Understanding Marijuana Terminology

THC - is the main psychoactive substance found in marijuana
AKA: delta-9-tetrahydrocannabinol (Δ^9-THC), dronabinol

11-Hydroxy-THC - is the main psychoactive metabolite of THC formed in the body after marijuana consumption
AKA: Hydroxy THC, 11-Hydroxy-Δ9-tetrahydrocannabinol (11-Hydroxy-Δ^9-THC), 11-OH-THC

11-nor-9-Carboxy-THC - is the main secondary metabolite of THC which is formed in the body after marijuana is consumed. It is NOT active.
AKA: THC-COOH (most often seen this way), Carboxy THC, 11-nor-9-carboxy-delta-9-tetrahydrocannabinol (11-nor-9-carboxy-Δ^9-THC), 11-COOH-THC

Psychoactive or Active – causes euphoric and impairing effects (THC and 11-OH-THC)

Not active or inactive – does NOT cause euphoric or impairing effects (THC-COOH)

Parent compound or parent drug – the drug in the original form that it is ingested (THC)

Metabolite – a chemical created in the body as part of the process of breaking down the parent compound (11-OH-THC and THC-COOH)

Chronic vs. Occasional – Terms denoting frequency of use
- **Chronic** – Continuing for a long time or recurring frequently
- **Occasional** – Happening infrequently and irregularly

Recreational vs. Medical – Term denoting reason for use
- **Recreational** - Taken for pleasure rather than for medical reasons
- **Medical** - Relating to the science or practice of medicine

Tolerance - The capacity of the body to endure or become less responsive to a substance

Compensation - Behavior that develops either consciously or unconsciously to offset a deficiency

Plasma vs. Whole Blood
- **Plasma** - The colorless fluid part of blood, lymph, or milk, in which corpuscles or fat globules are suspended.
- **Whole Blood** - Blood drawn directly from the body from which none of the components, such as plasma or platelets, has been removed

Limit of Detection (LOD) - Lowest quantity of a drug that can be distinguished from the absence of that drug

Limit of Quantitation (LOQ) - Lowest amount of a drug in a sample that can be quantitatively determined

THC Research Summary
Number in ( ) correspond to the THC References 2013 document

- **Culpability** (11,12, 18)
  - Validated methods used to determine culpability
    - Crash risk correlated to THC level in blood
    - 5ng/mL THC in blood = 6.6 times more likely to be responsible for crash
  - No correlation between impairment and THC COOH in blood or urine
- **Psychomotor** skill and other types of impairment (11, 15, 16, 17)
  - Highly automated behaviors are affected most. Critical tracking (6) divided attention tasks and complex tasks are also impaired. Driving is a very complex task.
  - Lane deviation and short term / working memory for complex tasks
- A person cannot fully **compensate** for the impairment from THC even with frequent use (15, 16, 17)
  - By overcompensating for self preserved impairment someone could overcome some of the impairing effects but: only for short periods of time, only for simple tasks, not enough to totally counteract the impairment, greater demand or unexpected situations - it does not help
  - Impairment is seen in both chronic and occasional users (8)
- THC levels in whole blood are scientifically supported for DUID per se for THC
  - 2 – 5 ng/mL THC in whole blood (4, 6, 8, 11, 12, 17, 18)
  - **Impairment is dose dependent and supported by signs of impairment**
  - The level takes **frequent (chronic) use** into consideration
- **Residual levels** are1-3ng/mL THC in blood seen in chronic users (4, 10, 15, 16, 17)
    - Chronic use: Daily or near daily use often with multiple times used per day
- BMI does not effect elimination (4)
- The blood is almost never drawn onsite the delay can cause false negatives (missed window of opportunity) (8)
- The blood being tested is not randomly collected but instead collected from people which were suspected of being under the influence
  - SFSTs article 2004 – Standard Field Sobriety Tests are a moderate indicator of THC impairment. Better if you include Head Movements and Jerks (HMJ). (2)
- **Rout of administration**
  - **Oral** (10, 11, 13)
    - Peak THC levels in the blood are always lower than the same dose taken by smoking
    - For a single dose the peak is around 2-3 hours after it is taken
    - Peak can be as high as 8ng/mL whole blood
    - Oral doses can cause impairment but it is normally only seen for 1-2 hours
    - Blood THC levels after single OR multiple doses drops below 5ng/mL blood in 4-6 hours after dosing is stopped
    - In conclusion, taking THC orally is much like taking other impairing pain killers. Driving will be impaired for a short time but if they wait 4-6 hours from last dose they are ok to drive.
  - **Smoked** (1, 3, 6, 9, 15)
    - Peak THC levels in blood seen while smoking
    - Peak levels in blood can be in the 100s of ng/mL
    - Impairment highest in first hour after use (6)
    - THC levels generally drop below 5ng/mL is 3 hrs or less
- Should be noted that alcohol plus THC have additive effects on driving (8, 11, 19)

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