
Most common drug found in cases was THC  
(limit of 2  $\mu\text{g}/\text{L}$  whole blood)

There were 1049 blood tests for THC detecting concentrations between 0.2  $\mu\text{g}/\text{L}$  and 29  $\mu\text{g}/\text{L}$ .  
761 cases were above the 2  $\mu\text{g}/\text{L}$  limit.

**The mean THC concentration in blood was 4.3  $\mu\text{g}/\text{L}$ , median 3.5  $\mu\text{g}/\text{L}$**

46% cases had > twice the limit of THC in blood.

# Fines imposed for DUID



# SUMMARY

- ▶ **Drugs included in Legislation not too far off the mark**
- ▶ **Cut-off for illicit drugs seems to be working**
- ▶ **Huge concentration range suggests lack of understanding of the risk?**
- ▶ **EDUCATE – Youngish males?**
- ▶ **Road-side screen for cannabis and cocaine ONLY – does not give whole picture**
- ▶ **Very useful addition to Section 4 impairment legislation**



Image – [www.mirror.co.uk](http://www.mirror.co.uk)

# FUTURE DIRECTIONS 2016-2017

## Expert Panel: The use of Oral Fluid as a confirmatory matrix

The URL is

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/624915/expert-panel-report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/624915/expert-panel-report.pdf)

Published August 2017

Image – [www.mirror.co.uk](http://www.mirror.co.uk)



### **CONCLUDED**

There is a stronger argument for the use of OF as an evidential matrix when using laboratory based cut-offs (LLOQ) such as those suggested by the DRUID studies, as the concentration above which an offence would occur.

This approach would be in line with a zero tolerance approach, rather than a road safety risk based approach.

With regards to the drug cut-off levels in the section 5A regulations, OF limits could not be identified for the medicinal drugs where a risk-based approach underpins the cut-off concentrations in whole blood.

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# THANK YOU – QUESTIONS?

