

DEVELOPING A PRACTICAL POST-ARREST HEALTH INTERVENTION FOR ALCOHOL IMPAIRED DRIVERS

Charles W. Mathias, Ph.D.

Who is this guy?

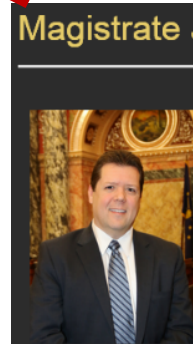
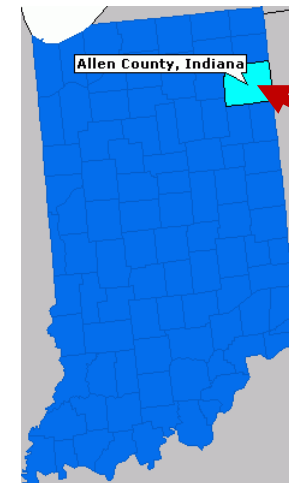
Title: Associate Professor.

Relevant Experience:

- ❑ DWI program - Bexar County.
- ❑ Development of clinical care using new alcohol monitoring technologies (e.g transdermal).

Goals:

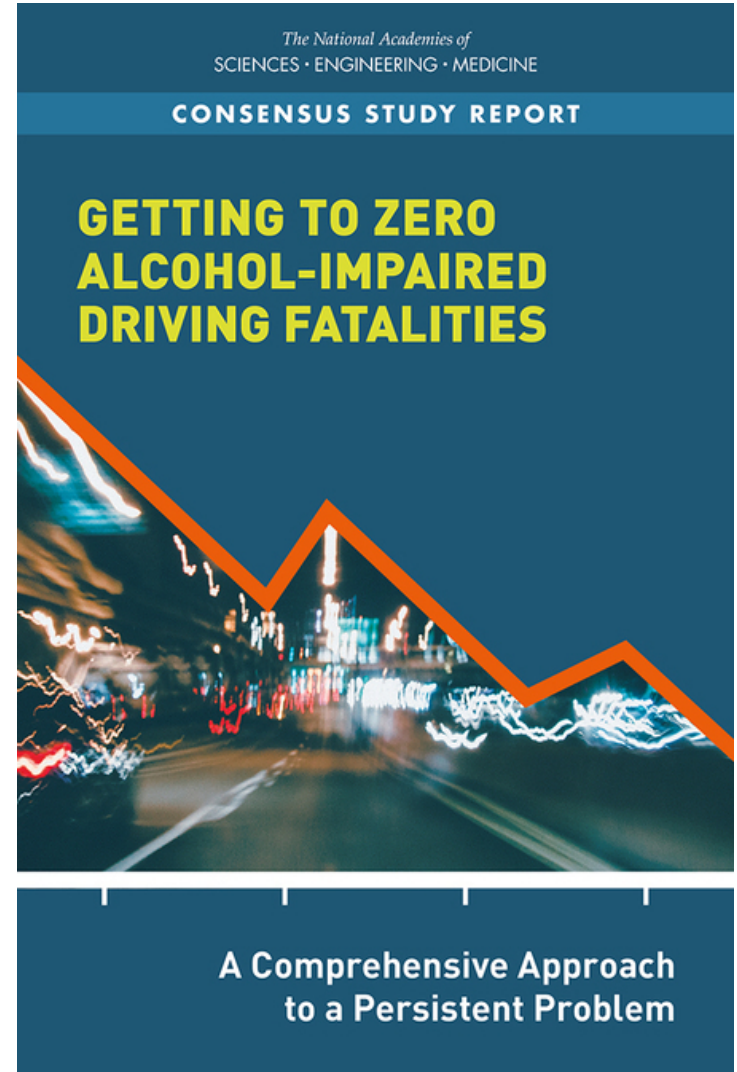
- ❑ End DWI recidivism and safely manage primary alcohol offenders in the community.
- ❑ Contribute to the conversation on mental health for criminal justice involved.



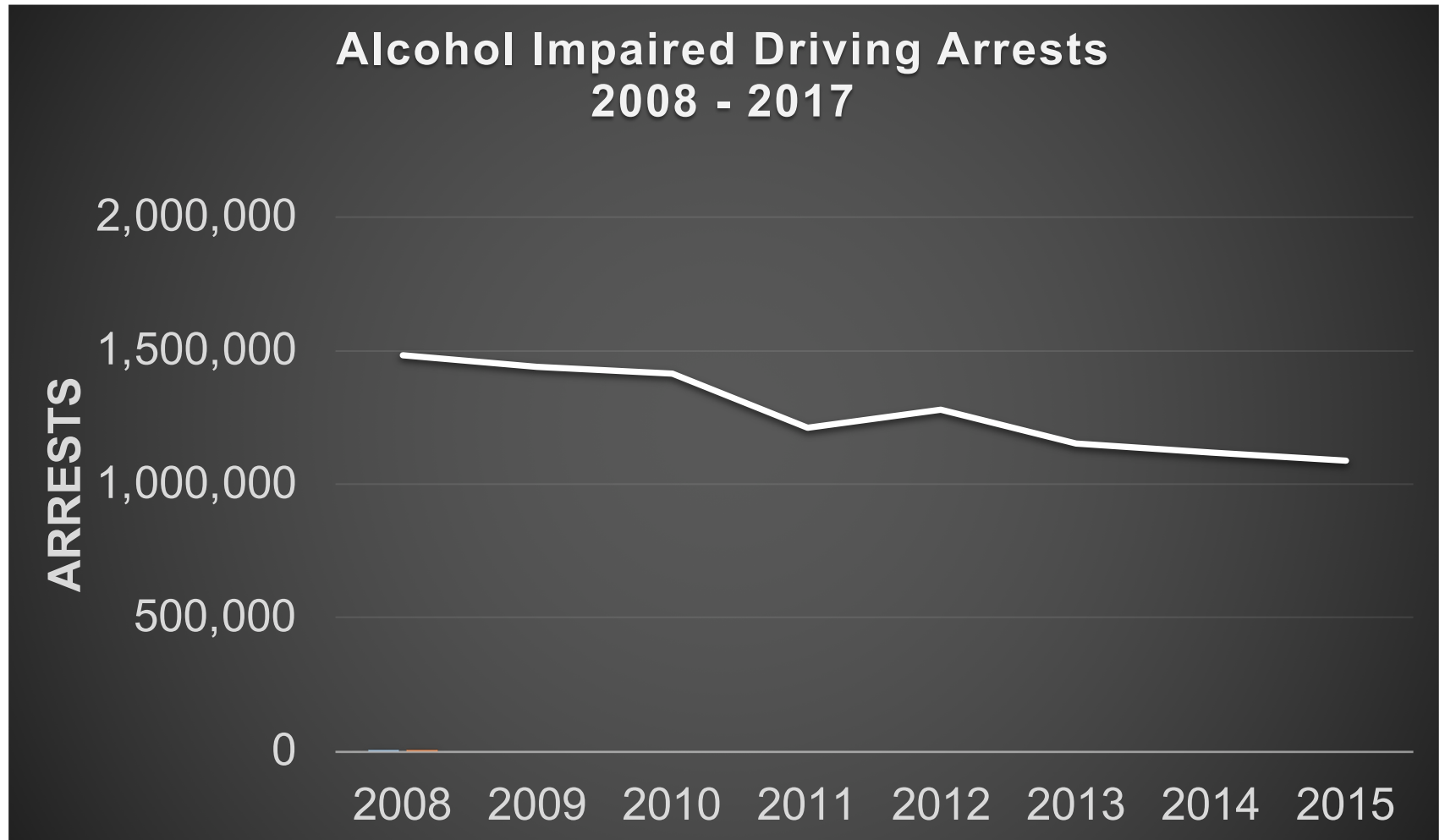
Comprehensive Approach to a Persistent Problem

Recommendations:

- Enforcement & arrest
- Adjudication practices
- Technology interventions
- Alcohol sales policies
- Alcohol marketing policies
- Data sources & sharing
- Stakeholder & communities
- Education & awareness
- **Healthcare alcohol treatments**



Alcohol Impaired Driving Arrests



Fatal Crashes

“Overall, fatal impaired driving crashes remained quite stable from 2010 to 2017.”

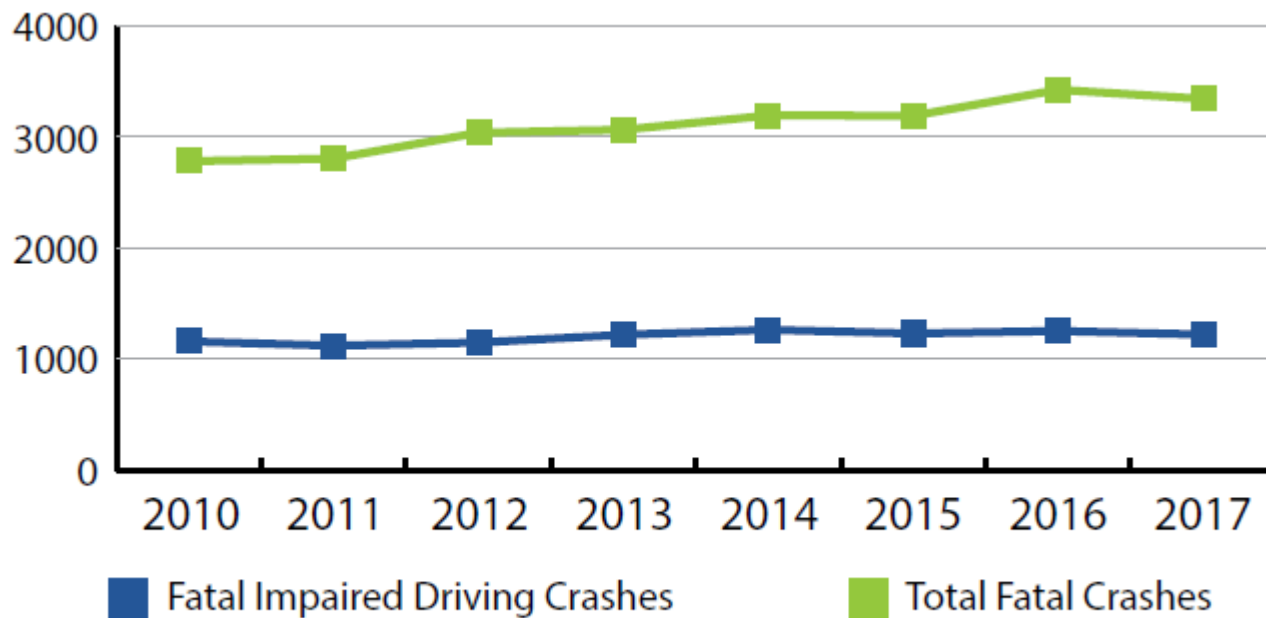


Figure 1. Total Fatal Crashes vs. Fatal Impaired Driving Crashes, 2010 - 2017.

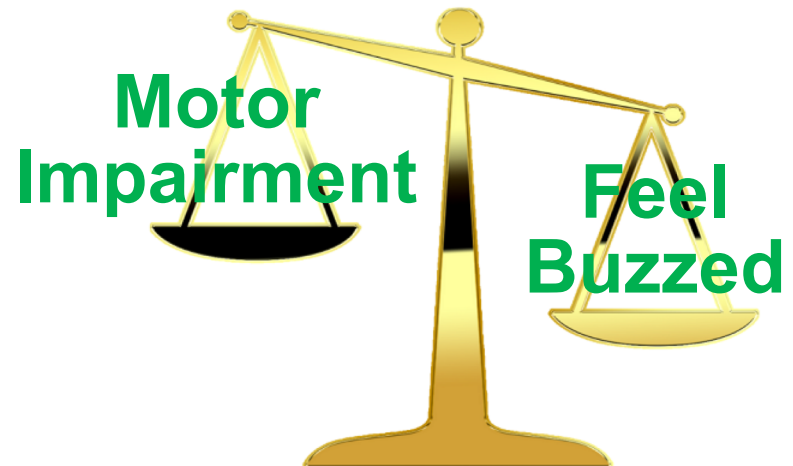


Misperceptions about Drinking

Perceived Intoxication: **Tolerance**

Repeated exposure to alcohol reduces subjective perception of intoxication, but the **Motor Impairing** effects of alcohol are resistant to tolerance.

- Will it takes more alcohol to feel “buzzed”, this comes with increasing loss of motor control.



Perceived Intoxication: Tolerance

Participants: healthy adult: Binge and Non-Binge Drinkers

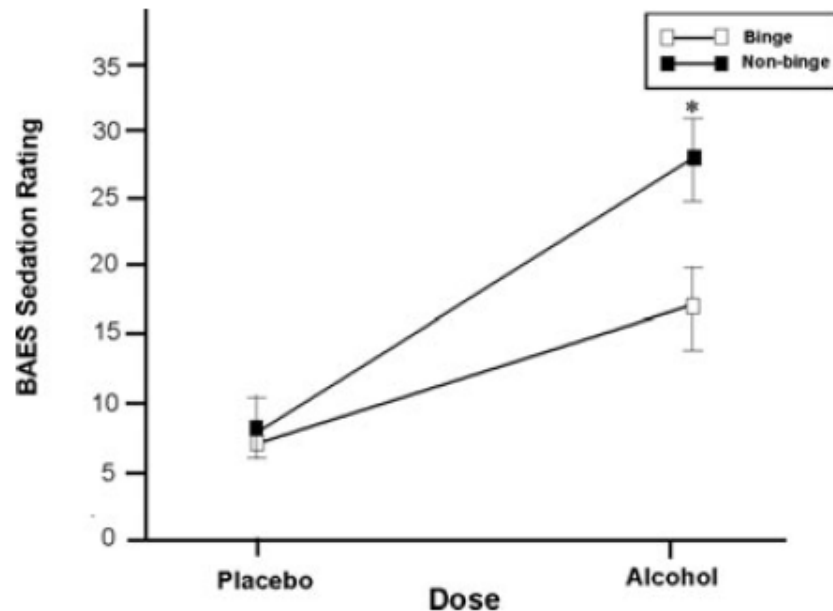
Tests:

- Driving Simulator
- Subjective effects of alcohol (stimulation & sedation).

Alcohol:

- .65 g/kg 95% alcohol = .09 BAC

Perceived Intoxication: Tolerance



Driving	Binge n=24	Non-Binge n=16
Lane deviation	1.7	1.9
Speeding	58.0	54.4
Road edge excursions	11.3	13.6

Binge drinkers reported less sedation and greater perception of driving ability, but same level of actual driving impairment as non-binge drinkers.

Perceived Intoxication: Tolerance

Experienced drinkers may compensate for impairment at low-moderate BAC and for repetitive, predictable tasks.

Drivers are **not effective at compensating** for rapid-responses required by unexpected road conditions inherent in driving.



Perceived Intoxication: Drink Size

Officer: “How many drinks have you had tonight”

Driver: “two beers”

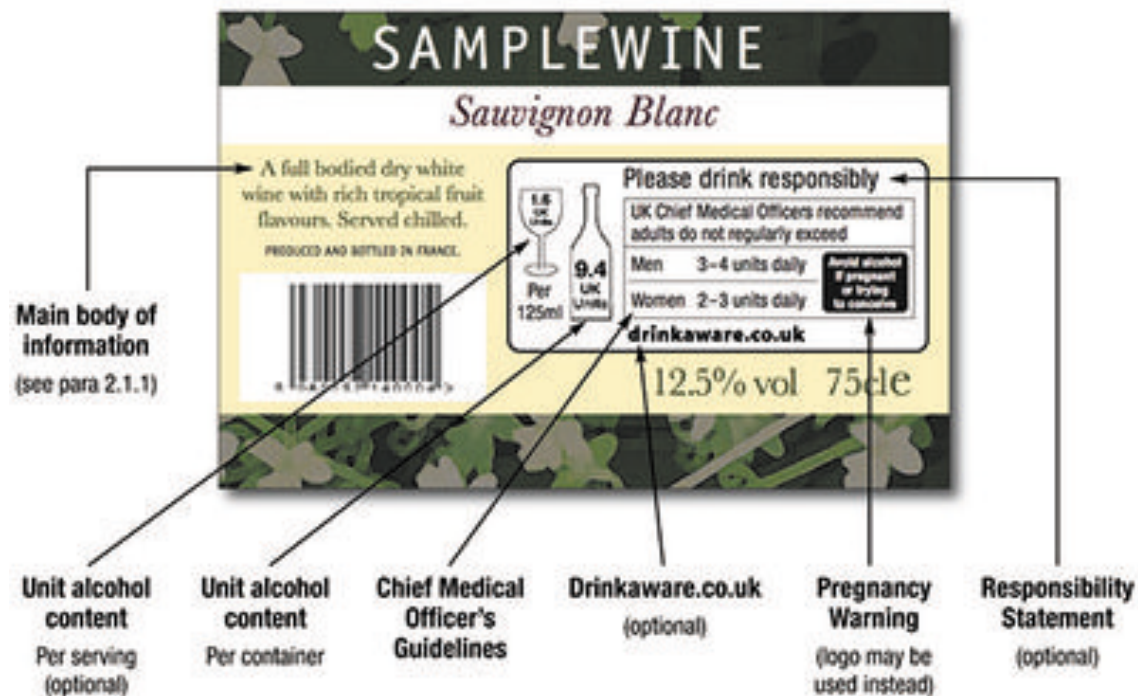
Even experienced drinkers underestimate size of standard alcohol drink

- results in drinking more than intended.

Perceived Intoxication: Drink Size

Monitoring drinking and “knowing your limits” requires understanding how much alcohol is being consumed.

Public health initiatives calling for labeling of alcohol by standard units.



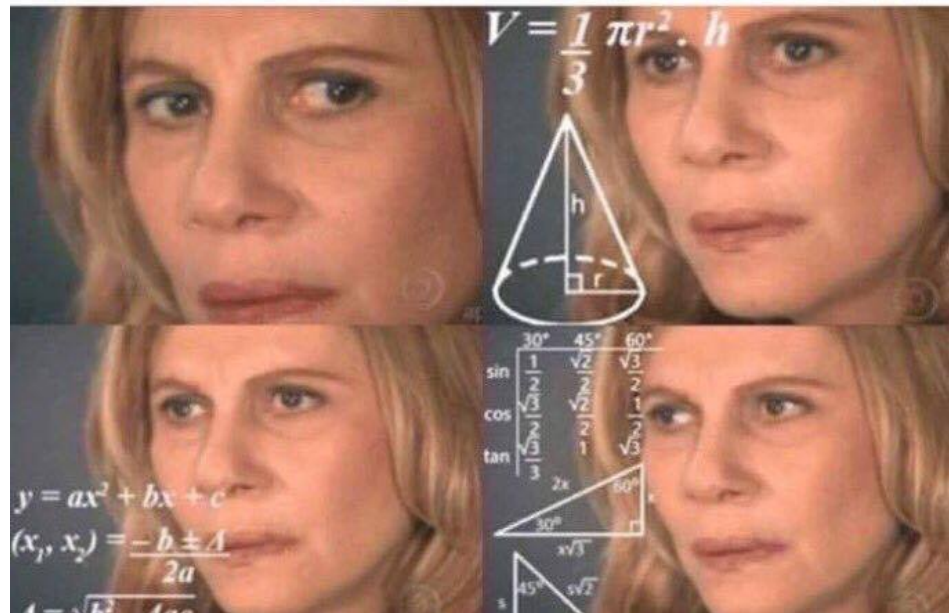
Perceived Intoxication: Drink Size

standard alcohol units
vs.
alcohol by volume
(ABV)

ASK FOR	YOU GET	ABV	IBU	\$
FLOWER CITY	AMERICAN IPA	6.3%	50	'6
DOC GIBS	RED ALE	5.3%	25	'6
LOCK-NESS	SCOTCH ALE	7.4%	25	'6
MULE FUEL	DOUBLE IPA	8.0%	80	'8
FOUR KNOTS	EXTRA PALE ALE	5.0%	31	'6
YANKEE LEAPER	AMERICAN WHEAT	4.9%	15	'6
COLONEL HOPKINS	VERMONT STYLE IPA	7.0%	81	'7
FIVE 80 FIVE	IRISH DRY STOUT	5.0%	30	'6
SAL'S 3 YEAR	TROPICAL IPA	6.8%	70	'7
1911 ORIGINAL	HARD CIDER	5.5%	—	'6

Perceived Intoxication: Drink Size

((# fluid ounces \times .0295 liters) \times % ABV \times 789.24
alcohol density (at 20 $^{\circ}$ Celsius)) / 14 grams pure alcohol



Perceived Intoxication: Drink Size

Standard Drink Labels:

- 60%-95% increased awareness of standard drink size.
- Easier to understand than %ABV
- Preferred labeling format among drinkers.
- Facilitate more accurate serving.

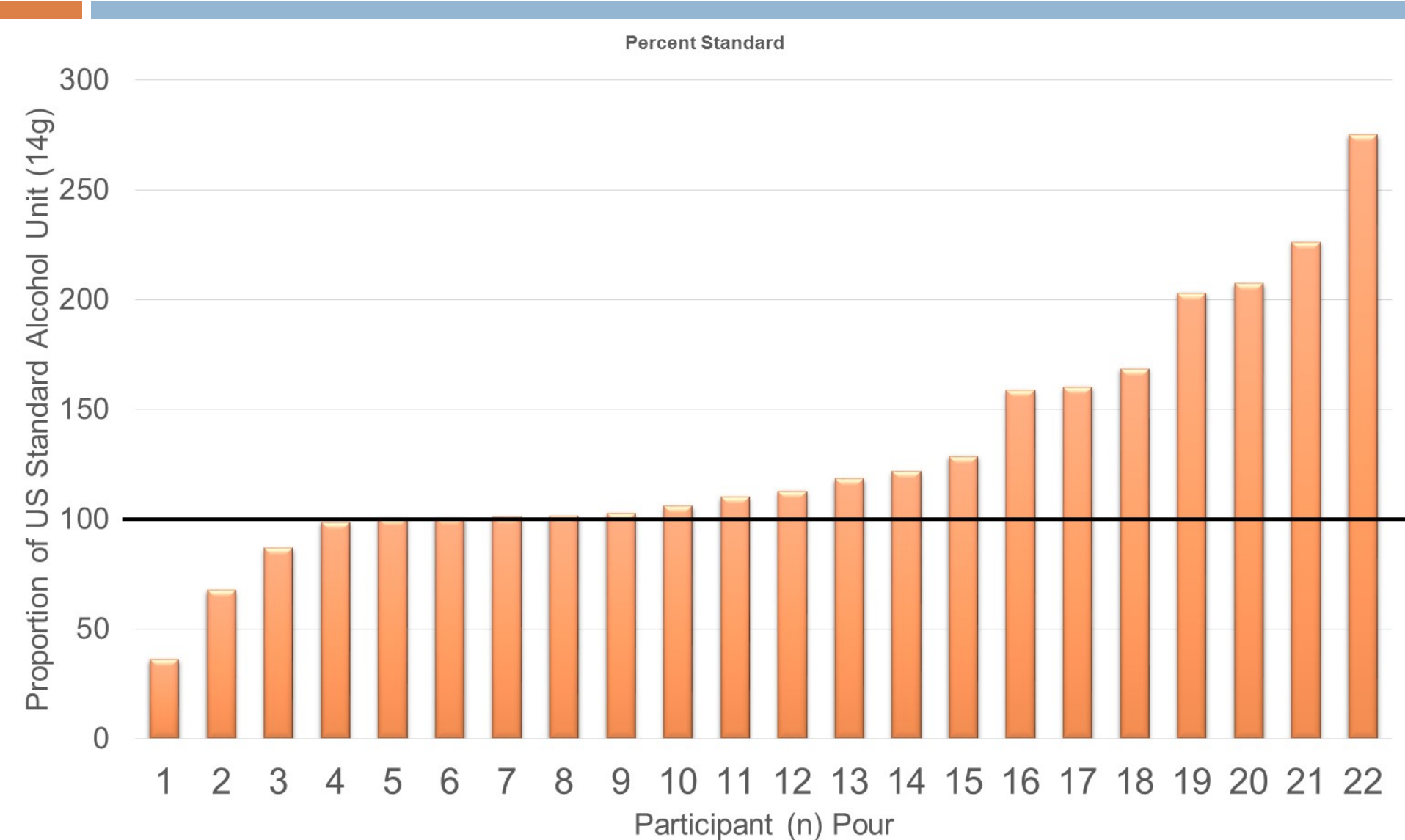
Perceived Intoxication: **Drink Size**

Participants: 22 adults from Bexar County with recent arrest for DWI

Method: simulated alcohol “free pour” task



Perceived Intoxication: Drink Size



Perceived Intoxication: Drink Size

Results:

- 50% over-poured (underestimated alcohol amount).
- 20% were double the standard units.

Implications of underestimating drink size:

- Decision on fitness to drive.
- Ability to accurately report the quantity of alcohol consumed for health assessment (e.g. SBIRT).

Perceived Intoxication: **Normality Bias**

Normality Bias: Heavy drinkers tend to socialize with other heavy drinkers (Family & Friends).

- Results is perception they are drinking at “normally”.
 - ▣ “I drink less than all my friends.”
 - ▣ “When I go out the night, I’m the least drunk.”



Perceived Intoxication: Summary

Misjudging fitness to drive:

- Tolerance
- Drink size
- Normality bias



Misperceptions about People who Drink and Drive

Myth: All DWI Offenders are Alcoholics

Myth: All people arrested for DWI have an alcohol use disorder.

Alcohol Use Disorder is over-represented:

- ▣ among DWI convictions, yet less than 1/2 meet full diagnosis.¹
- ▣ in fatal crashes, yet only account for 1/2 of cases²

¹ Lapham (2001). Prevalence of Psychiatric Disorders among Persons Convicted of DWI, Archives of General Psychiatry, 58, 943-949

² Williams et al., (2007). Hardcore drinking drivers and other contributors to the alcohol-impaired driving problem: Need for a Comprehensive Approach. Traffic Injury Prevention, 8, 1-10.

Myth: All DWI Offenders are Alcoholics

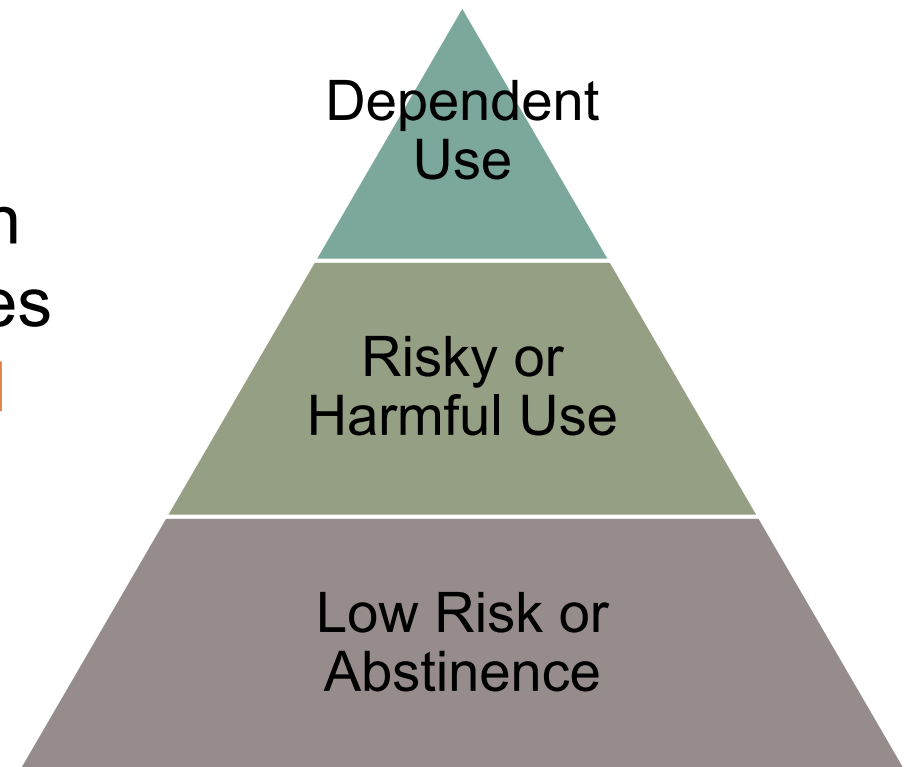
Emphasis on the Alcoholic DWI Offender.

- ❑ Overestimation of re-arrest potential.
- ❑ Community perception of alcohol impaired drivers.
- ❑ The minority of cases drive majority of costs (familiar faces).

Reality: DWI, a spectrum of drinkers

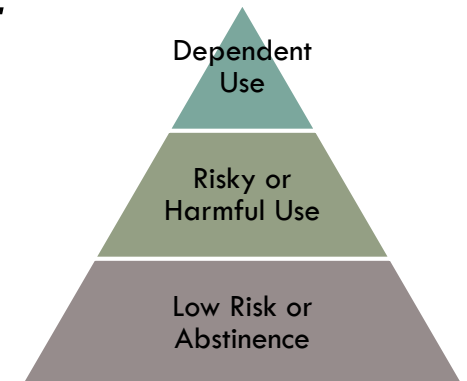
Reality:

- Alcohol use occurs on a continuum.
- Only the smallest minority meet criteria for Alcohol Use Disorder (AUD).
- A much larger population misuses alcohol, but does not have AUD. **Ratio 6:1**

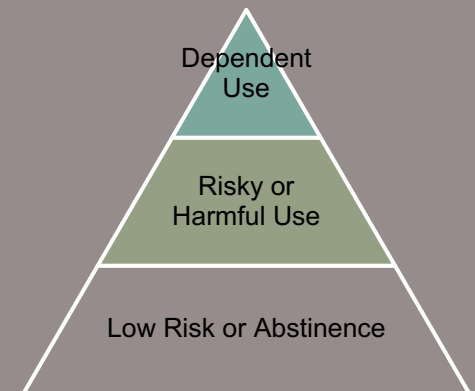


Realty: DWI, a spectrum of drinkers

*Hardcore drinking drivers have been defined and discussed in ways that overemphasize their contribution to the problem, to the exclusion of the **more populous** groups of drivers with lower BACs who also have elevated crash risk and an unknown number of people who occasionally drink heavily and then drive.*



Screening, Brief Intervention, and Referral to Treatment (SBIRT)



Intervening across the Drinker Spectrum

Traditional Treatment

- intensive specialty care **for the few**, most severe cases of alcohol use disorder.

SBIRT

- **Universal** screening identifying alcohol use pattern.
- Intervention intensity delivered based on screening.
- Goal – motivate reduced drinking for the broader population with harmful drinking, and motivate seeking treatment for the few with AUD.

Screening

Alcohol Use Disorders Identification Test (AUDIT)

- quantity
- consequences
- dependence symptoms

Babor et al., 2001 AUDIT The Alcohol Use Disorders Identification Test Guidelines for Use in Primary Care. Second Edition. World Health Organization.

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?

- (0) Never [Skip to Qs 9-10]
- (1) Monthly or less
- (2) 2 to 4 times a month
- (3) 2 to 3 times a week
- (4) 4 or more times a week

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

- (0) 1 or 2
- (1) 3 or 4
- (2) 5 or 6
- (3) 7, 8, or 9
- (4) 10 or more

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

3. How often do you have six or more drinks on one occasion?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

4. How often during the last year have you found that you were not able to stop drinking once you had started?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

- (0) No
- (2) Yes, but not in the last year
- (4) Yes, during the last year

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

- (0) No
- (2) Yes, but not in the last year
- (4) Yes, during the last year

Brief Intervention

Screening determines level of alcohol risk and intervention delivered.

Risk Level	Intervention	AUDIT score*
Zone I	Alcohol Education	0-7
Zone II	Simple Advice	8-15
Zone III	Simple Advice plus Brief Counseling and Continued Monitoring	16-19
Zone IV	Referral to Specialist for Diagnostic Evaluation and Treatment	20-40

Brief Intervention - Low Risk Drinking

Risk Level	Intervention	AUDIT score*
Zone I	Alcohol Education	0-7

Alcohol Education (<5 min.) intended to:

- raise awareness of safe alcohol use limits.
- motivate change for under-reporters.
- remind those with past problems about risk of returning to heavier alcohol use.

Content focuses on defining limits of safe alcohol use.

Brief Intervention - **Risky Drinking**

Risk Level	Intervention	AUDIT score *
Zone II	Simple Advice	8-15

Simple Advice (5+ min.) intended to:

- provide feedback they are exceeding safe limits.
- advise on harms of risky drinking.
- encourage action to stop or cut down.
- elicit offenders goals to reduce alcohol use.

Brief Intervention - Harmful Drinking

Risk Level	Intervention	AUDIT score*
Zone III	Simple Advice plus Brief Counseling and Continued Monitoring	16-19

Brief Counseling (15 min.) focusing on immediate reduction in alcohol use.

- differs from simple advice by providing strategies to change alcohol attitudes and handle underlying problems.
- relies on empathetic listening and motivational interviewing skills

Brief Intervention - Harmful Drinking

Risk Level	Intervention	AUDIT score*
Zone III	Simple Advice plus Brief Counseling and Continued Monitoring	16-19

Continued Monitoring to detect ongoing use after brief counseling.

Criminal justice involved in best context for monitoring:

□ Breathalyzer, Interlock, Transdermal Monitoring....

Brief Intervention - **Dependent Drinking**

Risk Level	Intervention	AUDIT score*
Zone IV	Referral to Specialist for Diagnostic Evaluation and Treatment	20-40

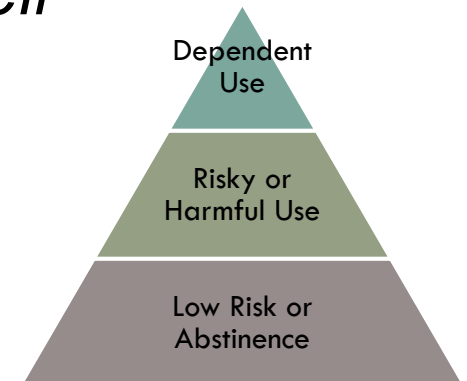
Brief Counseling + **Referral to Specialist** (>15 min.).
Counseling focuses on motivating engagement with diagnostic assessment and treatment.

- Develop a go-to list of local providers.
- Include peer support groups (Alcoholics Anonymous).

Intervening across the Alcohol Spectrum

Since at-risk drinkers make up a large percentage of all drinkers, Screening, Brief Intervention, and Referral to Treatment (SBIRT) can have a very significant impact on improving the health of the population as a whole.

Large numbers of people can be helped to reduce risky drinking or to maintain their drinking at safe levels by just one or a few brief meetings with a provider.¹



¹ American Public Health Association and Education Development Center, Inc. (2008). Alcohol screening and brief intervention: A guide for public health practitioners. Washington DC: National Highway Traffic Safety Administration, U.S. Department of Transportation.



County & Academic Partnership



County & Academic Partnership

Motivational Alcohol Treatment to Enhance Roadway Safety



- Engages DWI offenders within 2 weeks of arrest.
- Presents the program as treatment opportunity.
- Delivers SBIRT at pretrial orientation or within a university health clinic.





Electronic Screening



[HOME](#)
[Log Out](#)

Think about the day during the last month when you drank the most. Fill in the number of standard drinks of each type of alcohol you consumed on that day, and number of hours you spent drinking.

The day you drank the most in the last month:

	Beer	<input type="text" value="0"/>
	Wine	<input type="text" value="0"/>
	Liquor/Shots	<input type="text" value="0"/>
<hr/>		
	Hours Spent Drinking	<input type="text" value="0"/>

[◀ previous](#)[next ▶](#)

Mullen et al (2015). Feasibility of a computer-assisted alcohol screening, brief intervention and referral to treatment program for DWI offenders. *Addiction Science & Clinical Practice*, 10, 1-10.

Brief Intervention: Feedback Report

Tool to bring non-judgmental awareness about:

- their place on the drinking spectrum

Based on what you reported:

You drink **152 *standard drinks*** per month.

In a typical week you drink **38 *standard drinks***.

Based on the amount of alcohol you reported:

95% of American men drink less than you in a typical week.

This means that out of 100 people, 95 drink less than you, or that 5 drink more than you.



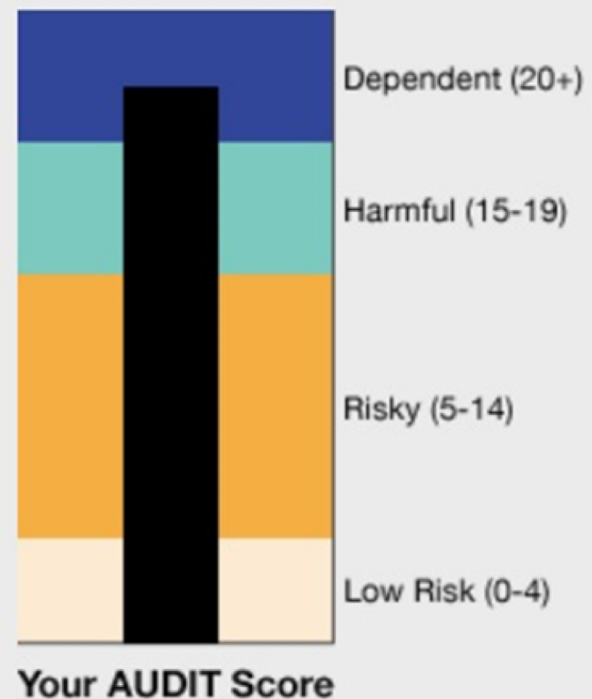
This information comes from a large national survey of U.S. adults, conducted in 2010. The survey asked adults all over the country about their drinking.

Brief Intervention: Feedback Report

□ AUDIT risk level

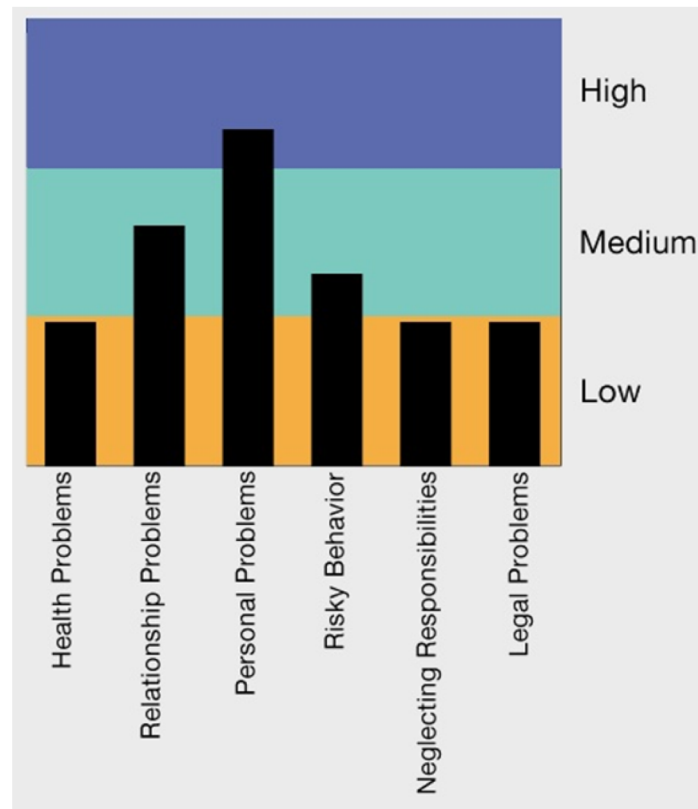
On the AUDIT, you received a score of 21.

Based on your response, your risk level of having alcohol related problems or developing dependence is: **Dependent.**



Brief Intervention: Feedback Report

- acknowledged alcohol problems



Mullen et al (2015). Feasibility of a computer-assisted alcohol screening, brief intervention and referral to treatment program for DWI offenders. *Addiction Science & Clinical Practice*, 10, 1-10.

Brief Intervention: Feedback Report

□ costs of drinking (and driving)

You spend about **\$3120** on alcohol in a year.

You estimated your DWI will cost you **\$2500** in legal fees.

As a Comparison:

That amount of money would be enough to purchase:



1124 fast food meals (McDonald's, Burger King), or



281 nice dinners (Olive Garden, Red Lobster), or



80 steak dinners and a movie.

Brief Intervention: Individualized Plan

Your Plan

People who decide to make changes in their drinking do it in different ways. Some people decide to quit drinking entirely. Other people are able to cut back and keep their drinking at low levels. Most people in the criminal justice system have requirements to not drink at all.

Here are some things you said you could do to avoid future problems:

- ☐ Get in touch with old friends who might help me stay clean.
- ☐ Go to an NA or AA meeting, or other support group.
- ☐ Visit children or family.
- ☐ Call a friend when I feel like drinking.
- ☐ Spend time with people who don't use drugs or alcohol.
- ☐ Avoid places where I used to drink alcohol.
- ☐ Memorize sections of the big book or scripture.
- ☐ Meditate or pray.
- ☐ Make a list of the ways that my drinking has affected the people I care about most, like children, family, or friends.

Brief Intervention: Individualized Plan

Based on your responses, here are some other things that might help you avoid future problems:

☐ Write down the date/time of my next visit with my counselor.

Date: ___/___/___ Time: _____ am/pm

☐ Get a binder or folder to keep all of my program and court documents in.

☐ Finish my MATTERS homework.

☐ Make a list of questions or concerns and share it with my counselor.

☐ Put a number in my phone of someone I could call if I needed to talk.

Someone I could talk to: _____

☐ Other goal: _____

If you want to explore your drinking further, you can check out the following free resources.

- To learn more about the health effects of drinking: <http://www.checkyourdrinking.net>
- To explore ways of making changes in drinking: <http://rethinkingdrinking.niaaa.nih.gov/>

MATTERS Outcomes

SBIRT delivered to **997** adults in Bexar County.

- 1-year DWI recidivism: **2.2%** for those completing SBIRT compared to baseline **12.7%**.
- Follow-up 1.5 years later, AUDIT declined 5 points. Declined from Risky- to Low-Risk level.
- **94%** rated SBIRT as increasing their motivation to reduce drinking.



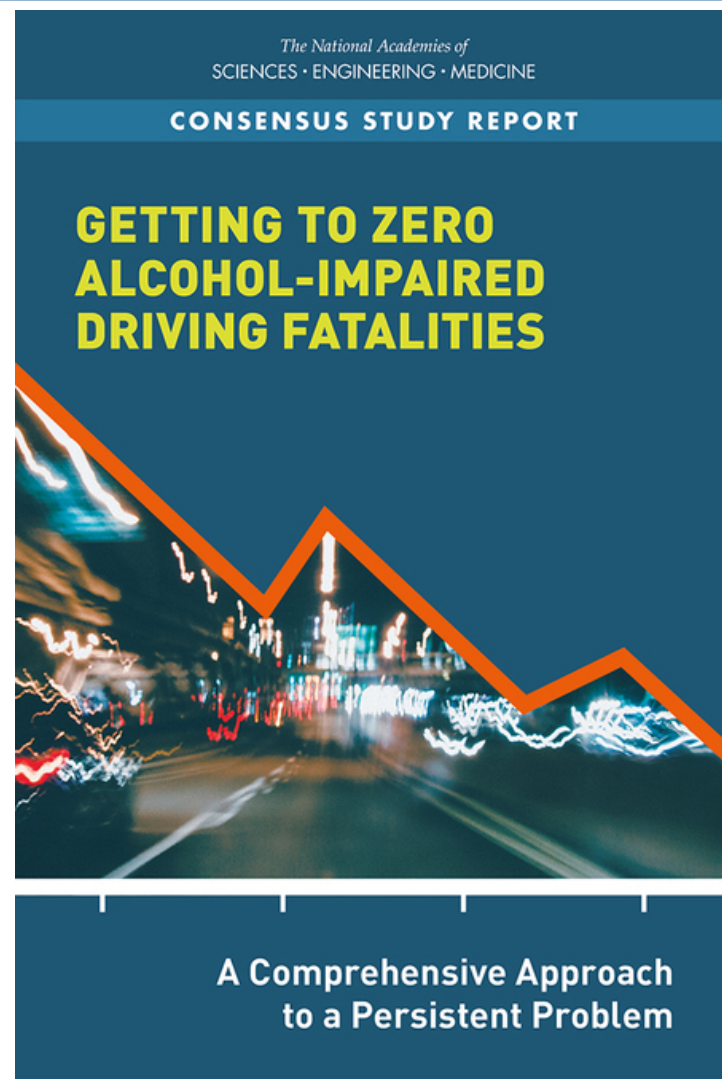


System Level Delivery of SBIRT

System Level Delivery of SBIRT

Recommendation 5-2:

*All **health care systems and health insurers** should cover and facilitate effective evaluation, prevention, and treatment strategies for binge drinking and alcohol use disorders including SBIRT...*



System Level Delivery of SBIRT

Recommendation 5-2:

All health care systems and health insurers should...

Bexar County DWI Offenders:

	Community (<i>n</i> = 60) %	Residential (<i>n</i> = 59) %
Uninsured	52	71
Primary Health Provider		
Emergency Department	28	54
Primary Care Physician	33	25

¹ Mullen et al., (2015). Treatment needs of driving while intoxicated offenders: The need for a multimodal approach to treatment. *Traffic Injury Prevention*, 16, 637-644.

System Level Delivery of SBIRT

The Impaired Driving Task Force strongly considers SBIRT to be effective countermeasures against impaired driving.

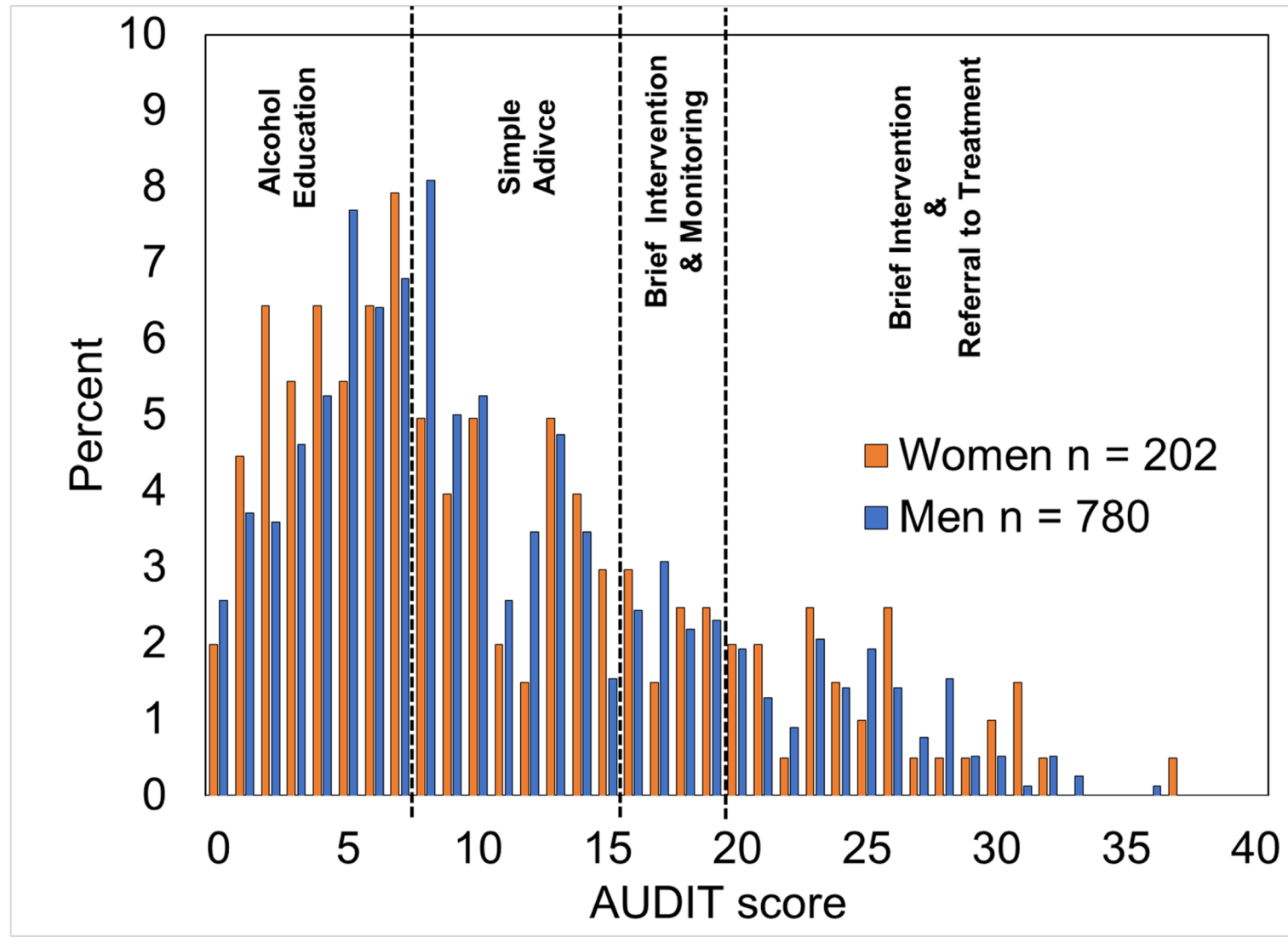
*The Task Force would like to see additional professionals trained in SBIRT **to implement this strategy statewide.***



2017 TEXAS
IMPAIRED DRIVING PLAN

DEVELOPED AND APPROVED BY THE TEXAS IMPAIRED DRIVING TASK FORCE

Rates of Intervention



Rates of Intervention

The largest group requires the least intervention.

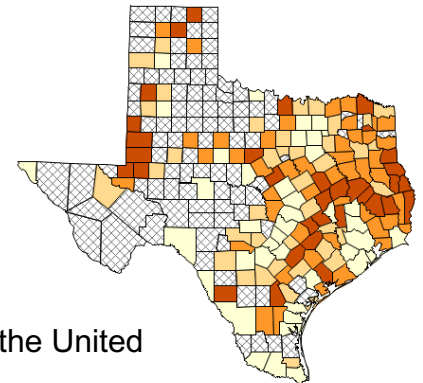
	Alcohol Education %	Simple Advice %	Brief Counseling & Monitoring %	Brief Intervention & Referral to Treatment %
Men	40.6	34.1	10.0	15.3
Women	44.6	29.2	9.4	16.8

But, about 60% of cases require more intensive advice and/or brief counseling.

Texas Rates of Intervention

Intervention demands based on the
67,950 DWI arrest in 2016.¹

	Alcohol Education #	Simple Advice #	Brief Counseling & Monitoring #	Brief Intervention & Referral to Treatment #
Texas	28,131	22,491	6,727	10,600



¹ FBI (2016). Table 22: Arrests by State, 2016. United States Department of Justice, Crime in the United States 2016. Federal Bureau of Investigation, Washington, DC

Implementation Considerations

SBIRT delivery:

- Staffing resources & space resources.¹
- Staff attitudes.²
- Delivery context – therapeutic encounter.²
- Training cost/time.²
- Recording keeping.²

¹ Prendergast et al (2014). Considerations for introducing SBIRT into a jail setting. Offender Programs Reports, 17, 81-86.

² Johnson et al., (2010). Barriers and facilitators to implementing screening and brief intervention for alcohol use. Journal of Public Health, 33, 412-421.

Conclusions

SBIRT:

- a relatively low-cost intervention for reducing alcohol use across the full-spectrum of drinkers.
- increasingly recommended as one tool for reducing DWI arrests.
- primarily promoted for delivery in health care settings.

Questions remain on how to systematically deliver SBIRT within a criminal justice context.

Contact and Resource for SBIRT

Contact: Charles W. Mathias, Ph.D.
Mathias@uthscsa.edu (210) 567-2730

Resources:

SAMHSA SBIRT portal
<https://www.samhsa.gov/sbirt>

TAMU Transportation Institute
<https://www.dyingtodrink.org/>

Considerations for Introducing SBIRT into a Jail Setting
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4340079/>

Implementing SBIRT
[doi:10.1093/pubmed/fdq095](https://doi.org/10.1093/pubmed/fdq095)

NHTSA SBIRT
<https://www.nhtsa.gov/document/811811pdf-alcohol-and-highway-safety-screening-and-brief-intervention-alcohol-problems>

Texas Health and Human Services SBIRT continuing education
<http://www.txhealthsteps.com/148-introduction-screening-brief-intervention-and-referral-treatment-sbirt>