National Transportation Safety Board

Substance-Impaired Driving: Actions Needed to Reach Zero

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Board Member

Northeast Transportation Safety Conference
September 3, 2014

Federal Agencies: Transportation

NTSB

FMCSA

FRA

NHTSA

PHMSA

DOT

MARAD

FTA

FHWA

FAA

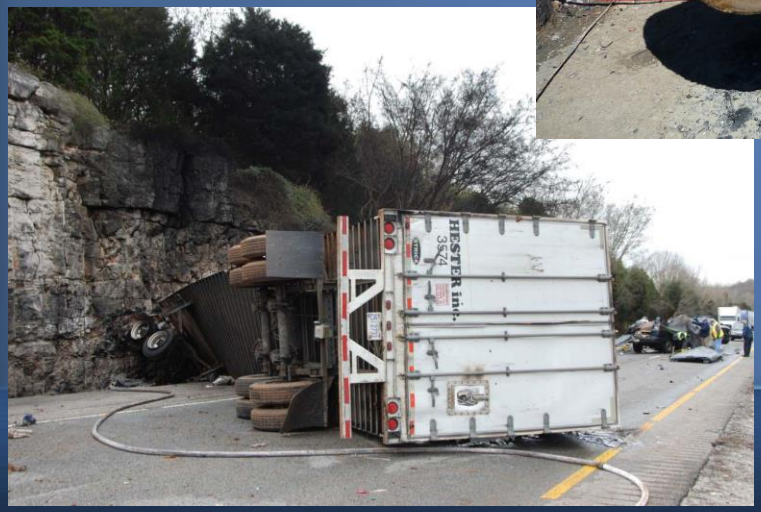
NTSB

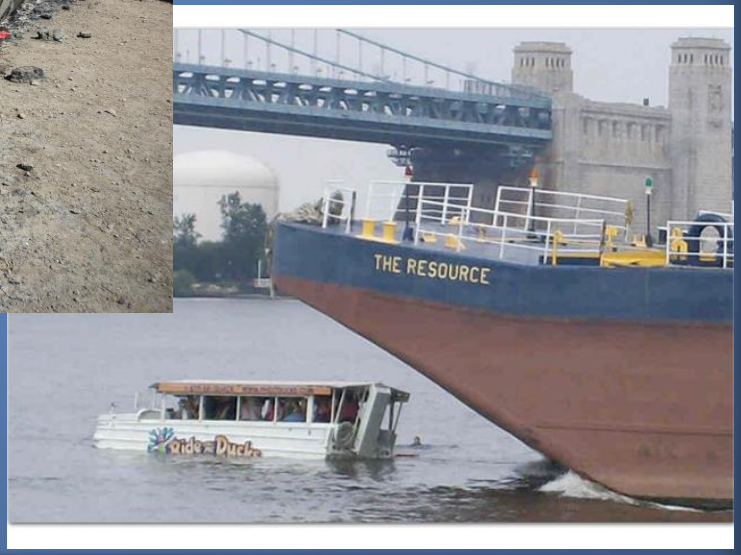
NTSB

1) determining the probable cause of transportation accidents

2) making recommendations to prevent their recurrence

All Modes



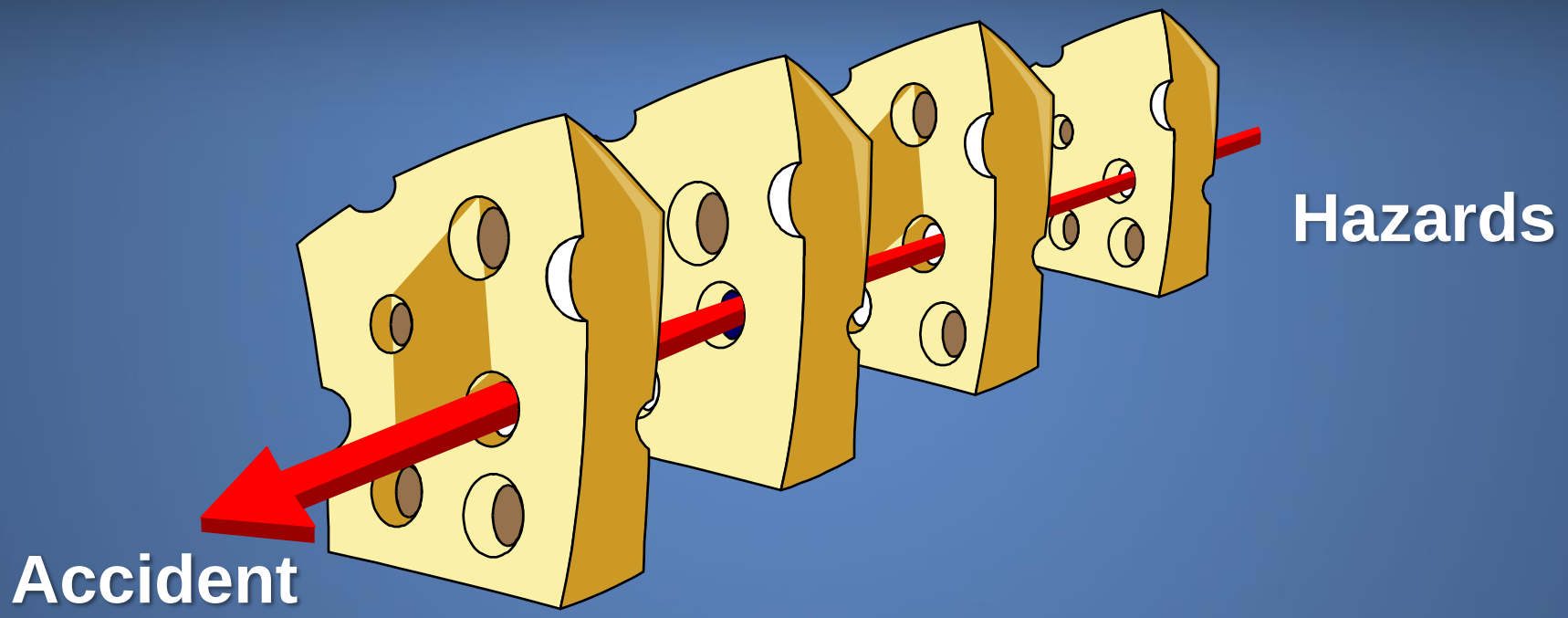


NTSB

Independent Federal Agency: Created in 1967

- >140,500 accident investigations
- 14,000+ safety recommendations
- ~ 2,300 organizations/recipients
- 82% acceptance rate

“Swiss Cheese” Model (Reason)



Successive layers of defenses, barriers, and safeguards

Carrollton, KY (May 14, 1988)

67 passengers, 27 fatalities, 34 serious injuries; driver: .28 BAC

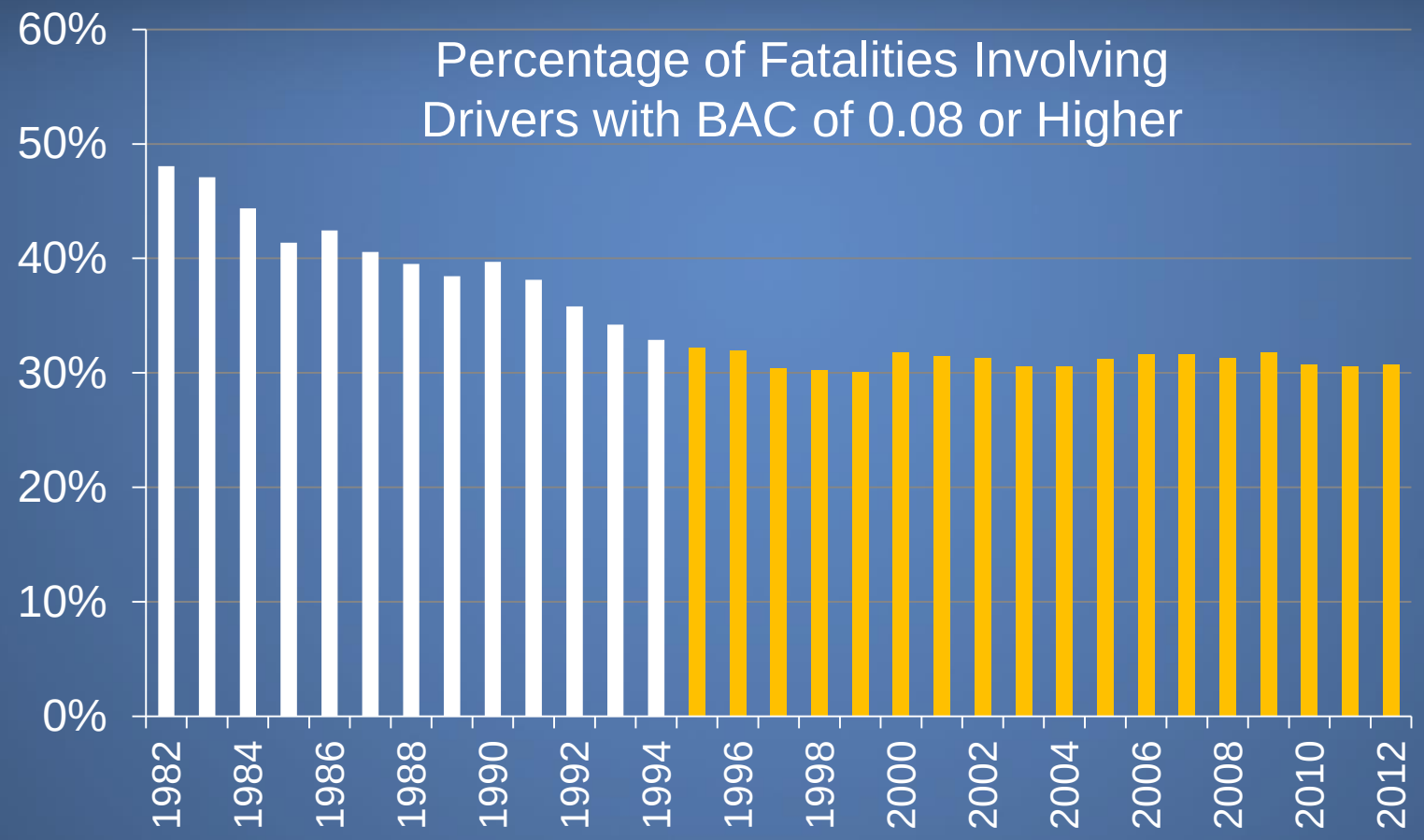
Since 1988 . . .

- 300,000 lives lost
- Millions injured

Since 1988 . . .

- 41% of fatalities to 31%
- 31% for over 15 years

Alcohol-Impaired Driving



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Since 1988 . . .

- 200 law enforcement lives lost

Every Year . . .

- ~ 10,000 lives lost

Every Year . . .

- 173,000 injuries
  - 27,000 are life-altering

Every Hour . . .

- 1 life lost
- 20 injuries

2011

FATALITIES

(the most recent government statistics available)

9,878 in *impaired* driving crashes

800 in marine accidents

759 in rail accidents

494 in aviation accidents

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NTSB Forum: May 15-16, 2012

REACHING ZERO

Actions to Eliminate Substance-Impaired Driving

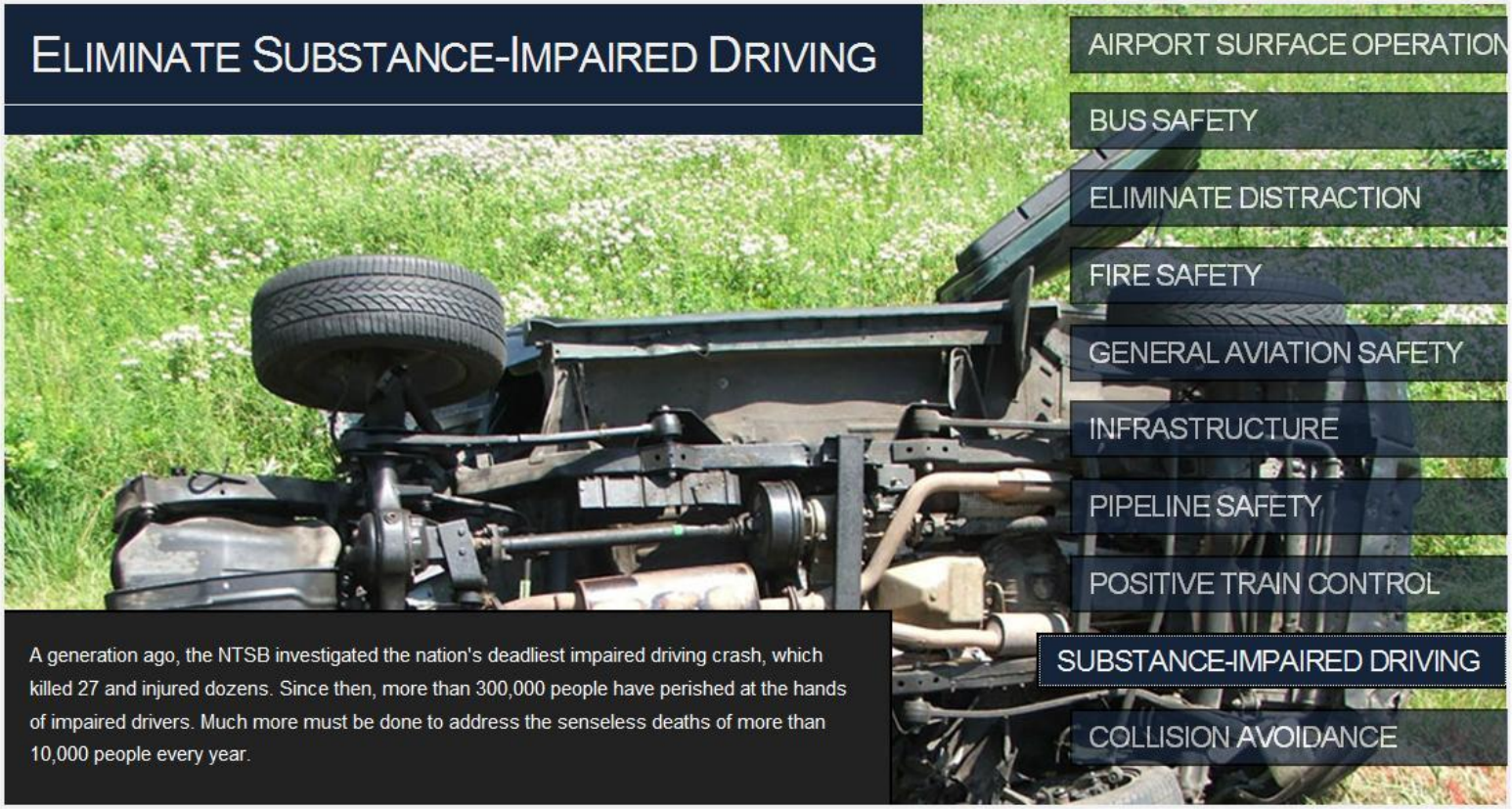
NTSB Forum: May 15-16, 2012

- 8 panels with 37 panelists
- Topics included:
  - the substance
  - current interventions
  - consequences
  - international view
  - the problem
  - enforcement
  - prevention
  - next steps

November 14, 2012

Most Wanted List

The Most Wanted List represents the NTSB's advocacy priorities. It is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives.



November 23, 2012. . .

- NTSB issued 6 new safety recommendations
- Focus: better data

Reaching Zero: Safety Recommendations

To the National Highway Traffic Safety Administration:

- Develop and disseminate to appropriate state officials a common standard of practice for drug toxicology testing, including (1) the circumstances under which tests should be conducted, (2) a minimum set of drugs for which to test, and (3) cutoff values for reporting the results.

Wrong-Way Driving

Special Investigation Report

NTSB/SIR-12/01
PB2012-917003

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December 11, 2012. . .

- Wrong-way driver report
  - > 60% involve alcohol-impaired drivers
- NTSB issues 3 new safety recommendations
- Technology focus:
  - all offender ignition interlock
  - in-vehicle passive monitoring (DADSS)

Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving

Safety Report

NTSB/SR-13/01
PB2013-106566

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May 14, 2013. . .

- Safety Study
  - Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving
- NTSB issues 10 new safety recommendations

10 New Safety Recommendations

- Laws: reducing per se BAC limit; expand ALS/ALR
- HVE incorporating PAS technology
- Expand use of in-vehicle devices (ignition interlocks)
- Repeat offenders: use DWI courts/other programs
- Establishing measurable goals/tracking progress (states)

Alcohol Impairment and Per Se Laws

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

(Moskowitz and Fiorentino, 2000)

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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	**Current BAC Limit**
.09	
.10	Simple Reaction Time, Critical Flicker Fusion

(Moskowitz and Fiorentino, 2000)

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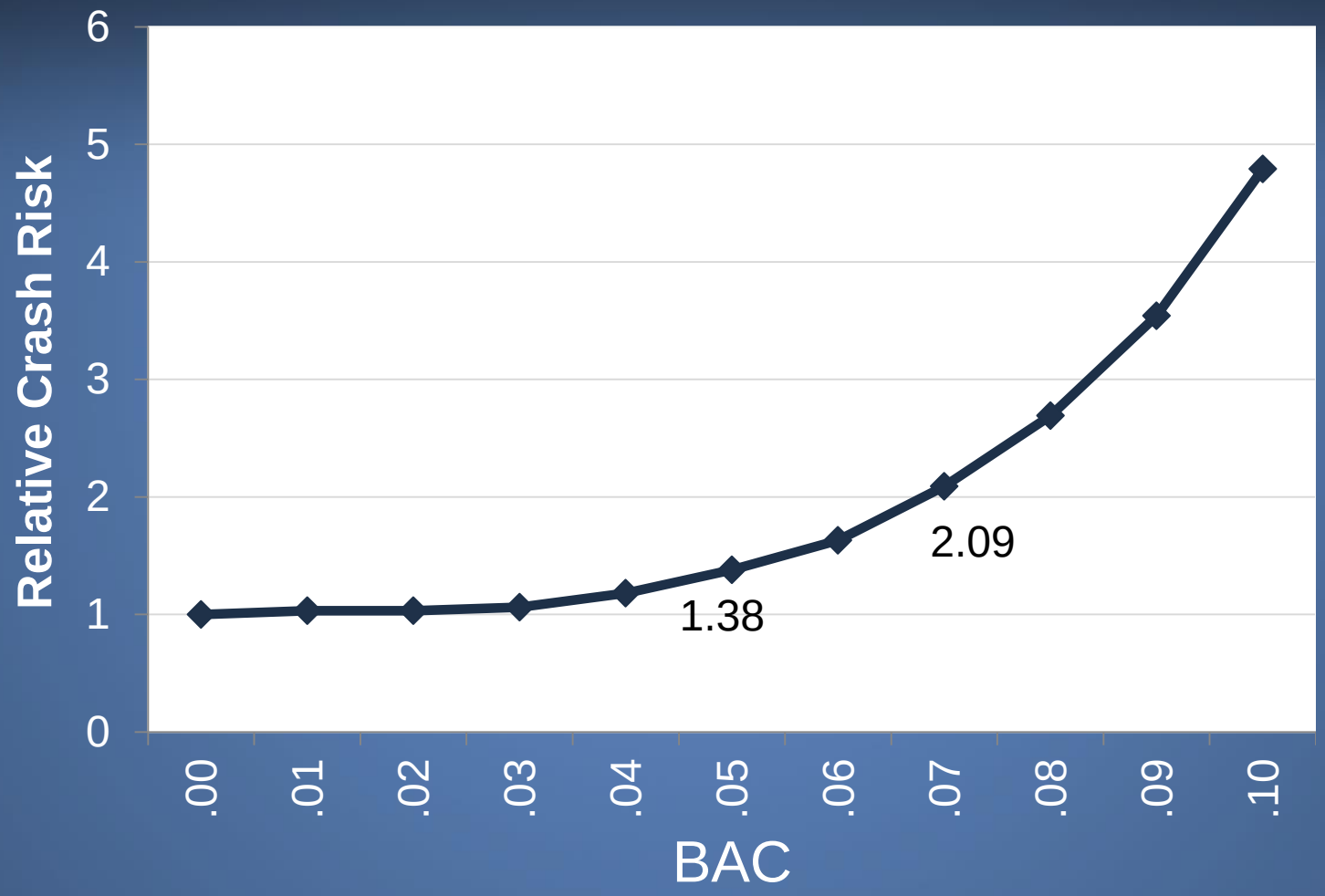
Crash Risk



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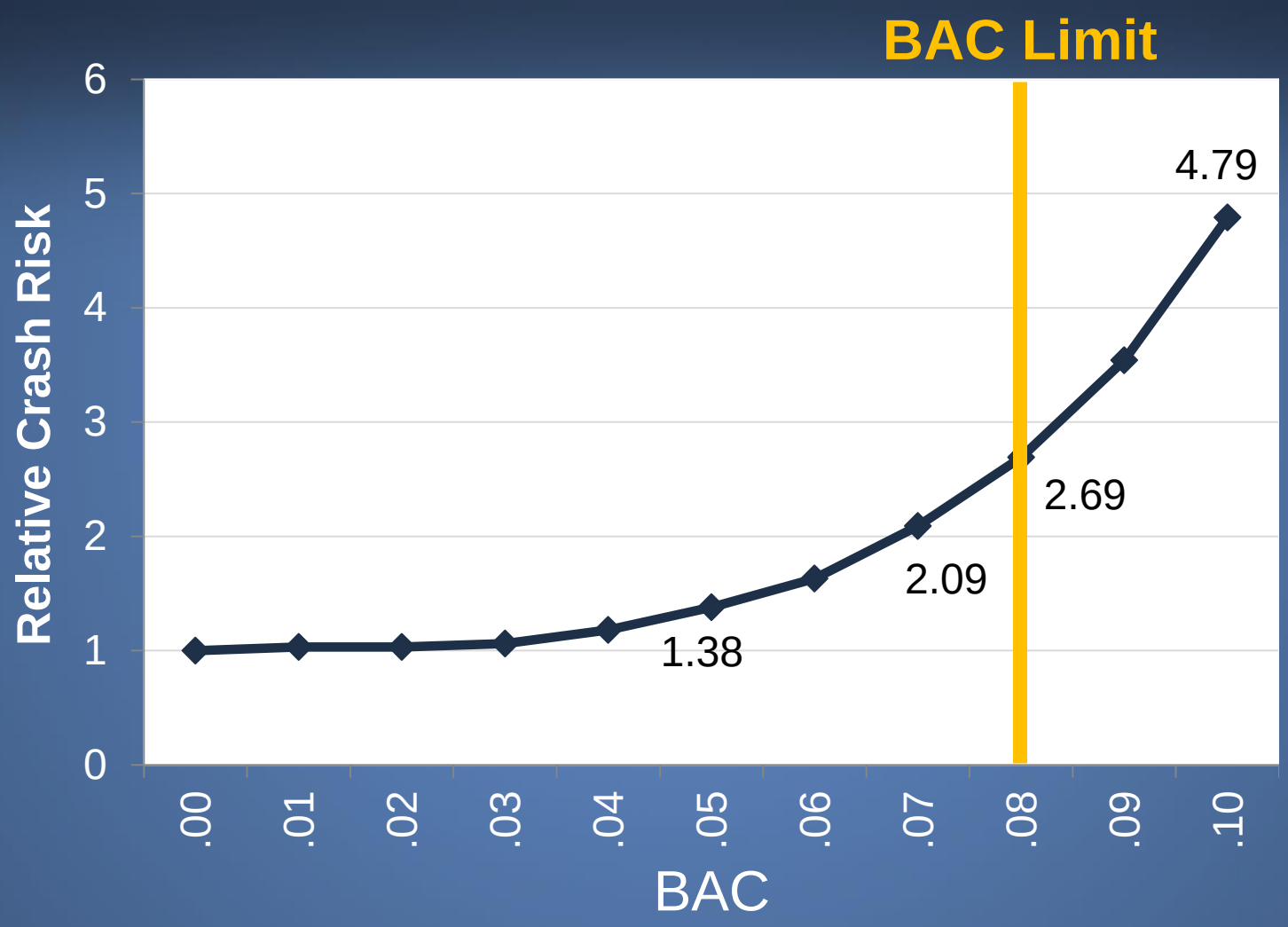
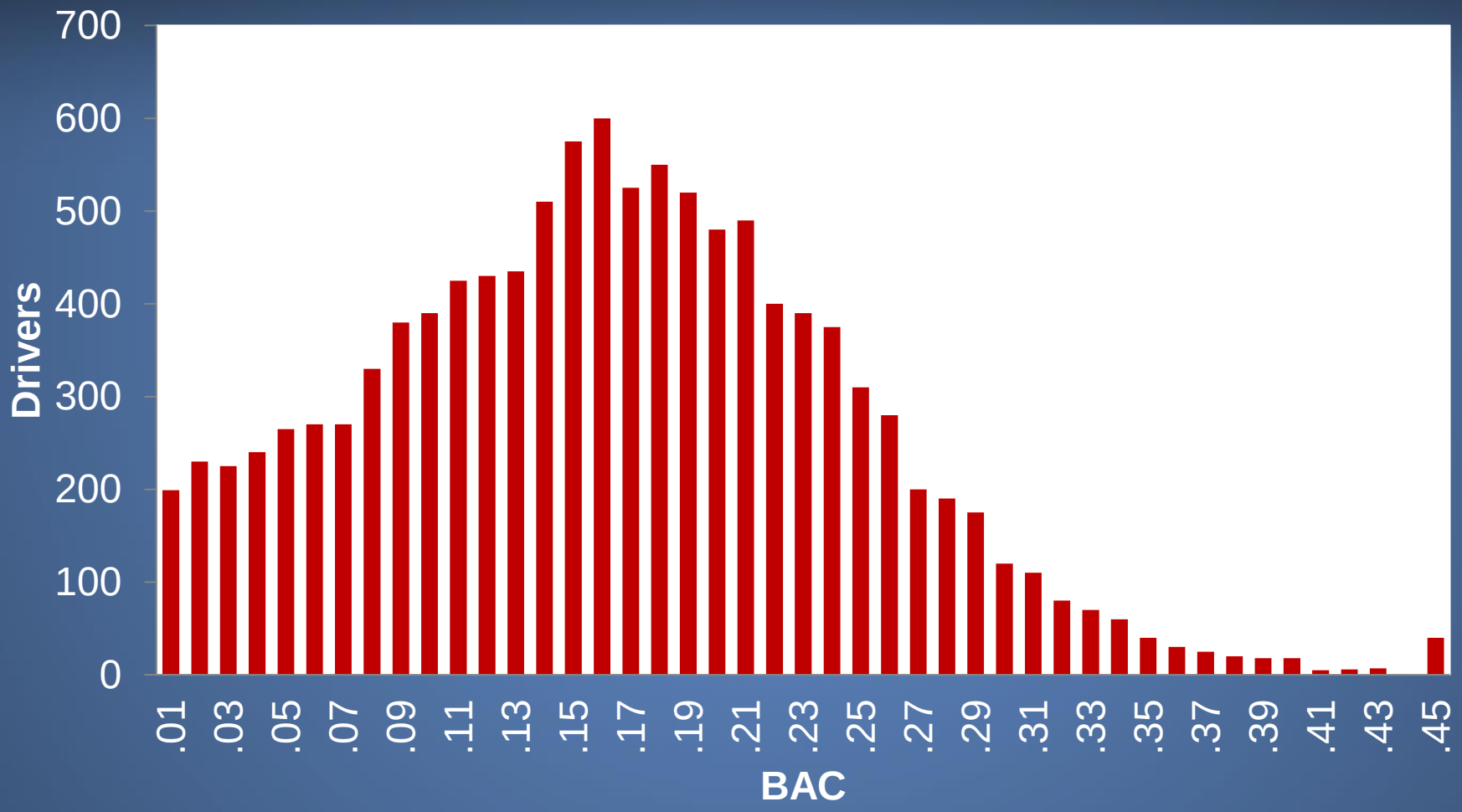
Crash Risk


Current
BAC Limit
Relative Crash Risk
6
5
4
3
2
1
0
4.79
2.69
2.09
1.38
.00
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
BAC

Fatal Crashes (2012): BAC ≥ .01



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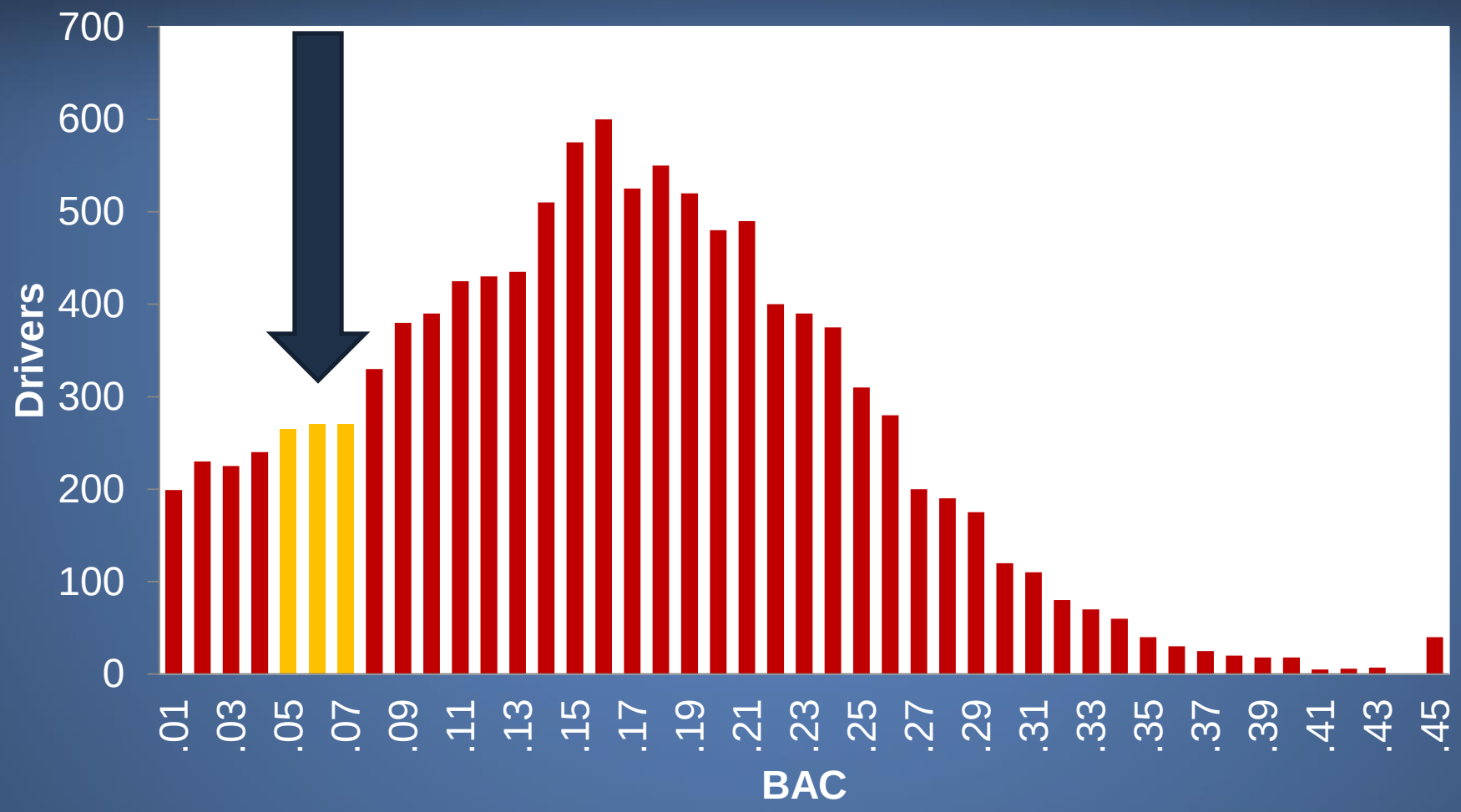
Misconception: Changing BAC Affects Small Group



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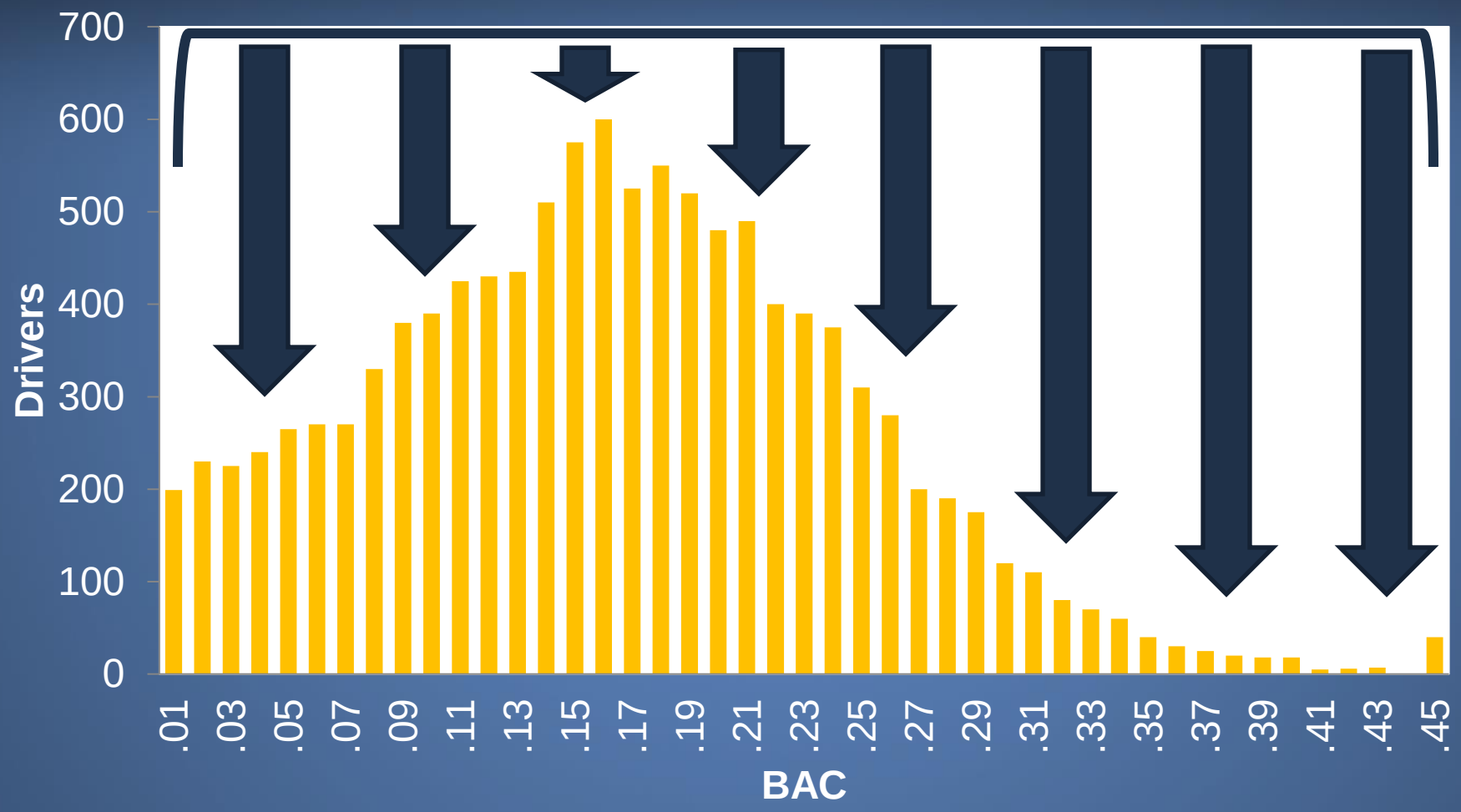
Reality: Changing BAC Affects Drivers at All Levels



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Reducing Per Se BAC Limits

- Reduces crashes and fatalities across BAC levels
- Move from 0.10 to 0.08
  - 5-16% reduction in crashes, fatalities or injuries
- Estimated:
  - prevents 360 deaths/yr
  - 0.08 to 0.05 prevent additional 538 deaths/yr

(Wagenaar et al, 2007; 28-state study)

NTSB

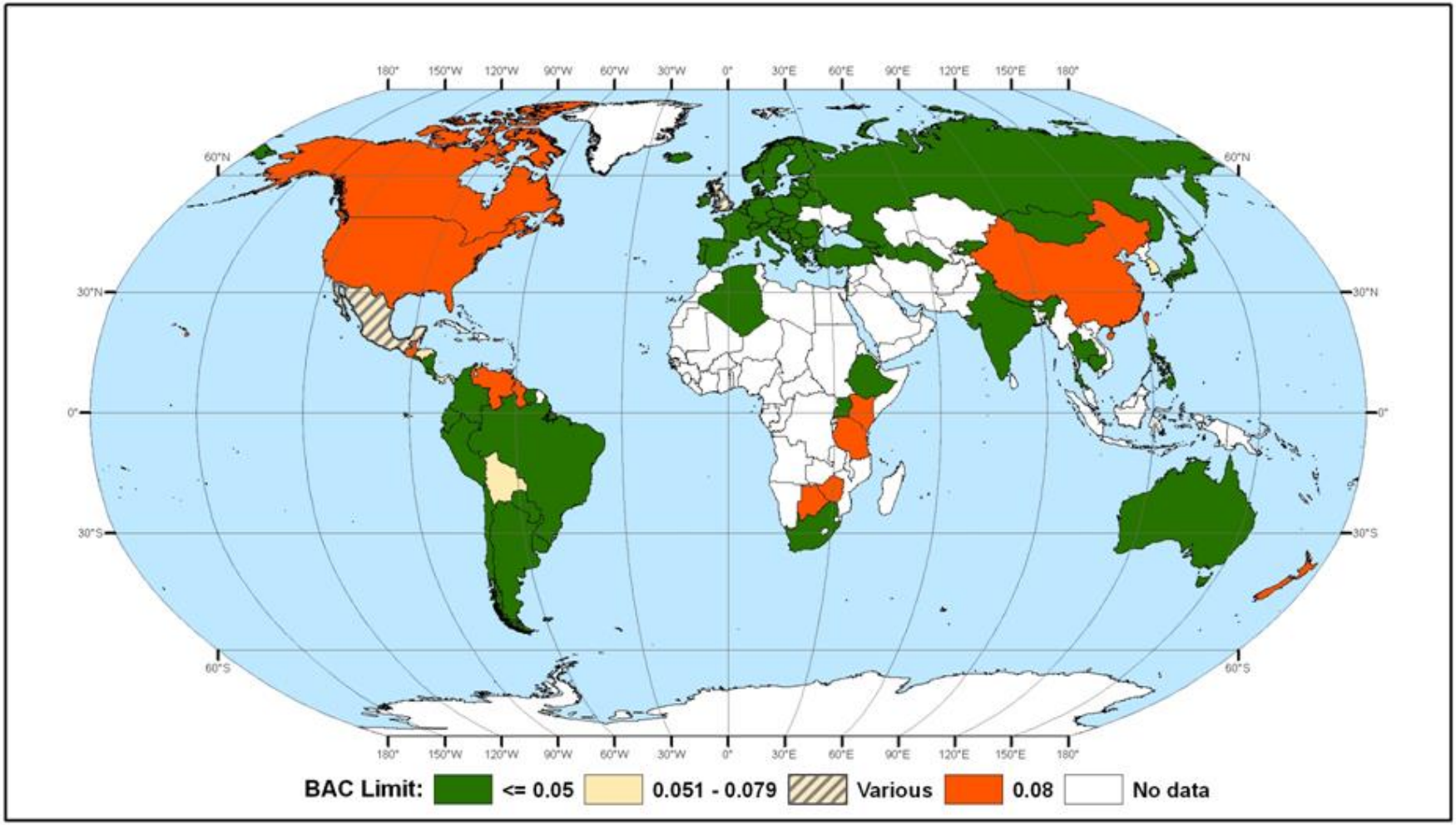
Reducing Per Se BAC Limits

- Lowering BAC from 0.08 to ≤ 0.05

  - Europe: fatal crashes reduced among males and people aged 18-49

  - Australia: fatal crashes reduced 8% & 18% (could prevent ~1,000 – 2,000 deaths/yr)

BAC Per Se 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

Separate

Drinking ←✖→ Driving

ROADMAP TO

REACHING ZERO

- Lower BAC limit
- Increased use of high-visibility enforcement
- Use of in-vehicle alcohol detection technology

- Ignition interlocks for all offenders
- Enhanced use of Administrative License Actions

- Target repeat offenders
- Use of DWI Courts

REACHING ZERO

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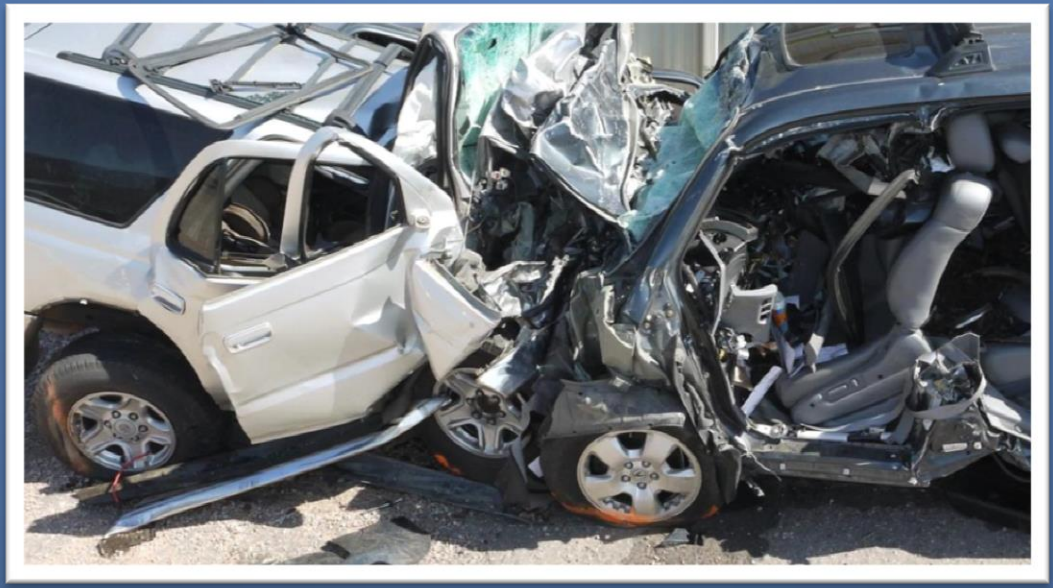
NTSB Roadmap

- Science-based/data-driven
- Diverse approaches
- Set of targeted interventions
- Near- and long-term strategies

Reaching Zero: NTSB Roadmap

- Stronger laws
  - Swifter enforcement
    - Expanded use of technology



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