EXHIBIT 4
DATE 1/17/2013
HB 168

MCSC: The Voice of Montana's DUI Victims

HB 168 Revise DUI Laws for THC

We have a huge problem with drugged driving in Montana. Blood specimens sent to the crime lab for DUI investigation have shown increased number with drugs and decreased number with alcohol. Many of those specimens represent crashes with victims who are dead or injured.

The maximum penalty for negligent homicide is 20 years, the maximum penalty for vehicular homicide under the influence is 30 years. **Vehicular homicide while under influence.** (1) A person commits the offense of vehicular homicide while under the influence if the person negligently causes the death of another human being while the person is operating a vehicle in violation of 61-8-401 or 61-8-406.

In the investigation of a crash resulting in serious injury or death the investigation of the driver may be delayed while injured victims are extracted and transported. The driver may be injured or in shock. It may be difficult for the investigating officer to perform SFSTs or a DER exam. The driver may refuse to perform these tests. The driver's toxicology report may be the only evidence of impairment. Without a per se statute this evidence cannot be used to charge with vehicular homicide [or assault] under the influence. The victims do not have justice for the violent loss of their son, daughter, mother, father, brother, sister, or friend.

Drivers impaired by drugs need to have consequences to save lives on our highways.

THC Impairment Research

- Laboratory testing :
  - >2ng/ml Critical tracking (perceptual motor control)
  - >5ng/ml Stop Signal & Tower of London (motor inhibition/reaction time) (cognition/thinking)
- Simulator testing:
  - Pot smoking pilots impaired for 24 hours
  - Staying in the lane impaired at very low doses
- Epidemiology—Crash Risk (BAC .08% Risk 3)
  - Australia >2ng/ml Risk 2.7 >5ng/ml Risk 6.6
  - France >1ng/ml Risk 2.3

Montana Marijuana Deaths

Innocent people killed by DUI driver

- February 15, 2007 Michael Mickelson was turning left when Patrick Sayers swerved around traffic, through the intersection and into the passenger side of Mickelson's car at about 50 mph, killing him.
- November 19, 2008 Daniel Miller drove through a stop light and killed Albert Kerastes, a beloved husband, father, and grandfather, and seriously injured Albert's wife, Cora.
- March 23, 2009 Travis Vandersloot was driving on the wrong side of the highway with his lights out at about 100 mph and ran head on into Trooper Michael Haynes who died 4 days later.
- September 25 2009 Judy Wang, a beloved and highly respected and honored prosecutor and champion for victim's rights in Montana, was killed by David James Bugni who rear ended her car at 108 mph.
- June 24, 2010 Dr. David Schmidt, a respected professor at UNLV, died instantly when a car driven by a young man with THC level of 28 ng/ml ran a stop sign and pulled out in front of his motorcycle.

The Montana *Common Sense* Coalition

The Coalition is made up of volunteers and receives no public funding to support its efforts.

www.MontanaCSC.org

Marijuana: Impairment Kills

Marijuana is the most common illicit drug of abuse. In Montana over 12% of persons age 12 or older have used marijuana during the past month. (NSDUH) 80-100% of chronic marijuana users drive under the influence of marijuana. 70% of them do not believe that impairment from marijuana causes traffic crashes. (Terry & Wright, 2005) 15-21 year old drivers were 2.5 times more likely to drive under the influence of marijuana than alcohol. (Ferguson, & etal., 2008)

Data from the Fatality Analysis Reporting System (FARS) for Montana passenger vehicle drivers in fatal crashes shows marijuana use to be 13% or higher in the years 2007, 2008, and 2009. In 2009 marijuana use contributed to the deaths of 39 people on Montana highways. (Crancer, 2010) In 2010 that increased to 52 (Hansen, 2011)

The marijuana plant contains several substances with psychoactive properties. Tetrahydrocannabinol (THC) is the drug which causes the primary "feel good" and impairing effects. Absorption of THC is rapid and most efficient through inhalation with onset in seconds, peak 3-10 min, and 10-35% bioavailability [variability based on skill and smoking technique]. Sublingual absorption is also rapid with peaks reaching 14 ng/ml. Oral absorption is slow and erratic with peak in 1-2 hours , reaching 6 ng/ml, with only 6-7% bioavailable. Peak effects are later than peak blood levels because brain levels are still rising as blood levels fall. THC has a very large volume of distribution due to strong binding to tissues. The volume of distribution increases from 3L in a new user to 236L in a chronic user as the fatty tissues soak up the THC. (Grotenhermen, 2003) With the same dose of smoked marijuana maximum blood levels of THC in occasional users reached 49 ng/ml vs 121 ng/ml in chronic heavy users. Blood THC levels 8 hours later are not detectable in occasional users but are still 3.5 ng/ml in chronic users. 8 hours after placebo chronic users still have 3.3 ng/ml. (Toennes & etal., 2008) THC moves in and out of the brain easily and higher concentrations are found in the brain cortex than in blood. THC crosses the placenta and passes into breast milk. In heavy users the milk-to-plasma ratio can be as high as 8:1. This can result in an infant ingesting the weight adjusted dose equivalent of one joint in one feeding. (Djulus & etal., 2005) THC is metabolized in the liver through the cytochrome P450 complex. A high degree of first pass metabolism reduces bioavailability after oral administration. The major metabolites are THC-COOH, which has very little psychoactivity, and 11-OH-THC which is also psychoactive. There is slow equilibration with plasma & tissue and slow rediffusion of THC from body fat and other tissues into blood. The ½ life of THC has wide variability among individuals and is longer in chronic users than acute users. In acute users estimated ½ life is 25-36 hours and ½ life of THC-COOH is 3-5 days. THC-COOH may be detected in the urine for several weeks in chronic users.

Scientific studies of smoked marijuana are difficult to design due to wide variability in product quality and subject smoking technique. Pharmacokinetics and pharmacodynamics have been measured in occasional and chronic users, and these studies show wide intrasubject as well as intersubject differences. (Toennes & etal., 2008) Studies to measure impairment from drugs have three basic designs: 1) laboratory measurements of reaction time, calculations skill, and decision making, 2) closed course driving or computerized simulators, and 3) epidemiologic studies of drug use in crashes.

1) Laboratory studies show correlation between blood THC levels and impairment in function. At THC levels of 2-5 ng/ml critical tracking performance was equal to breath alcohol concentration (BAC) ≥ 0.05%. At THC levels >5 ng/ml performance on three tasks showed impairment greater than BAC > 0.10%. (Ramaekers & etal., 2006)

2) Driving on a test track after administering low doses of THC orally showed obvious impairment, with the tracking test most significant [keeping the car within the driving lane.] (Menetry & etal.,

2005) Experienced pilots in a flight simulator showed decrements in performance 24 hours after a single dose of smoked marijuana. (Leirer, 1991)

3) To demonstrate risk of death in motor vehicle crashes a study must have 3 characteristics: 1) adequate power—enough crashes studied, 2) blood THC levels, and 3) culpability/responsibility analysis. There are two studies which meet these criteria and both show significant risk of death for a driver under the influence of marijuana. THC ≥ 5ng/ml is associated with relative risk of death of 6.6. (Drummer & etal., 2003) THC ≥ 1ng/ml is associated with relative risk of death of 2.3. (Biecheler & etal., 2008) A pooled analysis of nine epidemiologic studies based on the random-effects model yielded a summary odds ratio of 2.66 (95% CI: 2.07, 3.41). This meta-analysis strongly suggests that marijuana use by drivers is associated with a significantly increased risk of being involved in motor vehicle crashes. (Li, 2011)

There are two aspects of impairment in driving: environment and driver. To drive safely is a complex interaction of these. A driver who may be able to drive safely during a summer day from home 2 blocks to the grocery store may be very unsafe at night on a two lane slushy road going 60 mph. It requires every bit of possible skill to safely avoid a hazard like deer, black ice, and other unsafe drivers. The smallest amount of an impairing drug may be too much, contributing to a driver's inability to avoid a crash, or contributing to the driver's responsibility for a crash. This is the basis of making the legal levels of impairing drug, "perse", at level of detection--any amount is too much.

For drivers who use alcohol law makers have decided that an increase in crash risk is acceptable--low levels of alcohol impairment are OK. The Department of Transportation has determined that the relative risk to public safety is significant at 0.02% BAC (commercial driver may not drive), and at 0.04% a commercial driver will lose his/her commercial drivers' license. Most other countries in the world have a perse limit of 0.04% to 0.05%. To answer the question, "What level of increased crash risk is acceptable?", one strategy might be to compare the increased crash risk for alcohol to the increased crash risk for other drugs. But it is difficult to compare alcohol to THC because alcohol has zero order (simple) pharmacokinetics; THC has complex pharmacokinetics. One study showed that THC at >5 ng/ml had the same fatal crash risk as BAC >0.15%. (Drummer & etal., 2003) The same study showed that THC plus alcohol >0.05% had risk 2.9 times greater that BAC >0.05% alone.

Flathead County Court Monitoring

	Number of Cases	Crashes
Marijuana by report only	129	43
Marijuana in blood	45	25
TOTAL CASES	174	68
Marijuana ALONE	17	
Marijuana + Alcohol	95	
Marijuana + Prescription Drugs	25	
THC < 5 ALONE	3	
TCH < 5 + Alcohol	8	
THC < 5 + Prescription Drugs	9	

I have been monitoring DUI cases in Flathead County for the last 2 years and have found that marijuana contributes significantly to death and injury on our highways. In these 68 crashes 3 people died and 34 were injured.

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beckymadd@gmail.com Rebecca has 31 years of nursing experience, including work in correctional health care, acute care, home care, family practice, and, for the last 16 years, occupational health. She has expertise and certifications related to evaluation of impairment. Go to www.montanacsc.org for more information on drugged driving.

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