This session on drug-impaired driving in the U.S. and Texas will provide an overview of the problem, including important statistics. In addition, the session will examine the most commonly detected drugs involved in fatal crashes.
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Dr. Amber Trueblood is trained and has experience in environmental, occupational and injury epidemiology. She also has extensive experience in project management, data management, data analysis and computing, and education and outreach. Dr. Trueblood is involved in a multitude of projects with a variety of tasks, ranging from crash analyses to educational outreach efforts. Her interest areas are in injury prevention, specifically impaired driving crashes. She has a doctoral degree in epidemiology and environmental health, a master’s public health degree in behavioral science and health promotion and a bachelor’s in sociology.
Drug-Impaired Driving in the United States and Texas

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Presentation Foreword

- The magnitude and effects of drugs on driving depends on:
  - Substance
    - Combination of substances
  - Dose
  - Extent of prior use
- “A large enough dose of most drugs can impair. The purpose of any drug is to affect physical or mental conditions in some way. Even prescription medications can impair driving.” - GHSA
Drug-Impaired Driving Background

Drug-Impaired Driving: United States

- Difficult to measure magnitude of drug-impaired driving
  - There is no good roadside test for drug levels
  - Police often do not test for drugs if there is enough evidence of a DUI-alcohol
- Polydrug use
- Limited data available on drugged driving
Drug-Impaired Driving: United States

- 2013-2014 NHTSA Roadside Survey of Alcohol and Drug Use
  - Drugs present in 22% of drivers on weekend nights and weekday days had drugs in their system
  - Weekend Surveys

<table>
<thead>
<tr>
<th>Drug Category</th>
<th>Percent of Samples 2013-2014</th>
<th>Percent of Samples 2007</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illegal Drugs</td>
<td>15.1%</td>
<td>12.4%</td>
<td>↑ 2.7%</td>
</tr>
<tr>
<td>Marijuana</td>
<td>12.6%</td>
<td>8.6%</td>
<td>↑ 4.0%</td>
</tr>
<tr>
<td>Medications</td>
<td>4.9%</td>
<td>3.9%</td>
<td>↑ 1.0%</td>
</tr>
</tbody>
</table>
Drug-Impaired Driving: United States

- 2013-2014 NHTSA Roadside Survey of Alcohol and Drug Use
  - 20% of drivers reported using a prescription drug within the past 2 days

- Fatality Analysis Reporting System (FARS)
  - Drugs present in 43% of fatally-injured drivers with a known test result in 2015
  - There were 49,549 drivers who tested positive for a drug from 2008-2015
Most Common Drug Types Detected: United States

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Drivers Positive Drug Test</th>
<th>Drug Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cannabis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. Of Drivers (% of Total)</td>
</tr>
<tr>
<td>2008</td>
<td>5,422</td>
<td>1,982 (37%)</td>
</tr>
<tr>
<td>2009</td>
<td>5,500</td>
<td>1,956 (36%)</td>
</tr>
<tr>
<td>2010</td>
<td>5,946</td>
<td>2,110 (35%)</td>
</tr>
<tr>
<td>2011</td>
<td>6,096</td>
<td>2,055 (34%)</td>
</tr>
<tr>
<td>2012</td>
<td>6,572</td>
<td>2,369 (36%)</td>
</tr>
<tr>
<td>2013</td>
<td>6,540</td>
<td>2,413 (37%)</td>
</tr>
<tr>
<td>2014</td>
<td>6,640</td>
<td>2,577 (39%)</td>
</tr>
<tr>
<td>2015</td>
<td>6,833</td>
<td>2,805 (41%)</td>
</tr>
</tbody>
</table>

Drug-Impaired Driving: Texas

- From 2010-2016, there were 4,953 fatalities due to drug-impaired crashes in Texas
## Most Common Drug Types Detected: Texas

<table>
<thead>
<tr>
<th>Year</th>
<th>Stimulant</th>
<th>Cannabinoid</th>
<th>Depressant</th>
<th>Narcotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>275</td>
<td>271</td>
<td>241</td>
<td>115</td>
</tr>
<tr>
<td>2011</td>
<td>222</td>
<td>222</td>
<td>149</td>
<td>123</td>
</tr>
<tr>
<td>2012</td>
<td>255</td>
<td>273</td>
<td>174</td>
<td>121</td>
</tr>
<tr>
<td>2013</td>
<td>272</td>
<td>243</td>
<td>153</td>
<td>113</td>
</tr>
<tr>
<td>2014</td>
<td>280</td>
<td>256</td>
<td>135</td>
<td>102</td>
</tr>
<tr>
<td>2015</td>
<td>306</td>
<td>267</td>
<td>154</td>
<td>76</td>
</tr>
<tr>
<td>2016</td>
<td>376</td>
<td>309</td>
<td>164</td>
<td>111</td>
</tr>
<tr>
<td>Total</td>
<td>1,986</td>
<td>1,841</td>
<td>1,170</td>
<td>761</td>
</tr>
</tbody>
</table>

### Stimulants and Driving
Stimulants

- Medicines or drugs that increase alertness, attention, and energy
- Amphetamines
  - Adderall
  - Methamphetamine
- Cocaine
- Methylphenidate
  - Ritalin

Stimulants

- Effects
  - Increased alertness
  - Increased attention
  - Increased blood pressure
  - Increased heart rate
  - Increased breathing
  - Decreased ability to focus
Stimulant Use

- Adults are prescribed more stimulants than youth
  - Stimulant prescriptions in adults increased 6.4 fold from 1995 to 1998
    - Youth increased by 2.5 fold
  - Women take more stimulants compared to men

Stimulant’s Impact on Driving

- Impacts motor and cognitive skills
- Reduces ability to focus
- Reduces balance and coordination
- Over-confidence in driving skills
- Increased risk taking
Marijuana

Marijuana or Cannabis are the dried leaves, flowers, and stems from the Cannabis sativa and Cannabis indica plants
  - Delta-9-tetrahydocannabinol (THC)
    - Weed, Grass, Bud, Kush

Effects:
  - Problems with memory
  - Problems with learning
  - Distorted perception
  - Difficulty in thinking
  - Loss of coordination
Marijuana Use

- Marijuana is the most commonly used illicit drug in the United States
- Marijuana use is increasing over time
- Marijuana use among drivers exceeds the rate of alcohol use among drivers
Marijuana’s Impact on Driving

- Recent marijuana use approximately doubled one’s risk of traffic crash
- Marijuana use impairs:

- Road tracking
- Brake latency
- Ability to gauge time and distance
- Recognition of lights
- Divided attention tasks
- Ability to pass
- Inhibitory control
- Ability to maintain headway
<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Gender</th>
<th>Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>2008</td>
<td>1,982</td>
<td>1,659</td>
<td>322</td>
</tr>
<tr>
<td>2009</td>
<td>1,956</td>
<td>1,636</td>
<td>320</td>
</tr>
<tr>
<td>2010</td>
<td>2,110</td>
<td>1,731</td>
<td>378</td>
</tr>
<tr>
<td>2011</td>
<td>2,055</td>
<td>1,728</td>
<td>327</td>
</tr>
<tr>
<td>2012</td>
<td>2,369</td>
<td>1,975</td>
<td>393</td>
</tr>
<tr>
<td>2013</td>
<td>2,413</td>
<td>2,009</td>
<td>402</td>
</tr>
<tr>
<td>2014</td>
<td>2,577</td>
<td>2,156</td>
<td>421</td>
</tr>
<tr>
<td>2015</td>
<td>2,805</td>
<td>2,350</td>
<td>454</td>
</tr>
</tbody>
</table>
Depressants and Driving

Depressants

• Psychoactive drugs that slow down the activity of the central nervous system
  • Alcohol
  • Barbiturates (Barbs, Phennies, Birds, Reds)
  • Benzodiazepines (Bars, Candy, Downers, Tranks)
  • Sleep Medications (Ludes, Roofies)
  • Heroin
  • Inhalants
  • Ketamine
Depressants

- Effects
  - Feel relaxed
  - Reduced alertness
  - Reduced heart rate
  - Reduced breathing
  - Drowsiness
- Dose and mixing more than one depressant can impact your ability to move and breath.

Depressant Use

- Limited Trend Data
- Benzodiazepine
  - From 2006 to 2015 the annual dose per inhabitant per day (DID) increased by 26%
    - 23.70 to 94.25 DID
Depressant’s Impact on Driving

- Depressant’s Impair:
  - Reaction Times
  - Concentration
  - Ability to Process Information
  - Ability to Multitask

Opioids and Driving
Opioids

- Opioids are a class of drugs found in the opium poppy plant to relax the body and relieve pain.
- Effects:
  - Problems with memory
  - Problems with learning
  - Distorted perception
  - Difficulty in thinking
  - Loss of coordination

Opioid Use

- Opioid prescription rate is three times higher than it was in 1999
- 58 opioid prescriptions per 100 Americans in 2017
Opioid’s Impact on Driving

- Impacts psychomotor and cognitive functioning
- Increases errors on driving tasks
- Drowsiness

Polydrug Use and Driving
Polydrug Use

• Using two or more drugs in combination
  • Using one drug to counteract the effects of another
  • Using drugs at different times over a short period of days or weeks
• Includes alcohol, illegal drugs, prescription drugs, and over-the-counter medicines
  • Alcohol is the most common drug involved in polydrug use

Polydrug Use

• 23.1% of people used three or more prescriptions in the past 30 days in 2017
• 11.9% of people used five or more prescription drugs in the past 30 days in 2017
## Polydrug Use and Driving

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Relative Risk</th>
<th>Drug Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly increased risk</td>
<td>1-3</td>
<td>Marijuana</td>
</tr>
<tr>
<td>Medium increased risk</td>
<td>2-10</td>
<td>Benzodiazepines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cocaine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opioid</td>
</tr>
<tr>
<td>Highly increased risk</td>
<td>5-30</td>
<td>Amphetamines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple drugs</td>
</tr>
<tr>
<td>Extremely increased risk</td>
<td>20-200</td>
<td>Alcohol together with drugs</td>
</tr>
<tr>
<td>Extremely increased risk</td>
<td>40*</td>
<td>Alcohol</td>
</tr>
</tbody>
</table>

*adapted from Shulze et al., 2012; Griffiths, 2014; GHSA A Guide for States

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## Solutions and Summary
Summary

• While alcohol-impaired driving is decreasing, drug-impaired driving crashes are increasing
• Drugs can impact driving ability and increase crash risk
  • Effects of drugs vary widely across drug categories

Potential Solutions

• High-visibility enforcement
• Policies
  • Per Se Drug Laws
  • Zero Tolerance Laws
• Alcohol and drug court
FARS Limitations

- Not all drivers involved in fatal crashes are drug tested
- Reporting of toxicology results to FARS varies
- Testing varies by state
- A positive drug test result does not indicate the driver was impaired at the time of the crash
- FARS does not indicate that the number of fatal crashes involving a driver positive for cannabinoids has increased, but instead supports the number of drivers who tested positive for cannabinoids reported to FARS has increased
Recommended Resources

- NHTSA Drug-Impaired Driving
- GHSA's report Drug-Impaired Driving: Marijuana and Opioids Raise Critical Issues for States
- Drugged Driving AAA Foundation
- Countermeasures Against Prescription and Over-the-Counter Drug-Impaired Driving

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