High-Risk Impaired Drivers: Substance Use Disorders, Psychiatric Diagnosis, and Challenges with Treatment

Steve Hanson
Associate Commissioner
New York State
Office of Addiction Services and Supports

Steve.hanson@oasas.state.ny.us
High Risk Impaired Drivers

- Defining the population
- Understanding impact of alcohol and other substance use
- Mental Health Issues
- Treatment and Complications
Defining the High-Risk Impaired Driver (HRID)

- Lacks the restraint or self-control to resist driving impaired
- Blood Alcohol Concentration (BAC) of .15 g/dL or higher
- Repeat offender
- Polysubstance user

High Risk Impaired Drivers: Combating a Critical Threat Governors’ Highway Safety Association, 12/2019
66% of alcohol-positive drivers involved in fatal crashes in 2018 had ≥ .15 g/dL High Blood Alcohol Concentration (BAC).

High-BAC impaired drivers are involved in more than 60% of the alcohol-impaired driving deaths each year.

Source: National Center for Statistics and Analysis, NHTSA
16%↑ The increase over the past 10 years in the number of alcohol-impaired drivers killed in crashes who also tested positive for drugs.

Source: National Center for Statistics and Analysis, NHTSA
In 2018, an average of one alcohol-impaired driving fatality occurred every 50 minutes, which translates to 29 deaths each day.

Source: National Center for Statistics and Analysis, NHTSA
Why Do People Drink?

- Curiosity
- Enjoy the Beverage
- Cultural Practices – Peers
- Makes us feel better/different
- Dependency
Addiction is a Brain Disease

Prolonged Use Changes the brain in Fundamental and Long Lasting Ways
SPECT IMAGES

NORMAL

3-4 DRINKS/DAY
Active drug and alcohol abuse  
A year drug and alcohol free
Alcoholic v. Normal Brain
Neurological Effects

- Brain Atrophy – Cerebellum
- Larger Ventricles
- Cognitive impairment
  - Memory
  - Abstract thinking
  - Impulse Control
  - Etc.
Non-Alcoholic Drinker

- .05 Diminished alertness, impaired judgment
- .10 Increased reaction time, impaired motor skills
- .15 Increasingly impaired motor responses
- .20 Obvious intoxication
- .25 Staggering; grossly impaired motors skills
- .30 Stupor; inability to communicate or comprehend surroundings
- .35 Surgical anesthesia; LD 1
- .40 LD 50
- .60 LD 100
Alcoholic Drinker

- .00 Severe withdrawal—tremors, vomiting, delirium, hallucinations, possible seizure
- .05 Continued severe withdrawal
- .10 Some relief of symptoms; discomfort
- .15 Reductions in tremor and gastric distress
- .20 “Normal” range; appetite returns, tremors not evident
- .25 Comfortable
- .30 Upper limits of tolerance
- .35 Obvious signs of sedation, intoxication
- .40 “Drunk” state
- .50 Passes out from alcohol’s effect

Tolerance
Tolerance

- Continued use changes response –
  - Situational Tolerance - Get used to it
  - Physiological Changes/Dependence
    - Withdrawal symptoms

- Different tolerance for different functions
  - May look “less intoxicated”
  - Motor and judgement still impaired – “I’m okay to drive”
Depressant Withdrawal and Overdose

Death
Seizure
Agitation

Coma
Death

Overdose
Passing Out

Shakes
DT’s
Action

- **Dopamine** – excitement & reward
- **Serotonin** – feel – “normal”
- **GABA** – lowers anxiety
- **Endorphins** – pain relief, reward, craving
Endorphins

Craving

Endorphins

Stop Drinking

Drink

Endorphins

Reward

Block Endorphins with Naltrexone—Break Reward Cycle
Naltrexone

For people who have stopped drinking, Naltrexone reduces the craving for alcohol

Naltrexone does not help someone stop drinking or doing drugs, it is used to help people who have already stopped maintain abstinence

Sold as ReVia (daily) Vivitrol (monthly)
Short Term Physical Effects

- Vasodilator in skin - ↑ blood flow – warm flush – actually indicates loss of body heat.
- Reduction in REM (dream) sleep - Fatigue
- Sensory changes - ↓ Acuity of hearing and sight ↓ Pain – masked fatigue
- ↑ Urine production – blocks anti-diuretic hormone – dehydrate – dry mouth
- Hangover effect – nausea, headache, thirst, anxiety, the shakes – caused by rebound/build up of acetylaldehyde, and other substances.
Long Term Effects

- Gastrointestinal – esophageal varices –
- Gastritis – Inflammation of stomach lining – nausea, vomiting, pain, bleeding
- Peptic ulcers – ETOH ↑ stomach acids
- Duodenal ulcers – internal bleeding
- Pancreatitis – pancreas makes insulin – inflammation – fatal
- Cancer links to tongue, mouth, throat, liver (especially linked with smoking)
Liver Problems

- Alcoholic hepatitis – onset of fever – death
- Fatty liver – ETOH $\uparrow$ fat in blood stored in liver $\downarrow$ function - reversible
  (6 drinks/day for 18 days – 8X fat in liver)
- Cirrhosis – scar tissue in liver – decreased liver fcn – reverse tolerance - can be fatal.
  Caused by acetylatedynaldehyde.
Malnutrition

- Alcohol empty calories – decreased food intake
- Poor diet – vitamin deficiencies – B vitamins
- Thiamine deficiency – Wernicke’s – rapid onset – confusion, vision, ataxia, memory, stuporous,
- 16% die within 1 month of symptoms – brain lesions – reversible
Korsakoff’s

- Gradual - amnesia – short term
- Confabulation – make up facts, etc.
- Disoriented – brain lesions – irreversible
Disease Model

- Primary – not caused by something else
- Progressive – It gets worse
- Chronic – lasts a long time
- Fatal – can kill you

Other chronic diseases – Diabetes, Asthma, Heart Disease, Cancer, etc.
Alcoholism

Prevalence – 10% of population are problem drinkers
A portion of them are alcoholics

Genetic Factors
- Neurotransmitter models
- Risk increased if parent is alcoholic

Treatable not Curable
Alcohol and Other Substances

Between 2006 and 2016, the rate of fatally injured drivers (with known test results) that tested positive for drugs increased from 28 percent to 44 percent (Fatality Analysis Reporting System [FARS] as cited in Hedlund, 2018).
Substances Found

The most commonly ingested substances included:
- stimulants (e.g., cocaine, methamphetamine),
- depressants (e.g., Xanax, Valium),
- narcotic analgesics (opioids, heroin),
- dissociative anesthetics (e.g., PCP, ketamine),
- cannabis, and
- combination of these and other drugs

Impact of Other Substances

- **Stimulants** –
  - Increased alertness and energy – does not reduce motor impairment
  - Higher dose use can lead to paranoia and hallucinations

- **Depressants/Anti-anxi etals** –
  - Synergistic effects – alcohol increases sedative action

- **Opioids** –
  - Increased sedation/motor impairment
  - Overdose risk
CANNABIS

**Impairs Driving**
- Difficulty with paying attention to multiple stimuli – over focus
- Lower speed accidents – “I didn’t see the…”
- Impaired motor control
- Legalization of cannabis –
  - Increased potency
  - Long acting edibles
Implications of Arrested Development:
Drug Abuse Vulnerability

Research question addressed by scientists:

“Are adolescents more susceptible than adults to alcohol?”

4 lines of evidence
Implications of Arrested Development: Drug Abuse Vulnerability

Research question addressed by scientists:

“Are adolescents more susceptible than adults to alcohol?”

1. Epidemiological data
Drug use starts early and peaks in the teen years

Evidence from surveys
Implications of Arrested Development: Drug Abuse Vulnerability

Research question addressed by scientists: “Are adolescents more susceptible than adults to alcohol?”

1. Survey data
2. Adolescent rats are less sensitive to the sedative and motor impairment effects of intoxication.
Susceptibility to Alcohol

Direct evidence can not be obtained from human adolescents for ethical reasons.

Much of what is known about alcohol susceptibility is from adolescent rat studies.

Comparing adolescent and adult rats, both having no prior exposure to alcohol and matched on temperament….

Adolescent rats are less sensitive to the sedative and motor impairment effects of intoxication. more drinking before “signals to stop”

Source: Spear, 2002
Adolescents have low sedative response to alcohol
Implications of Arrested Development: Drug Abuse Vulnerability

Research question addressed by scientists: “Are adolescents more susceptible than adults to alcohol?”

1. Survey data
2. Adolescent rats are less sensitive to the sedative and motor impairment effects of intoxication.
3. Adolescent rats are more sensitive to the social disinhibition effects of alcohol.
Adolescent rats are more sensitive to the social disinhibition effects of alcohol compared to adults. These studies suggest that adolescent rats derive greater “social comfort” from intoxication than adult rats.

Source: Spear, 2002
Lowered Social Inhibition = Party!!
Implications of Arrested Development: Drug Abuse Vulnerability

Research question addressed by scientists:

"Are adolescents more susceptible than adults to alcohol?"

1. Survey data
2. Adolescent rats are less sensitive to the sedative and motor impairment effects of intoxication.
3. Adolescent rats are more sensitive to the social disinhibition effects of alcohol.

2 and 3 may contribute to binge drinking and increased risk to alcohol dependence.
Implications of Arrested Development: Drug Abuse Vulnerability

Research question addressed by scientists:

“Are adolescents more susceptible than adults to alcohol?”

1. Survey data
2. Adolescent rats are less sensitive to the sedative and motor impairment effects of intoxication.
3. Adolescent rats are more sensitive to the social disinhibition effects of alcohol.
4. Alcohol produces greater cognitive disruptions in adolescents.
Animal Data: Alcohol’s Effects

When exposed to alcohol, adolescent rats, compared to adult rats, reveal more…

• Disruption in memory
• Impairment of neurotransmission in hippocampus and cortex

Source: Spear, 2002
Early Recovery Issues

- Loss of lifestyle
- Loss of Coping Strategy
- Withdrawal
- Cognitive deficits related to early abstinence
Cognitive Deficits

- Memory problems - short term loss
- Difficulty with abstractions
- Difficulty with impulse control
- Similar performance to those with brain damage - improves.
Co-occurring Disorders

Implications for Drug Court
Steve Hanson
NYS OASAS
<table>
<thead>
<tr>
<th>Disorder</th>
<th>Alc/Drug (%)</th>
<th>Alcohol (%)</th>
<th>Other Drug (%)</th>
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<tr>
<td>Major Dep</td>
<td>27.2%</td>
<td>16.5%</td>
<td>18.0%</td>
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<tr>
<td>Bipolar I</td>
<td>60.7%</td>
<td>46.2%</td>
<td>40.7%</td>
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<tr>
<td>Schizophrenia</td>
<td>47.0%</td>
<td>33.7%</td>
<td>27.5%</td>
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<tr>
<td>Anx Disorder</td>
<td>23.7%</td>
<td>17.9%</td>
<td>11.9%</td>
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## Rates of APD, MDD and Anxiety Disorders by Drug Dependency - DATOS

<table>
<thead>
<tr>
<th>Drug Depend</th>
<th>APD</th>
<th>MDD</th>
<th>Anx Dis</th>
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<tr>
<td>Alcohol Only</td>
<td>34.7%</td>
<td>17.8%</td>
<td>5.5%</td>
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<tr>
<td>Heroin Only</td>
<td>27.0%</td>
<td>7.0%</td>
<td>2.0%</td>
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<tr>
<td>Her &amp; Alcohol</td>
<td>46.3%</td>
<td>13.2%</td>
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<tr>
<td>Cocaine Only</td>
<td>30.4%</td>
<td>8.4%</td>
<td>2.7%</td>
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<tr>
<td>Coc &amp; Alcohol</td>
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<td>4.7%</td>
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<tr>
<td>Coc &amp; Heroin</td>
<td>44.0%</td>
<td>10.8%</td>
<td>2.2%</td>
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<tr>
<td>Coc, Her &amp; Alc</td>
<td>59.8%</td>
<td>17.1%</td>
<td>6.3%</td>
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<tr>
<td>Overall</td>
<td>39.3%</td>
<td>11.7%</td>
<td>3.7%</td>
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Exacerbation of Psych Symptoms During SUD Treatment – Ilgen & Moos, 2006

- 13% of a sample of male patients in VA residential treatment centers showed a worsening of psychiatric symptoms.

- Compared with patients in the improved group the patients in the deteriorated group reported more psych problems and more SA one year after treatment.

- Patients in the deteriorated group were more likely to have a psych diagnosis, lower SE, more reliance on coping by expression of emotions, and to view the treatment experience more negatively.
Meeting the Need

A large portion of the frequent offender population are those with co-occurring illnesses – targeting this population can often help reach the goals of the drug courts to reduce recidivism.

Meeting the need involves understanding the needs of the population and developing flexible approaches to meet those needs.
Co-Occurring Disorders

- Continuum – people with minor emotional issues secondary to their chemical use – to people with major psychiatric problems
- Axis I – mental health conditions – depression, anxiety disorders, psychosis, etc.
- Axis II – personality disorders – Anti-social, Borderline, learning disabilities, mental retardation, etc.
Types of Mental Illnesses

- Psychosis – Thought disorder
- Mood Disorders – depression, bipolar, etc.
- Anxiety Disorders – Panic attacks, PTSD
- Impulse Disorders – kleptomania, pyromania
- Adjustment Disorders – reaction to event/stressor
- Others (more exotic types)
Causes of Mental Illness

- Neurochemical Imbalances – psychosis, depression, bipolar – often genetic
- Reactive – responses to stressors – physical/sexual abuse, trauma, etc.
- Upbringing – some people are raised in circumstances where antisocial behavior is the “norm”.

Psychoses

Several types including schizophrenia
Thought disorder - delusions, paranoia, hallucinations
Perceptual Disorder – interpreting events
Theories - overactive Dopamine and possibly Serotonin system, brain abnormalities.
Antipsychotic Meds - lower chemical activity in brain.
Side effects – parkinsonlike – acute muscle spasms – extreme agitation
Psychosis- Implications for Treatment

- Medication – compliance and effectiveness monitoring – make sure it's working
- Structured treatment approaches – time, tasks, etc. – The more concrete the better
- True MICA Programming – intensive, supportive, flexible.
- Duration of treatment directly related to symptom improvement and relapse rate
Mood Disorders

- Depression, Bipolar illness (manic depression)
- Low/variable/high levels of different neurotransmitters

Symptoms:
- Depression - lethargy, hopelessness, intense sadness, suicide ideations, inability to act
- Bipolar: Mood swings over periods of time – depressive symptoms part of the time, Manic at others (grandiosity, no need for sleep, pressured speech, sprees)
Common Mood Disorder Medications

- **SSRI’s** – Prozac, Zoloft, Paxil - block reuptake of Serotonin – improves mood.
- Lithium - stabilizes mood
- Anti-convulsants –Depakote, tegretol, neurontin, topomax,– stabilizes mood
- Traditional Anti-depressants – Imipramine, Elavil, etc.
Mood Disorders – Implications for Treatment

Medication – compliance and effectiveness – Antidepressants make take three to five weeks to begin to work.

Treatment approaches – connecting mood symptoms with use patterns. Relapse prevention.

Referral for psychotherapy if appropriate.
Bipolar Illness – special considerations

- Unstable moods related to Neurochemical dysregulation. Moods change over a period of time.
- Medication Important – Lithium #1 – Patients don’t like lithium (acne, weight gain, takes away some of the “positives” of the manic phase – energy, excitement, etc.). – Compliance issues
- Need for patience and work on relapse planning connection of mood and chemical use.
- Half of bipolar patients are alcoholics
- Anti-convulsant medications – Tegretol, etc. used also.
Bipolar I Disorder

- Highest co-morbidity of psych disorders
- High rate of suicide, impulsive, or dangerous behaviors
- Use *Bipolar Disorder Survival Guide* or other books and exercises to educate, build awareness and make sense of history
- Working through denial, minimizing or pos framing critical so use of meds consistent
- Be prepared for mood swings and psychotic symptoms; prevent catastrophic events
Other Diagnoses

**Anxiety Disorders**
- High stress, anxiety, panic under circumstances (social, school, etc.)

**Phobias**

**GABA systems**

**Obsessive Compulsive Disorder**
- Individual compelled to behave in certain ways (counting, washing, etc.) – interferes with normal life
Anxiety Disorders – Implications for Treatment

- Anxiety is a very powerful force – panic attacks – response may not appear to be rational – paralysis – usually diagnosable before age 18
- Medication – careful – benzodiazepines (valium, xanax, etc. can be abused) - SSRI’s
- Meditation, relaxation techniques, cognitive behavioral therapy
Post Traumatic Stress Disorder

Patients experienced multiple traumas; hx of drug use has added traumatic exposure

Patients may present as angry, anxious, dissociated or depressed and are fragile

Develop plan for safety and teach how to de-escalate intense emotion

Trauma injures capacity for attachment and trust so go slow; give them control

Traumatic experiences processed little by little, and after some sober time if possible; allow time to regroup; remember balance; set up longer term therapy
Personality Disorders

- Anti-sociahs – self-centered – lack of remorse – Make connections of why abstinence will be a benefit to them (no jail, people off their back)
- Borderline – Complex personality – “love/hate” relationships – thrive on chaos and crisis – Keep them focused – don’t allow them to call all the shots – they like to drop “bombs” in therapy to get a reaction – takes the focus off of them and puts in on something else – very avoidant/insecure.
Treating AntiSocial PD

- Group Therapy is risky – ASPD may manipulate group – learns how to be a better manipulator
- Connect actions to consequences.
Borderline Personality Disorder

- Abandonment fears, impulsivity, emotional lability; intense relats; expect splitting

- Assess/monitor risk of suicide & self-harm

- Team must be consistent and coordinated

- Positive/neutral relationship, empathize with pain, set limits and keep focus

- See past indiv crises, identify patterns

- Employ concepts and techniques of DBT; validation vs change and cog-behav skills
Seven Critical Principles in the Treatment of Co-Ocurring Disorders

1. Assessment/Monitoring of Psych Disorder
2. Engagement of the Patient
3. Phase or Stage Approach / Harm Reduction
4. Recovery or Chronic Illness Model
5. Plan for Cog/Func Impairments
6. Psychoeducation and Med Adherence
7. Preparation to Use Support Groups
Assessment/Monitoring: Problems

- Various stages of Alcohol/Drug Use can mimic psychiatric disorders
- Patients are often poor historians
- Patients have reasons to lie or manipulate the facts of their situation
- What caused what? Chicken or the Egg?
- High stress lifestyle with multiple traumatic experiences makes interpretation of emotional symptoms difficult
Assessment/Monitoring: Approach

- Careful/Comprehensive initial assessment with monitoring of suspected concerns
- Obtain other sources of information whenever possible
- Pay special attention to sober periods and family history
- Examine relapse cycles or patterns
- Look for different quality or intensity of symptoms or emotional report
- Focus on higher frequency psych disorders
Engagement: Problems

- Reduced or conflicted motivation as a symptom/function of psychiatric disorder
- Cognitive impairments may result in communication or treatment gaps
- More isolative or socially anxious making group therapy, self-help, and even individual therapy more difficult
- Patients may alienate peers or other staff with odd or troublesome behavior
- Level of illness and multiple problems can be frustrating to the counselor
- Counselors may have biases against treating such patients
Phase or Stage Approach

- Stages of Change or modified model: patient moves through pre-engagement, engagement, persuasion, active treatment, relapse prevention and recovery.

- Patients move back and forth among the stages; clockwise and counter-clockwise.

- Patients often have different levels of motivation to address addiction or psychiatric disorders.

- Patients attach different levels of stigma to addiction or psychiatric disorders.
Cognitive/Functional Impairments

**Mood Disorders** – Low motiv/energy, poor concentration, irritable, impulsive, poor sleep, negativity or hopelessness

**Anxiety Disorders** – Difficulty focusing on treatment, social discomfort, interference with new learning, somatic symptoms

**Psychosis** – Very distracted or frightened, emotionally labile, odd behavior, social deficits or isolative, poor hygiene

**Personality Disorders** – Entrenched negative interaction patterns, emotional lability, pervasive distrust, abandonment fears, dependency, pseudo-competence
Planning for Cognitive and Functional Impairments – Tips or Guidelines

- Use a small group format and have regular individual sessions
- Schedule groups for shorter periods, have a break in the middle, or mix activities such as discussion and relaxation
- Try and use simpler handouts in groups and adjust the level in individual sessions
- Use more active approaches such as art or music to engage the patients and help them look outside themselves
Psycho-Education and Medication Compliance

Psycho-education – Patients require information as they would about any medical condition. This must be pitched at the appropriate level and address patient fears or preconceptions. You have to work gradually toward acceptance.

Medication Compliance – Stopping or reducing medication is very common and can often result in relapse. Acceptance of psychiatric disorder or symptom usually needs to precede medication use. This is often a difficult struggle complicated by side effects and misinformation.
Preparation to Use Support Groups

- Patients need preparation for 12-Step or other support groups
- Information and ways to handle common and potentially stressful interactions
- Emphasis is on going slow and giving patients permission to be quiet
- Double Trouble, Rational Recovery, EA, Recovery Incorporated, or other groups
- Don’t get hung up on which group, try and find a support group to counter isolation