Driving Under the Influence of Cannabis (DUIC):

Key information for DUIC policy

Source: www.unsplash.com
Traffic Safety

- More than 35,000 people die annually on our roadways.
- Crashes are the leading cause of death for young people (8 to 24 years).
- Years of life lost from dying prematurely in a crash total more than 1.3 million.
- To reach our vision of zero traffic fatalities, we need to remove all crash factors.


Impaired Driving

• Drugs are now more prevalent in fatally-injured crashes than alcohol.


• Cannabis is the most common drug detected in fatally-injured drivers.


Percentage of fatally-injured drivers testing positive for drugs.

Complexity

• Understanding the effects of cannabis is complex.
• Many factors influence the timing, duration, and magnitude of impairment resulting from cannabis use:
  • Different methods of consumption
  • Differences in THC potency
  • Differences in use frequency
  • Differences in metabolism rates
• There is also considerable variability in policies, practices, and methods for testing and reporting evidence of cannabis.
• As a result, there is variability and contradictions in the literature.
• To make meaning, we need to consider the “majority” of evidence.
Cognitive Impairment

- Cannabis causes short (and long-term changes) in how the brain functions.
- These changes can impair the way we think and respond.
- This includes a reduction in our ability to pay attention and process information.

Driving Impairment

• Cognitive impairment translates to impairment of driving behavior.
• Variability of lateral position is commonly used to measure impairment during real on-road driving studies.
• THC impairs lane control, especially when combined with alcohol.

Variability of Lateral Position as a Function of THC Level.

Driving Impairment

• As a result of impairment of cognitive functions and driving ability, cannabis increases the probability that a driver makes an unsafe act (e.g., inattention, speeding).

• Drivers testing positive for THC are more likely to be responsible for crashes, especially when combined with alcohol.

<table>
<thead>
<tr>
<th>BAC</th>
<th>THC absent</th>
<th>THC present</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>1.07</td>
<td>1.25</td>
</tr>
<tr>
<td>0.01</td>
<td>1.19</td>
<td>1.37</td>
</tr>
<tr>
<td>0.02</td>
<td>1.32</td>
<td>1.50</td>
</tr>
<tr>
<td>0.03</td>
<td>1.46</td>
<td>1.64</td>
</tr>
<tr>
<td>0.04</td>
<td>1.61</td>
<td>1.79</td>
</tr>
<tr>
<td>0.05</td>
<td>1.78</td>
<td>1.94</td>
</tr>
<tr>
<td>0.06</td>
<td>1.95</td>
<td>2.10</td>
</tr>
<tr>
<td>0.07</td>
<td>2.13</td>
<td>2.27</td>
</tr>
<tr>
<td>0.08</td>
<td>2.32</td>
<td>2.44</td>
</tr>
</tbody>
</table>

Predicted odds of a driver making an unsafe act in a fatal crash.

Trying to compensate for impairment does NOT result in SAFE driving.

• Some users of cannabis believe they are aware of their impairment and can compensate to be safe when driving.

• Some driving tasks do involve awareness (like deciding on a safe speed or car following distance), so drivers could make safer decisions – but they are never safe enough.

• And, many other driving tasks happen automatically without a conscious decision like braking for an emergency.

• Because these happen without awareness, drivers cannot compensate by trying harder – even if they recognize they are impaired.

• As a result, there is no evidence that individuals can compensate enough to be absolutely safe when driving after using cannabis.

Cannabis and Crashes

• Driving under the influence of cannabis nearly DOUBLES the risk of a fatal crash.
• Cannabis is often combined with alcohol, which has a very high risk of a fatal crash.
• Adjusting for age and gender may reduce risk estimates.
  • This ONLY means age and gender may represent a greater crash risk than cannabis.
  • This does NOT mean there is no risk associated with cannabis.
  • The brains of BOTH men and women (of all ages) are affected by THC, so they all have a higher risk of a fatal crash than when sober.

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Odds Ratio</th>
<th>95th Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis</td>
<td>1.83</td>
<td>1.39 – 2.39</td>
</tr>
<tr>
<td>Narcotics</td>
<td>3.03</td>
<td>2.00 – 4.48</td>
</tr>
<tr>
<td>Stimulants</td>
<td>3.57</td>
<td>2.63 – 4.76</td>
</tr>
<tr>
<td>Depressants</td>
<td>4.83</td>
<td>3.18 – 7.21</td>
</tr>
<tr>
<td>Any drug (average)</td>
<td>2.22</td>
<td>1.68 – 2.92</td>
</tr>
<tr>
<td>Polydruag</td>
<td>3.41</td>
<td>2.43 – 4.73</td>
</tr>
<tr>
<td>Alcohol</td>
<td>13.64</td>
<td>11.12 – 16.72</td>
</tr>
<tr>
<td>Alcohol + Drug</td>
<td>23.24</td>
<td>17.79 – 30.28</td>
</tr>
</tbody>
</table>

Predicted odds of a fatal crash by drug type.

Cannabis Laws

• Some states have legalized cannabis for recreation or medical purposes.

• Legalization can increase use by expanding access and reducing perceptions of harm.

Status of legalization of cannabis in U.S. States.


Legalization Laws

• There is growing interest in the effects of laws that legalize cannabis on traffic safety.

• However, to isolate the effect of these laws, rigorous evaluation methods are needed.

• To date, there are too few states that have been evaluated and over relatively short periods.

• As a result, it is not possible to make definitive conclusions about the effects of such laws on traffic safety.

• More analyses are required with more states and longer post-law periods.

Rigorous design to evaluate effect of legalization laws.

Conclusion

• Cannabis is a complex drug, which means there are many factors that determine how it affects people.
• Because of this, reported results about the effects of cannabis can vary widely.
• It is therefore necessary to combine results and look for common patterns.
• Cannabis alters brain activity in ways that impair driving and increase crash risk.
• Some people may think they can overcome their impairment and drive safely, but there is no evidence this is true.
• Regardless, DUIC policies should address the risk that most people experience.
• Therefore, laws and policies are necessary to deter and prevent DUIC.
• This will improve traffic safety for everyone, which is necessary for reaching the goal of zero traffic fatalities.
Culture

- Fortunately, we have a strong traffic safety culture regarding DUIC behavior.
- Most U.S. residents have negative attitudes about this behavior and do not DUIC (> 90%).
- This culture can support strategies across the social environment to reduce DUIC.

National representative survey about DUIC (n = 879)

Thank You!

For more information, please contact:

Nicholas J. Ward
Director, Center for Health and Safety Culture
Western Transportation Institute
Montana State University
nward@montana.edu
406-994-5942

Project URL: https://www.mdt.mt.gov/research/projects/trafficsafety.shtml