



K25 Enforcement of DUID Laws in European Nations — Sweden's Zero Limit Blood Law and Case Examples

Alan W. Jones, PhD, DSc, Department of Forensic Genetics and Toxicology, Artillerigatan 12, Linköping, Östergötland 581 33, Sweden*

After attending this presentation, attendees will obtain an overview of the way drug-impaired driving is dealt with in European nations. The main focus will be on new legislation introduced in Sweden where zero-concentration limits in blood are enforced for both licit and illicit drugs, if these are classified as controlled substances. The forensic community in North America will learn the effectiveness of so-called zero tolerance legislation as a way to simplify the prosecution of DUID offenders and hopefully improve traffic safety.

This presentation will impact the forensic community and/or humanity by demonstrating the effectiveness of so-called zero-tolerance laws for driving under the influence of drugs (DUID) as a new countermeasure to improve traffic safety. Since the introduction of a zero-limit DUID law in Sweden the number of people apprehended by the police for this traffic crime has increased 10-fold. In the vast majority (85%) of such cases one or more banned substances are detected in blood samples and the prosecution and conviction of DUID has become much more streamlined.

Legislation pertaining to driving under the influence of drugs (DUID) has evolved from the pre-existing alcohol-impaired driving laws, which have a long history. The statutory limits of blood-alcohol concentration (BAC) for driving have decreased successively from 0.15 g/100 mL to 0.1 g/100 mL and are presently set at 0.08 g/100 mL in UK, USA, and Canada. This contrasts with the corresponding threshold BAC limits in most European nations of 0.05 g/100 mL and 0.02 g/100 mL in Norway and Sweden. The notion that DUI laws are science-based is clearly a myth as evidenced by this wide range of punishable concentrations - reflecting, of course, politics, rather than traffic safety research. The success of concentration *per se* laws as evidence of alcohol-impaired driving has prompted similar discussions for DUID legislation. Such a legal framework shifts the focus of the prosecution case away from evidence of driver impairment towards the concentration of a banned substance determined in a specimen of blood obtained from the suspect. The actual driving, the behavior of the suspect when questioned, and performance of skilled tasks, become supporting evidence in the prosecution case.

Studies aimed at finding a quantitative relationship between the concentrations of illicit drugs in blood and degree of diminished performance and impairment of the individual are few and results are often equivocal. There are many ethical constraints about the design of such studies including selection of subjects, the dose of drug administered and the suitability of the performance tasks. This stems, at least in part, from the complex nature of drug-related impairment and the time-lag between the blood-drug concentration and the onset of drug-related effects as well as after-effects or rebound phenomena and withdrawal. The situation is complicated still further by habituation to drugs, especially those with long half-lives, which tend to accumulate in blood after repetitive use and leads to the development of physiological tolerance. Moreover, many prescription drugs impair a person's ability to drive safely and some have pharmacologically active metabolites that exert their own effects on a person's performance and behavior. Effective DUID legislation cannot ignore the widespread use and abuse of medicinal drugs; anti-anxiety agents, sedatives, hypnotics and pain-killers and the associated performance decrement these cause.

The impetus to consider seriously a zero-limit blood law for drugs other than alcohol arose from media attention given to several high profile DUID cases. A female driver (30 y) was stopped by the police during a routine traffic control. A preliminary breath-alcohol test was negative but one of the police officers noticed that the woman's eyes were bloodshot and that pupils were dilated. This raised a suspicion of DUID and a blood sample was requested for toxicological analysis. Otherwise the suspect did not show any marked signs and symptoms of drug influence and she was not examined by a physician nor were field-sobriety tests performed. The toxicology report showed a high concentration of amphetamine (3.4 mg/L) as well as phenmetrazine (0.2 mg/L), both widely abused central stimulants in Sweden. The woman was eventually prosecuted for DUID based on the toxicology report and opinions from several expert witnesses about the effects of such high levels of amphetamine on a person's ability to drive safely. However, the woman was acquitted in both the lower court and the appeal court because of the lack of well-documented clinical evidence of impairment and the fact that a traffic violation had not been committed. According to the court there was no compelling evidence to prove the suspect was "under the influence" of a central stimulant and posed a danger to traffic safety.

Other examples of widely divergent results between clinical assessment of impairment and the



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toxicology findings helped to spark the debate about considering zero-concentration limits in blood for drugs other than alcohol. In one notable case a 34-year-old woman was found to be slightly under the influence of a stimulant or depressant drug according to a clinical examination by a forensic physician. The forensic toxicology report verified the presence of several scheduled drugs, both licit and illicit, in a blood sample; amphetamine (0.03 mg/L), phenmetrazine (0.1 mg/L), THC (0.001 mg/L), morphine (0.08 mg/L), codeine (0.02 mg/L) and very high concentrations of diazepam (3.6 mg/L) and its metabolite nordiazepam (7.8 mg/L). Analysis of urine showed high concentrations (>1 mg/L) of free-morphine, free-codeine and 6-acetyl morphine, which verifies the woman had also used heroin.

Poly-drug abuse is the norm in Sweden among DUID offenders. Since the introduction of the zero-concentration limit law for scheduled drugs in blood of drivers in 1999, the number of DUID cases submitted for toxicological analysis has increased more than 10-fold. In about 85% of these cases one or more banned substance is verified present in the blood specimen. The zero-limit law has stimulated police activity in apprehending DUID suspects, which has led to a substantial increase in the workload for the forensic toxicology laboratory. The analytical routines for dealing with DUID cases have been modified so that after an initial screening analysis of blood or urine by immunoassay methods (EMIT/CEDIA), only a single illicit substance is subjected to a quantitative analysis by substantive methods, such as GC-MS or LC-MS. The punishment for DUID in Sweden is the same regardless of how many illicit drugs are verified present in a blood specimen. The introduction of so-called zero-tolerance or LOQ laws furnishes a robust and pragmatic way to enforce DUID legislation, and this simplifies considerably the evidence required for a successful prosecution. However, such laws have done nothing to solve the problem of DUID because recidivism in these traffic delinquents exceeds 50% over a 4-year period.

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