

# Safety Report

## Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving

# Introduction

Robert Molloy, Ph.D.

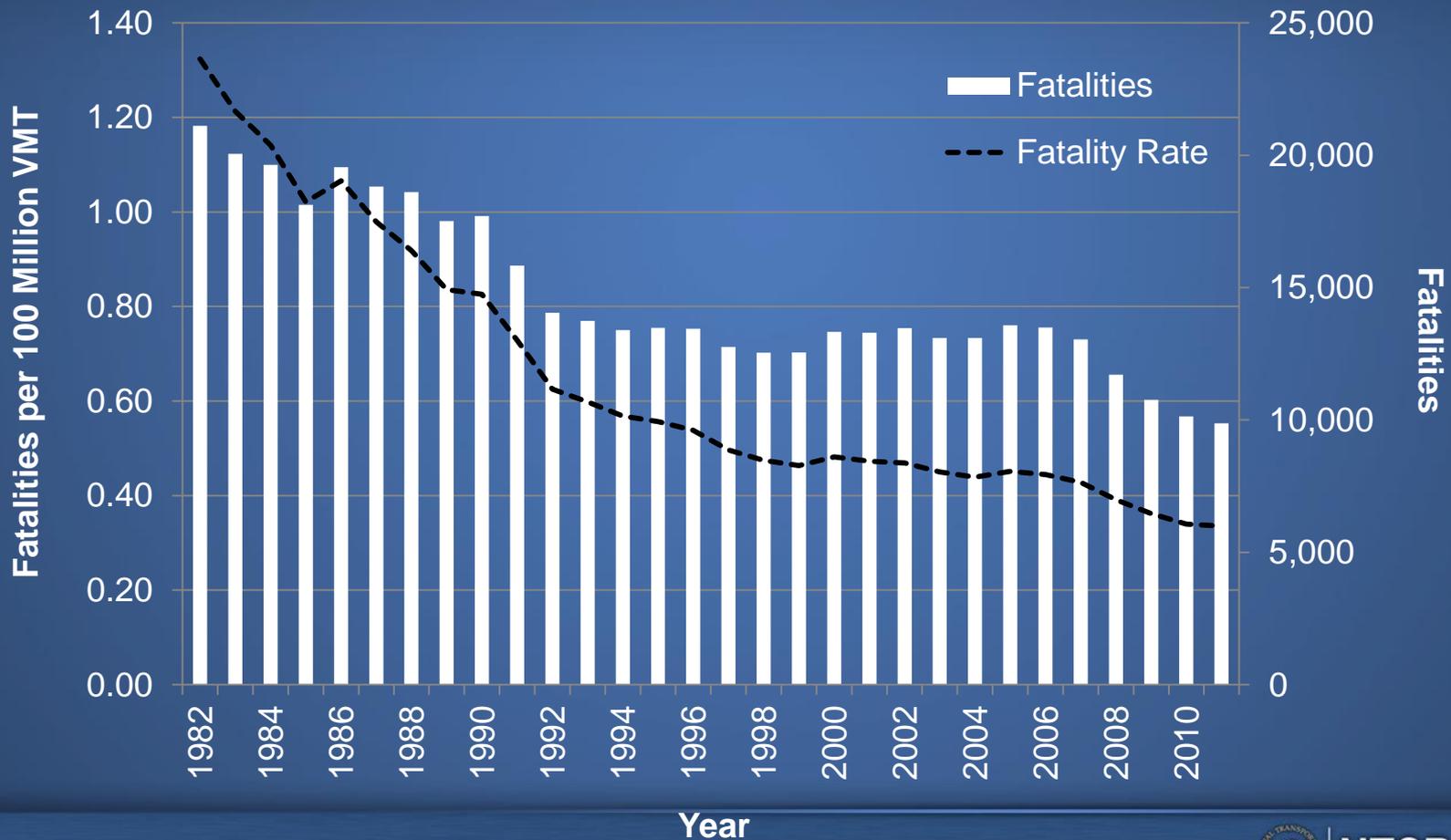
# Overview

- Problem scope
- Impaired driving efforts
- Methodology

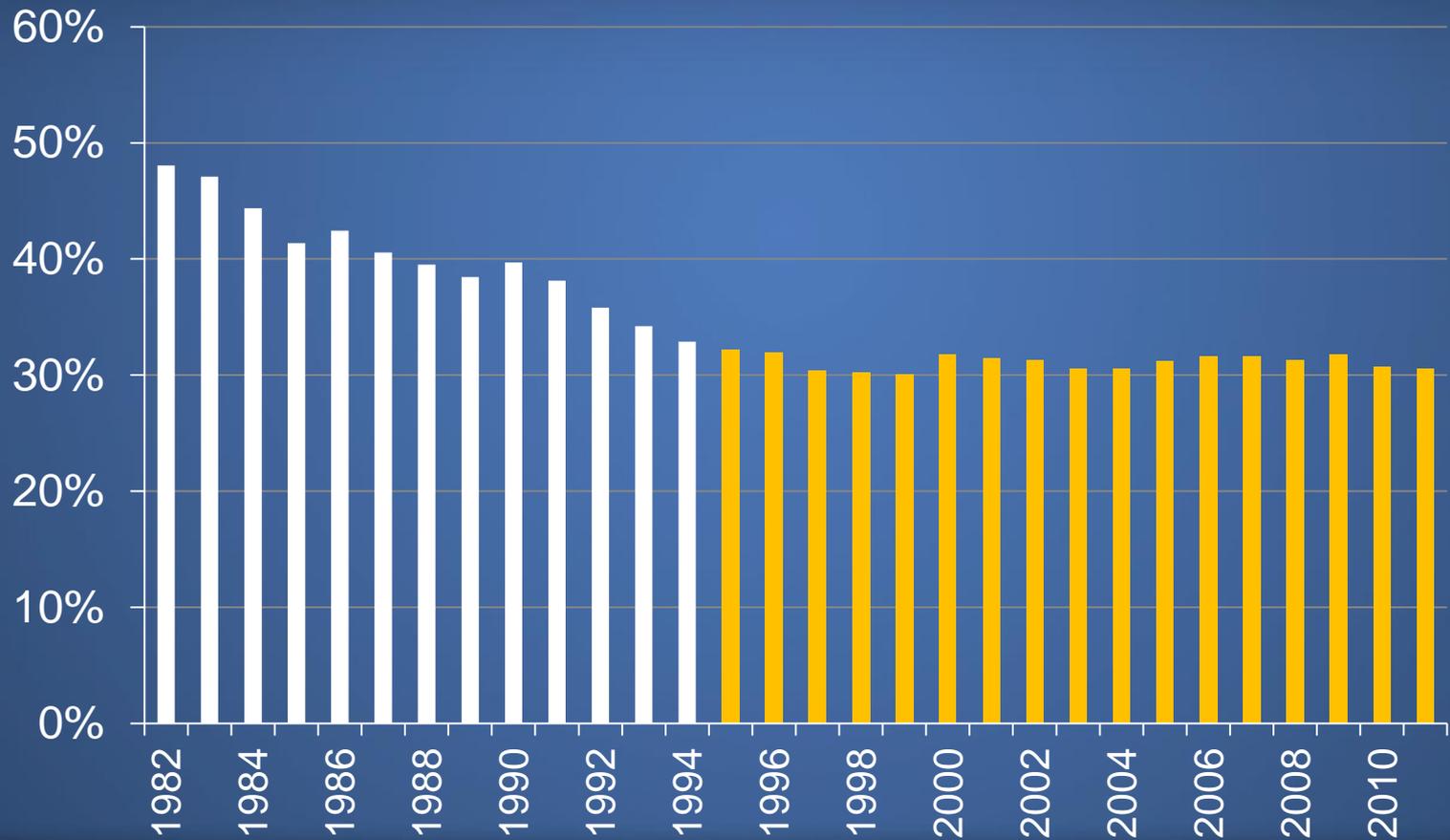
# Alcohol-Impaired Driving

- In 2011:
  - 9,878 alcohol-impaired driving fatalities
  - 31% of all fatalities
  - More than 170,000 injuries
    - 27,000 incapacitating
- Annual economic costs (2006)
  - \$66.4 billion in monetary costs
  - \$63.3 billion in quality of life losses

# Impaired Driving Fatalities and Fatality Rate: 1982-2011



# Percent of Fatalities Associated with Alcohol-Impaired Driving: 1982-2011



# Incidence of Drinking and Driving

- 4 million people drive while alcohol-impaired annually
- 112 million alcohol-impaired driving episodes each year
- 12% of randomly stopped nighttime drivers had positive BAC; 1 in 20 with BAC  $\geq 0.05$

# Impaired Driving Efforts

- 2012 Reaching Zero Forum
- Most Wanted List
- Recommendation Letter
- Wrong-Way Driver Special Investigation Report
- 2013 Reaching Zero Safety Report

# Safety Report Methodology

- Review of forum findings
- Request to external experts
- Literature search/review
- Evaluation of countermeasures

# Safety Report Team

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# Issue Areas

- Alcohol impairment and per se laws
- High-visibility enforcement
- In-vehicle technologies
- Administrative license actions
- Repeat offender countermeasures
- Setting goals and tracking progress

# Alcohol Impairment and Per Se Laws

Jana Price, Ph.D.

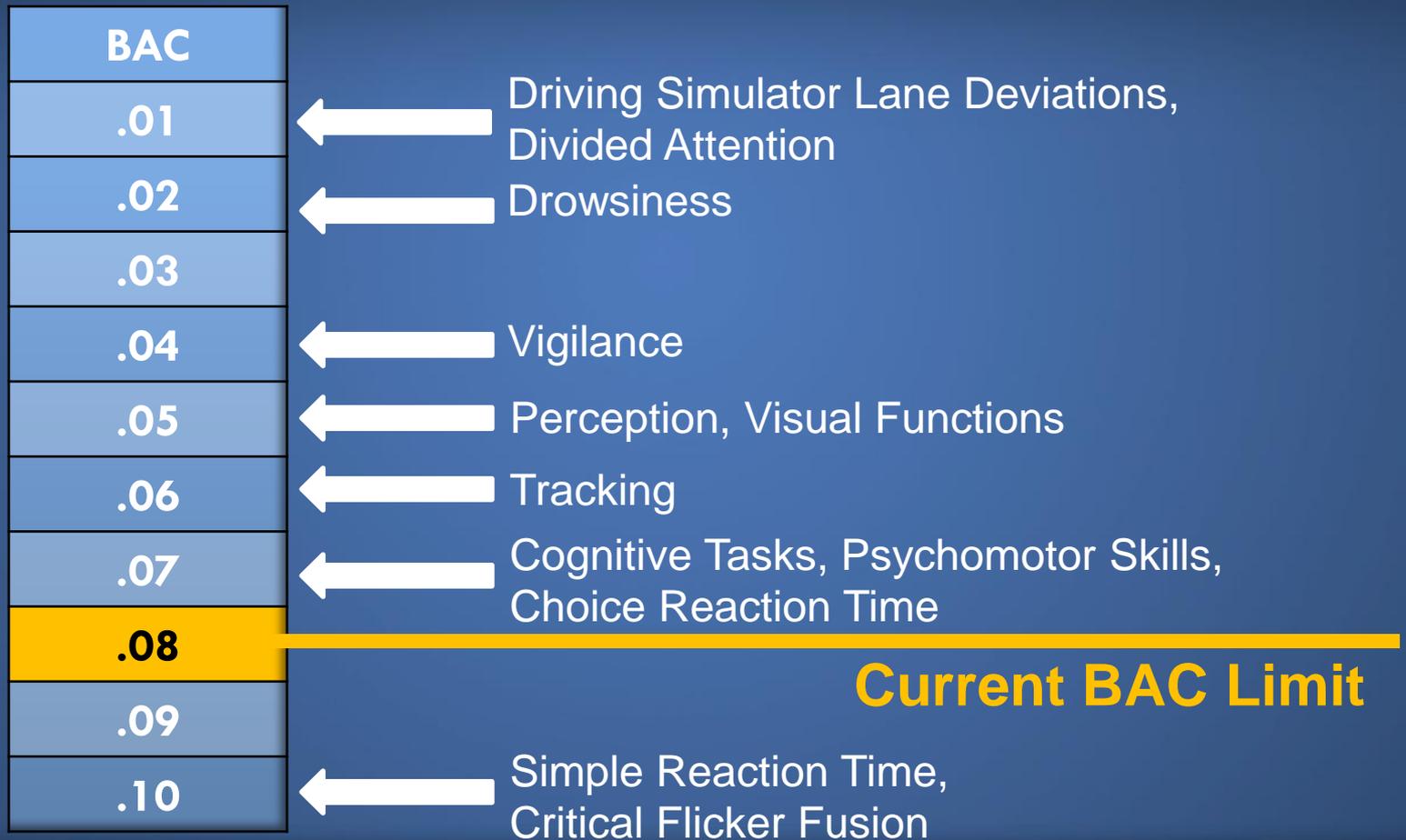
# Alcohol Effects

- Drug that affects behavior, mood and performance
- Dose-dependent
- Standard measure: blood alcohol concentration (BAC)

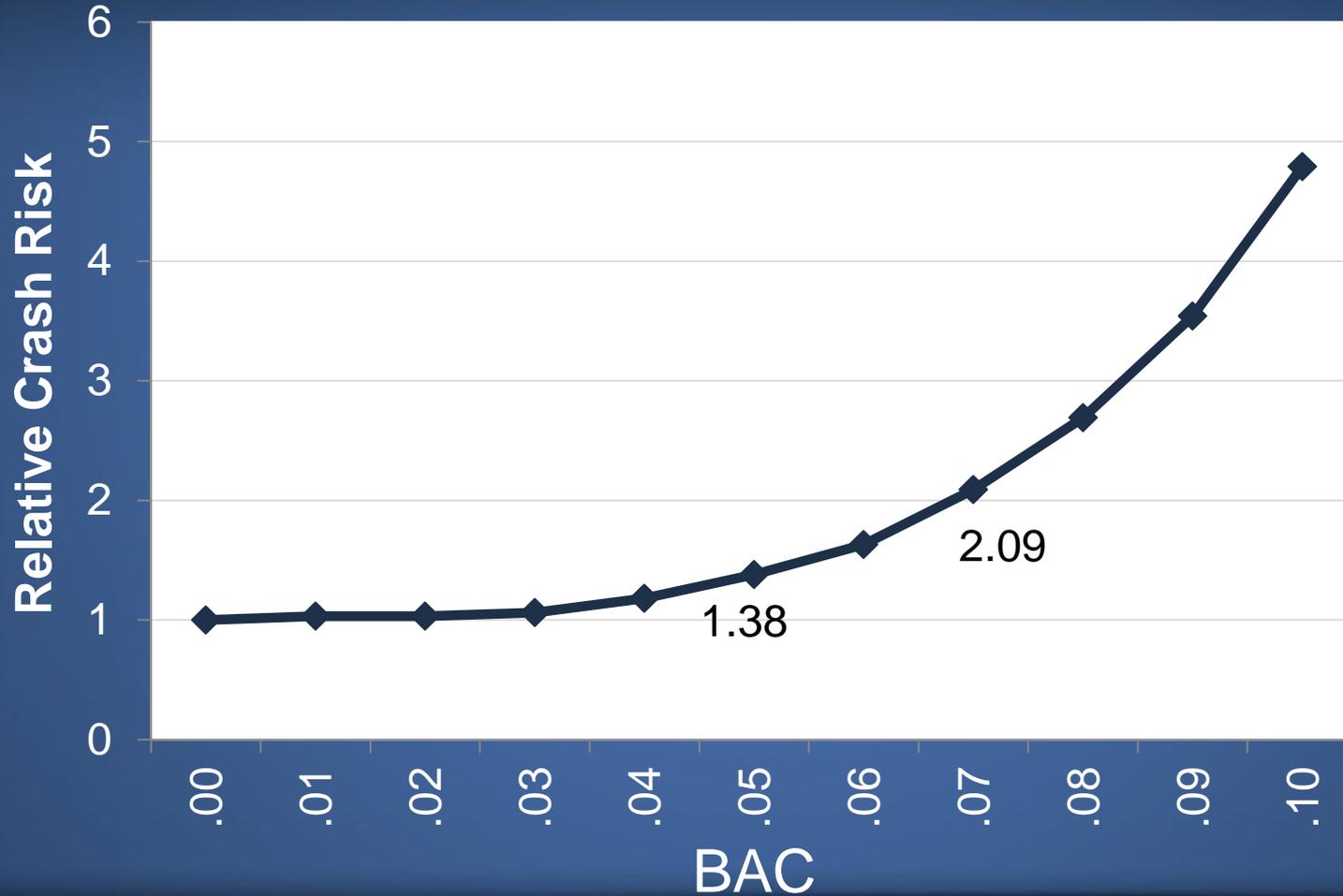
# Driving-Related Performance

BAC	
.01	← Driving Simulator Lane Deviations, Divided Attention
.02	← Drowsiness
.03	
.04	← Vigilance
.05	← Perception, Visual Functions
.06	← Tracking
.07	← Cognitive Tasks, Psychomotor Skills, Choice Reaction Time
.08	
.09	
.10	← Simple Reaction Time, Critical Flicker Fusion

# Driving-Related Performance

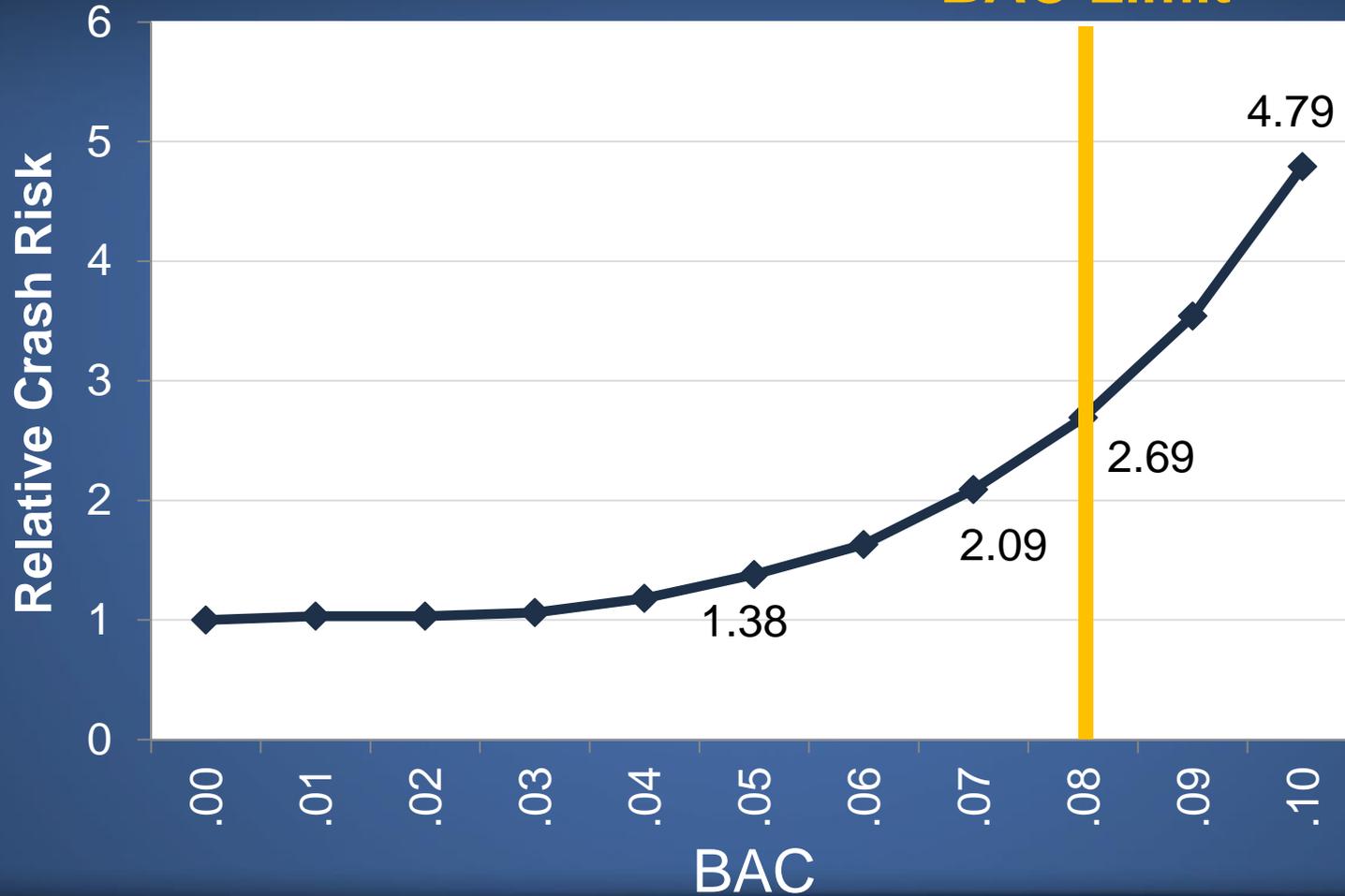


# Crash Risk



# Crash Risk

**Current  
BAC Limit**



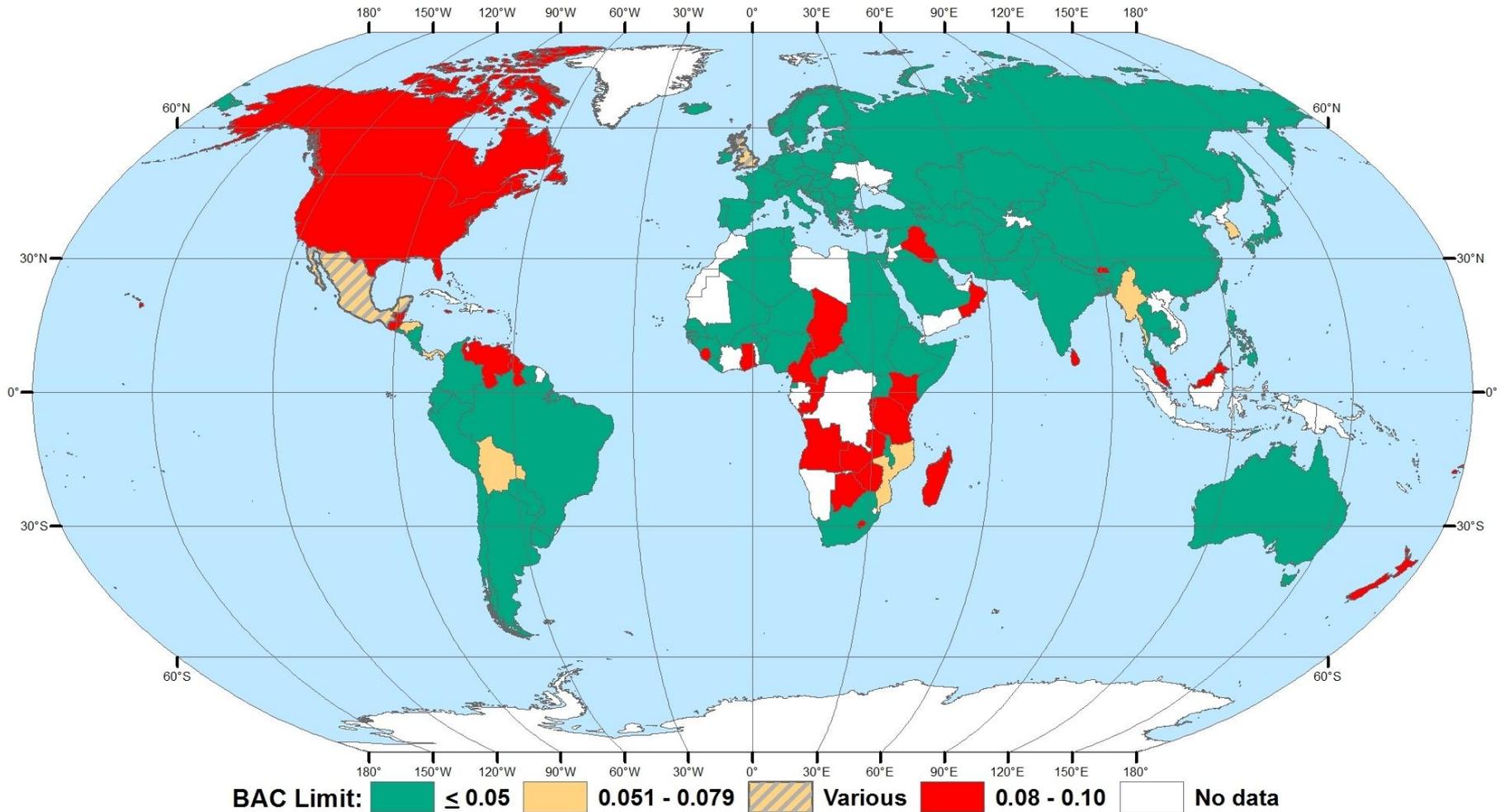
# United States BAC Limits

- Per se limits
- 0.08 for noncommercial drivers age 21 and older
- 0.04 for commercial drivers
- 0.00-0.02 for drivers under 21

# Reducing Per Se BAC Limits

- Lowering BAC from 0.10 to 0.08
  - 5-16% reduction in crashes, fatalities, or injuries
- Lowering BAC from 0.08 to 0.05
  - Australia: 8% and 18% reductions in fatal crashes
- Changes drinking and driving behaviors at all BAC levels

# BAC Limits World Wide



# Traffic Safety and Public Health Support

- Association for the Advancement of Automotive Medicine
- American Medical Association
- World Health Organization
- World Medical Association

# High-Visibility Enforcement

Mark Bagnard

# Types of Deterrence

- Specific deterrence: legal consequences for breaking laws
- General deterrence: discourage unlawful behaviors by all drivers

# High-Visibility Enforcement

- Increases driver perception of the presence of law enforcement and consequences using
  - Media campaigns
  - Enforcement efforts
  - Swift and certain penalties



# Evaluating Driver Impairment

- Interview and subjective assessment
  - Slurred speech
  - Lack of coordination
  - Odor of an alcoholic beverage
- Standardized field sobriety test
- Preliminary breath test
- Drivers concealing obvious signs of impairment may be missed

# Passive Alcohol Sensor

- Noninvasive, hand-held device
- Detects alcohol in driver's exhaled breath
- Effective during initial driver assessment to improve detection



# In-Vehicle Technologies

Jana Price, Ph.D.

# Driver Alcohol Detection System for Safety (DADSS)

- Two prototype systems currently in development
  - Breath-based system
  - Touch-based device
- 2012 NTSB recommendations to accelerate DADSS implementation by
  - Defining usability testing
  - Implementing communication program

# Alcohol Ignition Interlocks

- Prevent engine start until breath sample is analyzed
- 17 states and 4 California counties require interlocks for all offenders
- MAP-21 grant funds



# Alcohol Ignition Interlocks

- Reduce recidivism; use by all offenders could save over 1,000 lives/year
- 2012 NTSB recommendation called for interlocks for all convicted offenders

# Interlock Program Challenges

- Noncompliance is common
- Well-designed programs increase installation and compliance rates

# Interlock Program Best Practices

- Interlock as alternative to more restrictive penalty
- Financial assistance
- Tracking interlock usage
- Criteria for interlock removal

# Administrative License Actions and Repeat Offender Countermeasures

Danielle Roeber

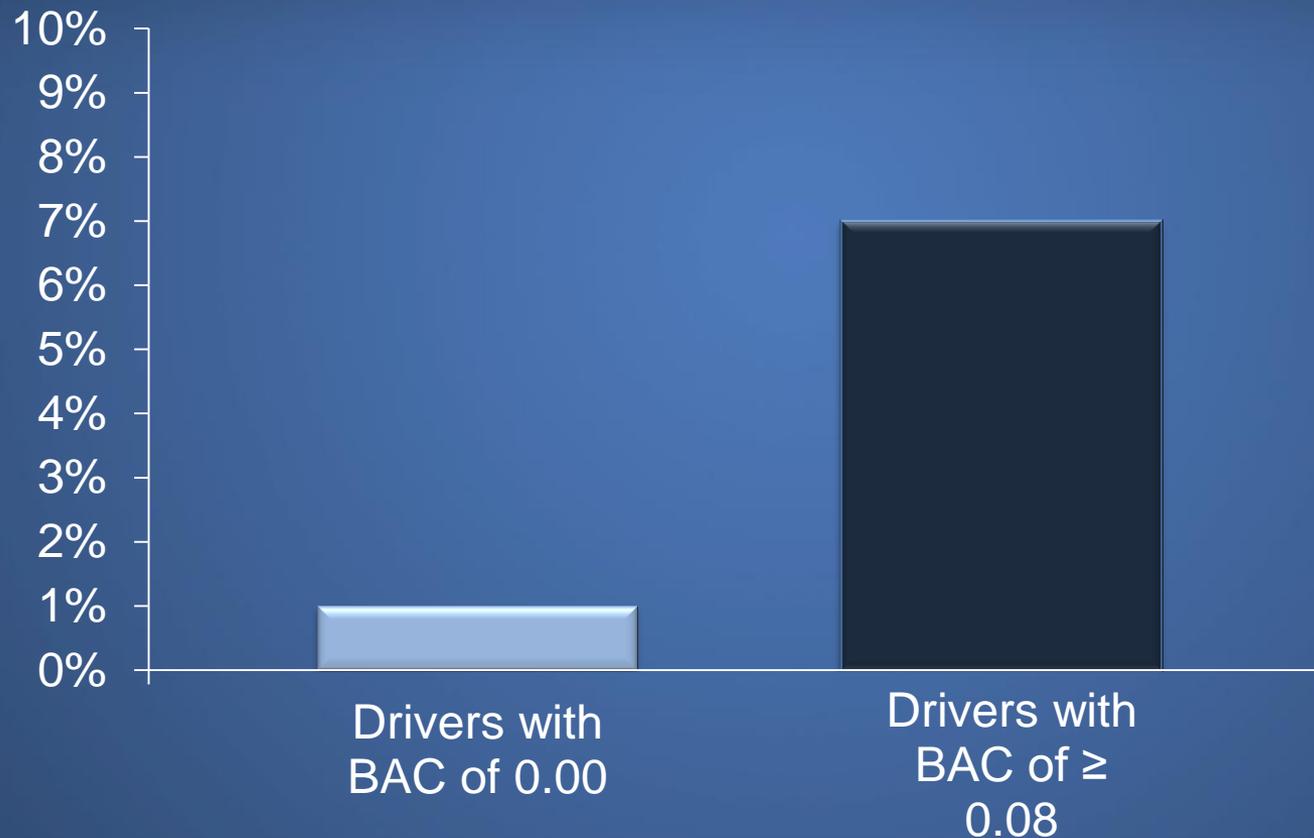
# Administrative License Suspension or Revocation (ALS/ALR)

- Police may confiscate license at the time of arrest if driver:
  - Exceeds per se BAC limit
  - Refuses to take chemical test
- ALS/ALR associated with reductions in fatal crashes
- Past NTSB recommendations

# Strengthening ALS/ALR Laws

- ALS/ALR reduces, but does not eliminate, driving by people with suspended licenses
- Interlock period before license reinstatement can reduce recidivism

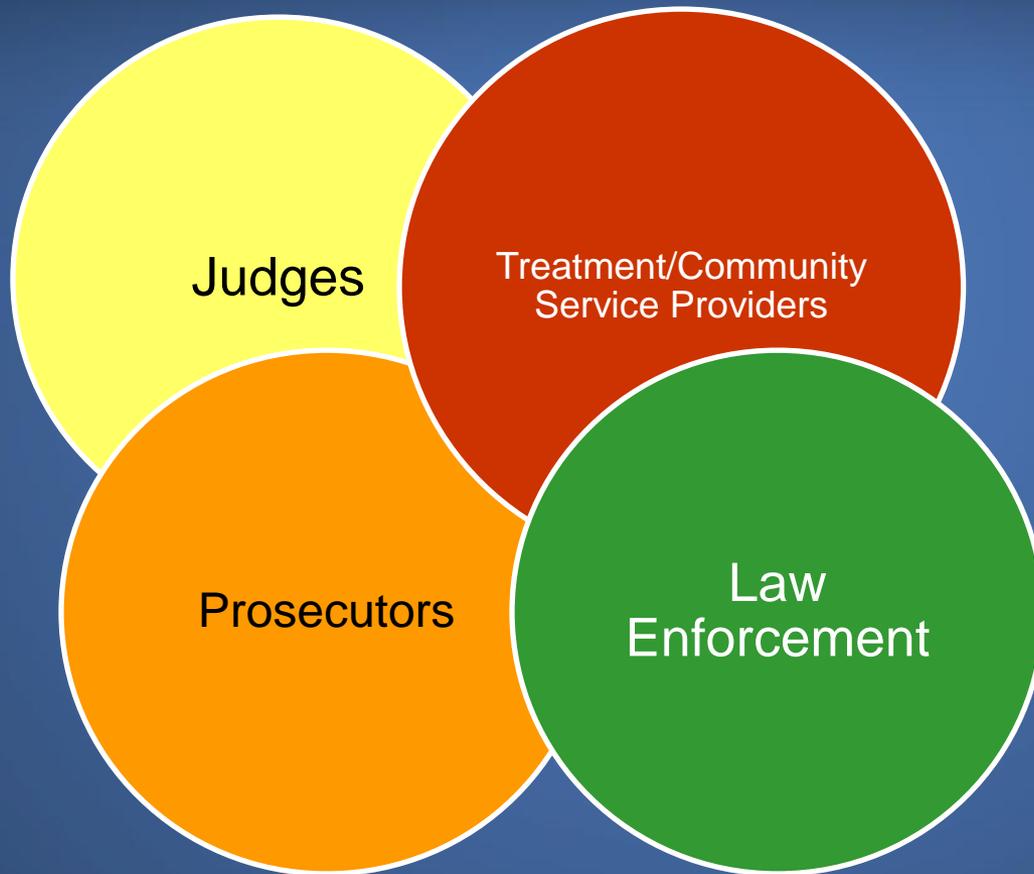
# Repeat Offenders in Fatal Crashes



# NTSB Recommendations for Repeat Offender Countermeasures

- 1984 repeat offender study
- 2000 safety report and model program
- States have made progress, but repeat offenders are still a problem

# DWI Courts



Multidisciplinary  
Team

# DWI Court Research

- 208 DWI courts and 401 hybrid DWI/drug courts
- Reductions in recidivism
- Ongoing NHTSA research

# Reaching Zero Countermeasures Summary

Don Karol

# Reaching Zero

- Laws
- Enforcement
- Adjudication
- Technology
- Data

# Laws

- Reduce per se BAC to .05 or lower
- Require alcohol ignition interlocks for all DWI offenders
- Target repeat offenders

# Enforcement

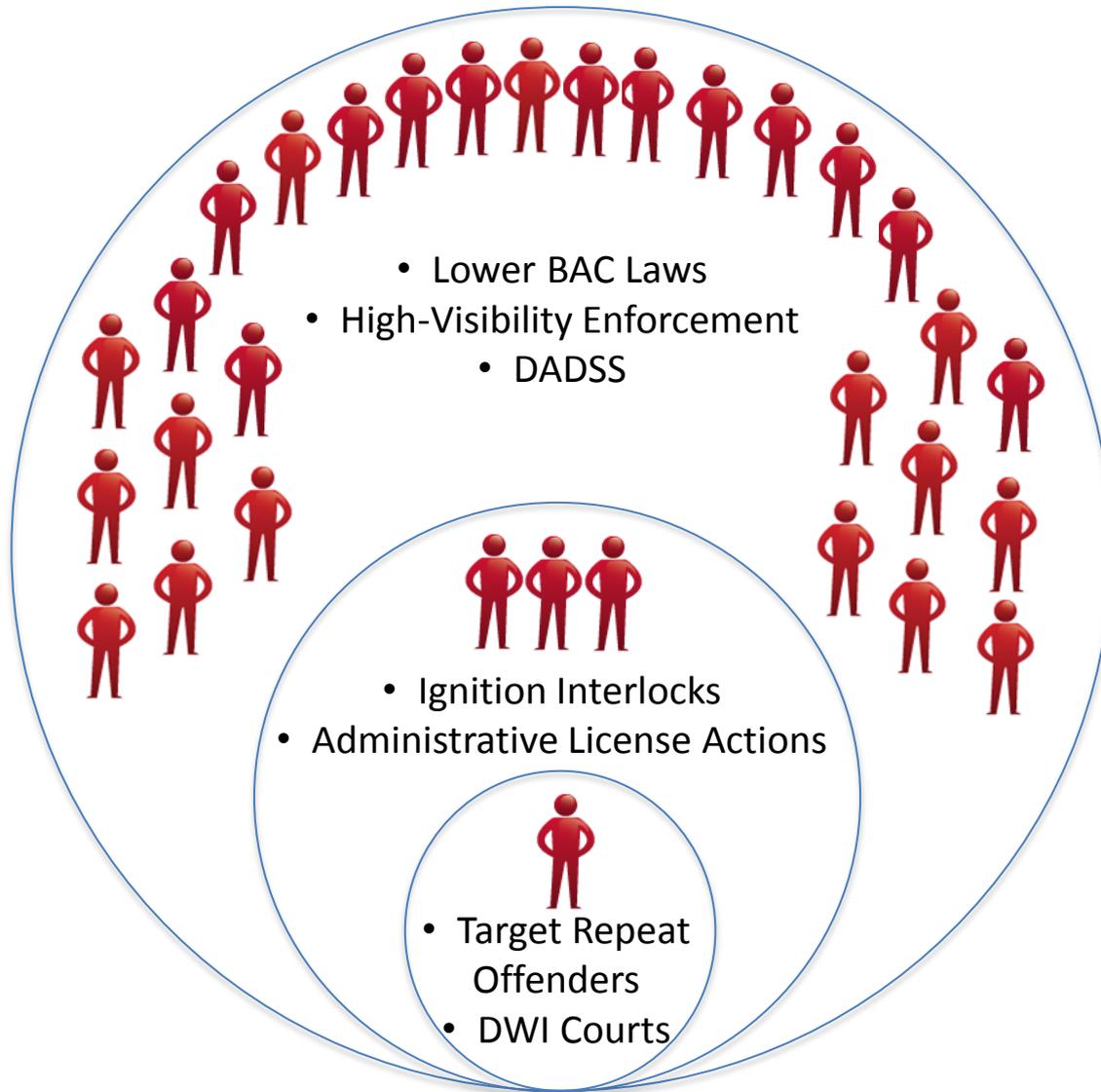
- Conduct high-visibility enforcement of impaired driving laws
- Use passive alcohol-sensing technology to increase detection of offenders

# Adjudication

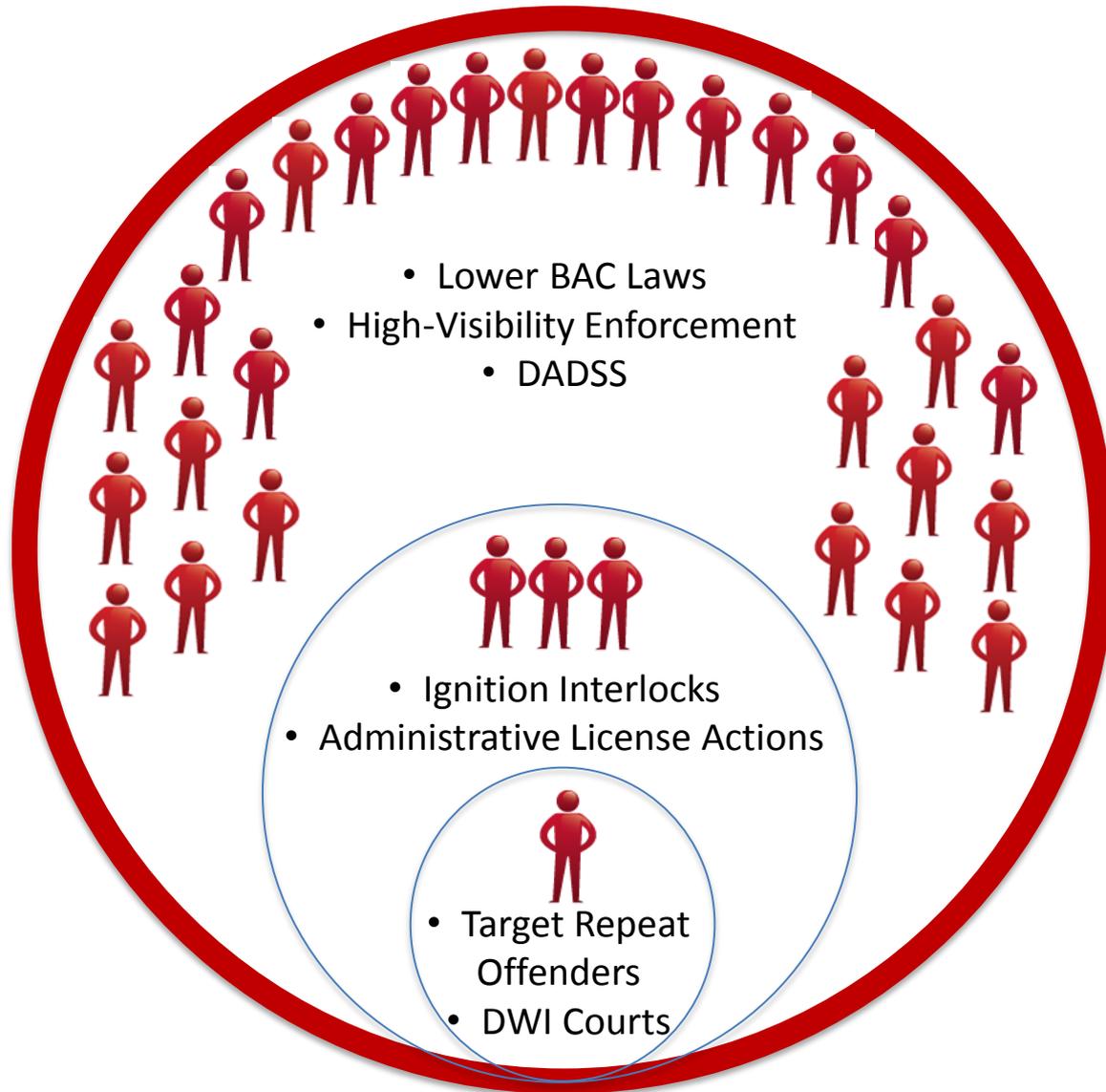
- Utilize administrative license suspension or revocation laws
- Include in ALS/ALR laws a requirement for use of an ignition interlock before license reinstatement
- Develop DWI court best practices

# Technology

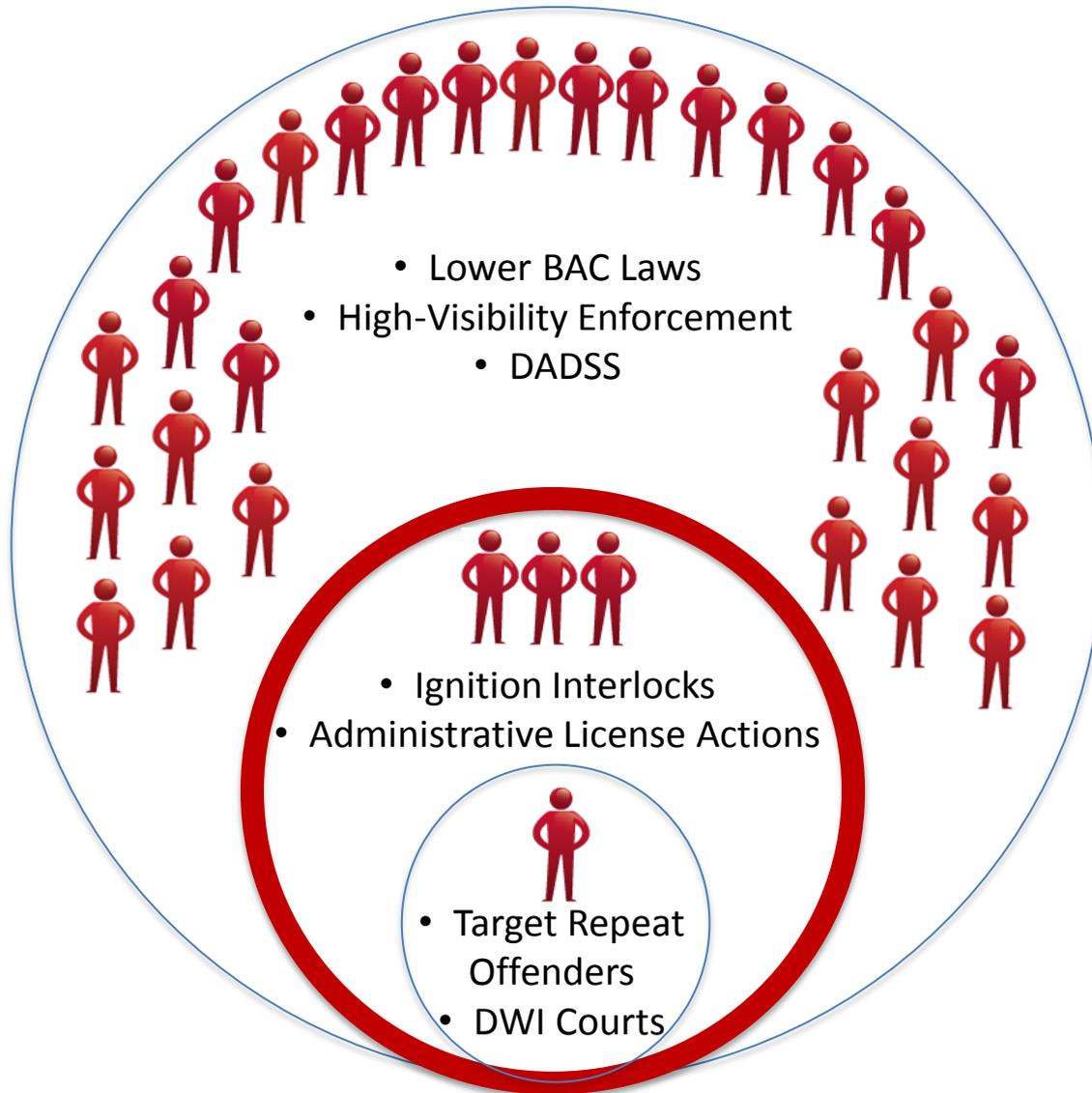
- Develop in-vehicle passive alcohol detection systems
- Work toward Driver Alcohol Detection System for Safety (DADSS)



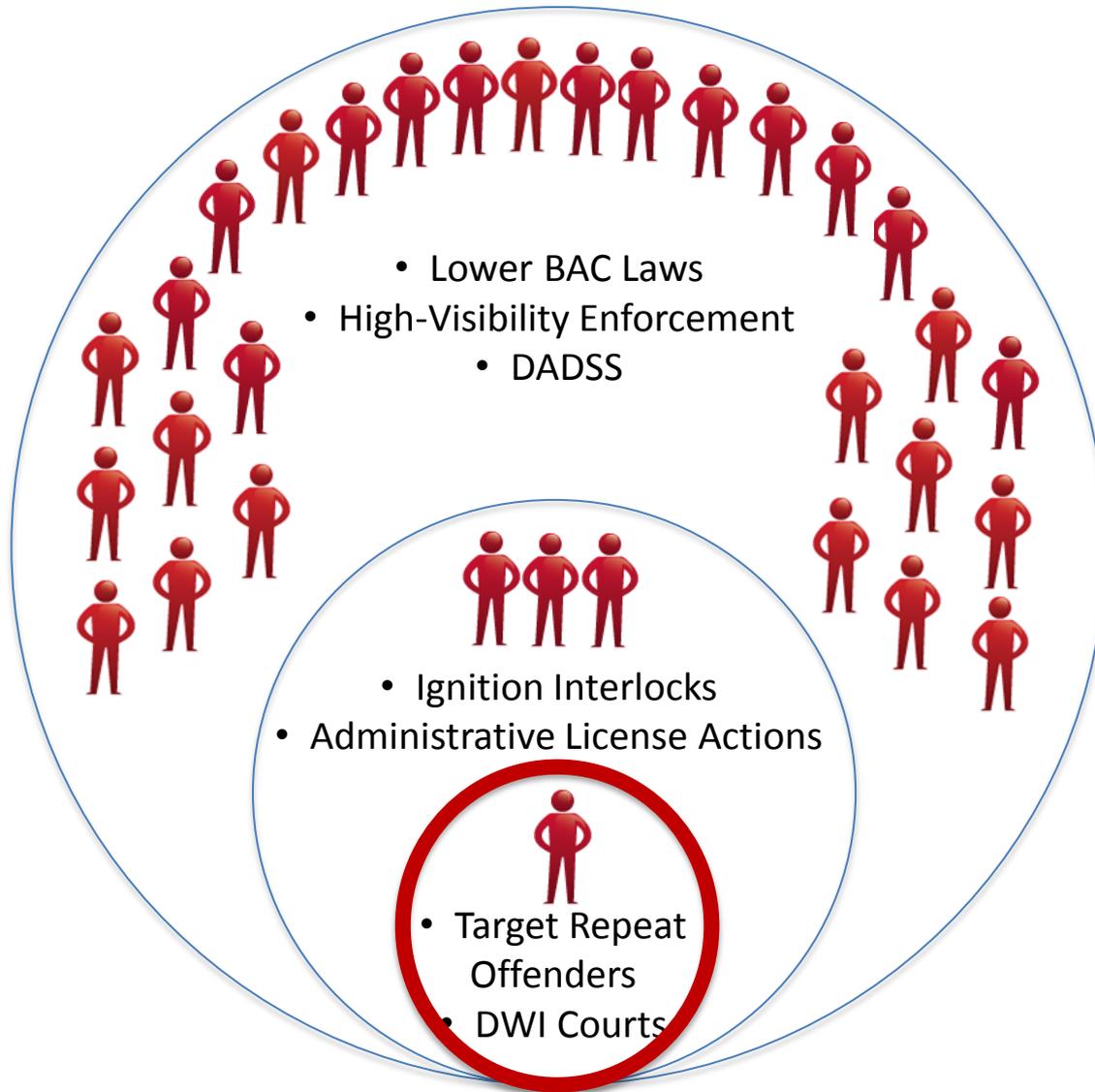
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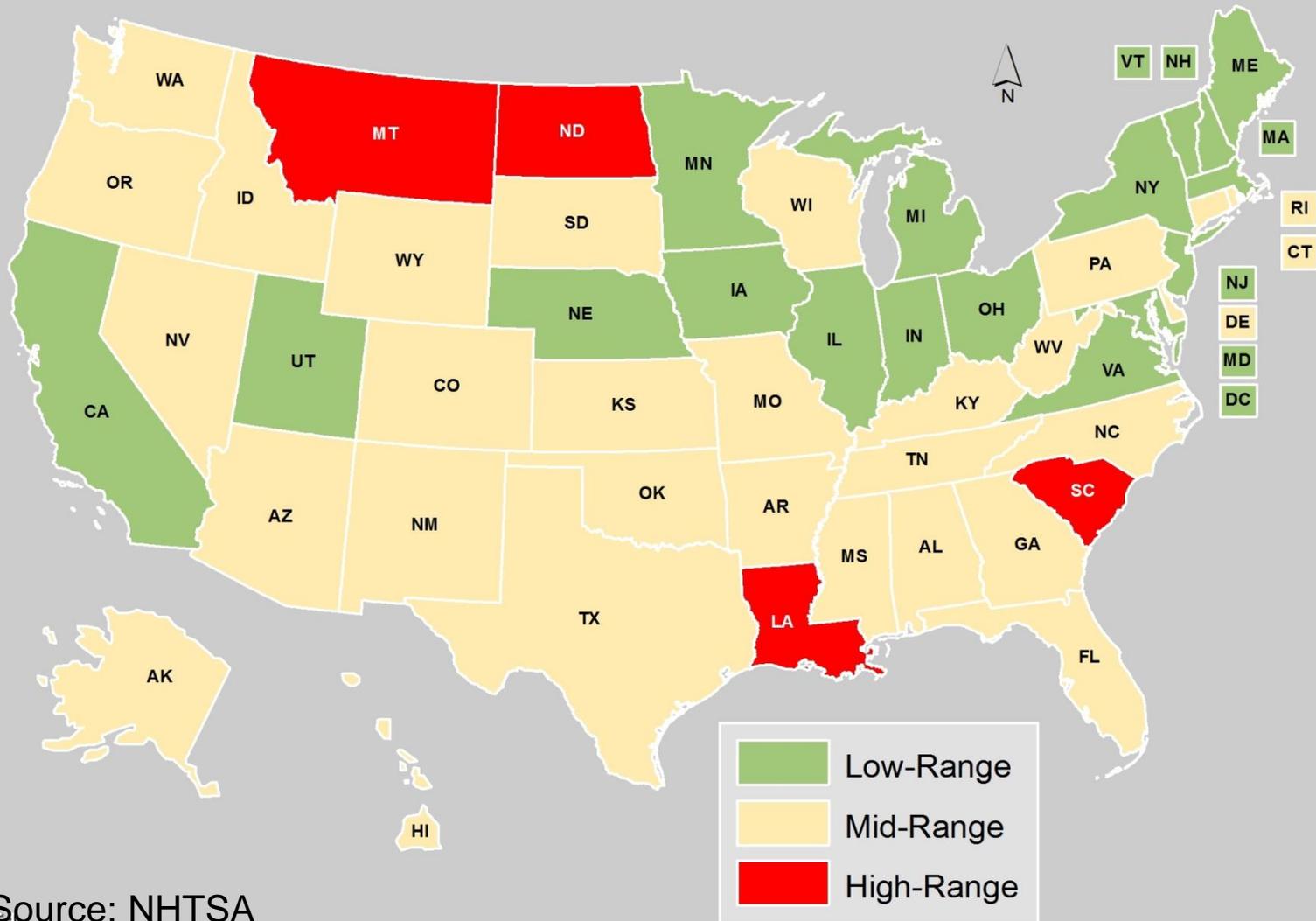


# REACHING ZERO

# Data

- Increased collection, documentation, and reporting of BAC results
- Common standard of practice for drug toxicology testing
- Collect place of last drink data
- Specific and measurable targets for reducing alcohol-impaired driving fatalities and injuries

# State Impaired Driving Fatality Rates



Source: NHTSA



# National Transportation Safety Board