Public Health Impact of Excessive Drinking

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U.S. Department of Health and Human Services
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Excessive Drinking Has a Huge Public Health Impact in the United States

- **80,000 deaths every year**
- **2.3 million Years of Potential Life Lost every year**
- **3rd leading preventable cause of death**
- **Cost**
  - $223.5 billion in economic costs (2006) or ~$1.90/drink
  - $94.2 billion (42%) paid by government or ~$0.80/drink

Alcohol-Related Disease Impact (ARDI); available at: www.cdc.gov/alcohol
Mokdad et al. JAMA 2004;291(10):1238–45
Bouchery et al. Am J Prev Med 2011;41(5):516–24

Binge Drinking Is the Main Problem

- **Accounts for most health and economic costs**
  - >1/2 of the deaths due to excessive drinking
  - 2/3 of the Years of Potential Life Lost (YPLL)
  - 3/4 of the economic costs
- **Definition of binge drinking**
  - ≥4 drinks per occasion for women and ≥5 for men
  - Most common pattern of excessive drinking in the United States
    - >90% of excessive drinkers binge drink

CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults–United States, 2010
NIAAA. NIAAA Council approves binge drinking definition Newsletter. 2004;3(3)
YPLL, Years of Potential Life Lost

Health Effects of Binge Drinking

Binge drinking can lead to

- Motor Vehicle Crashes
- Violence Against Others
- Spread of HIV and Sexually-Transmitted Diseases (STDs)
- Unplanned Pregnancy
- Fetal Alcohol Spectrum Disorders and Sudden Infant Death Syndrome (SIDS)
- Alcohol Dependence

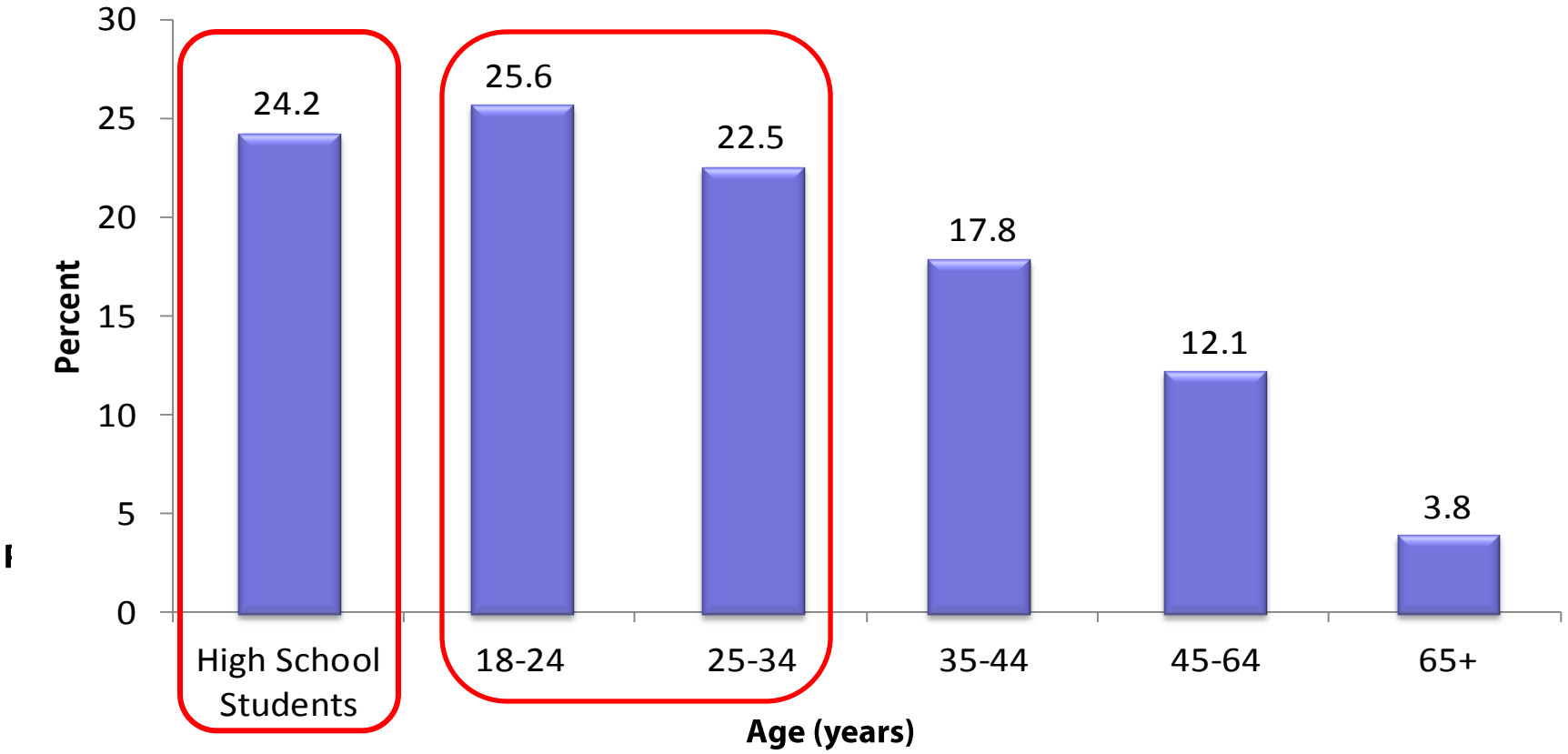
Binge Drinking* Prevalence Has Not Declined, but the Number of Episodes Has Increased

Measure	1993	2001	2009
Prevalence	14.2%	14.3%	15.2%
Total episodes	1.2 Billion	1.5 Billion	1.7 Billion
Episodes per person	6.3	7.4	7.1

*Defined as ≥5 drinks/occasion for men, ≥5 drinks/occasion for women from 1993-2005, and ≥4 drinks/occasion for women from 2006-2007

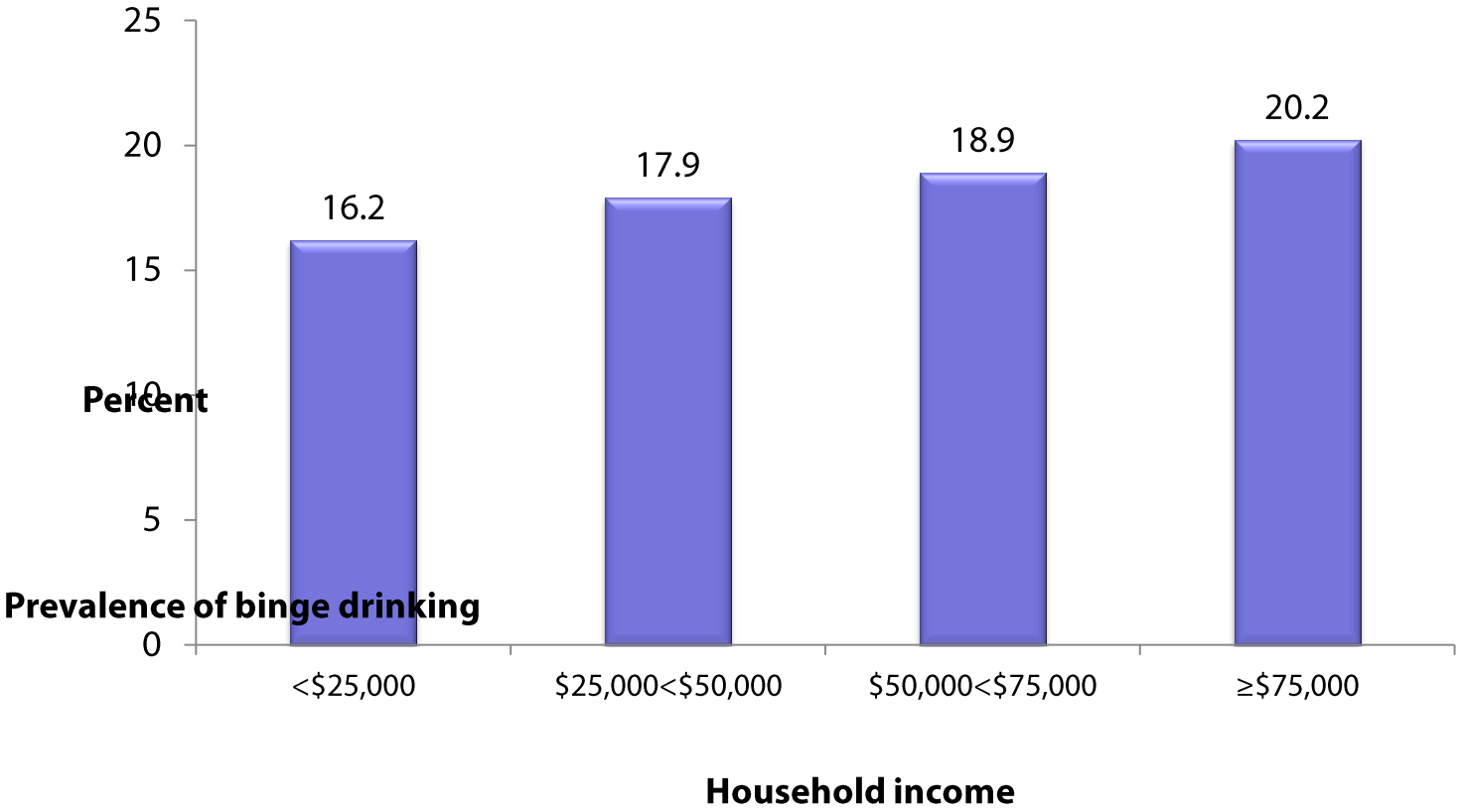
Naimi et al. JAMA 2003;289(1):70–75
CDC. Vital Signs: Binge Drinking Among High School Students and Adults — United States, 2009
Behavioral Risk Factor Surveillance System (BRFSS), 2009

Binge Drinking Is Common Across the Lifespan



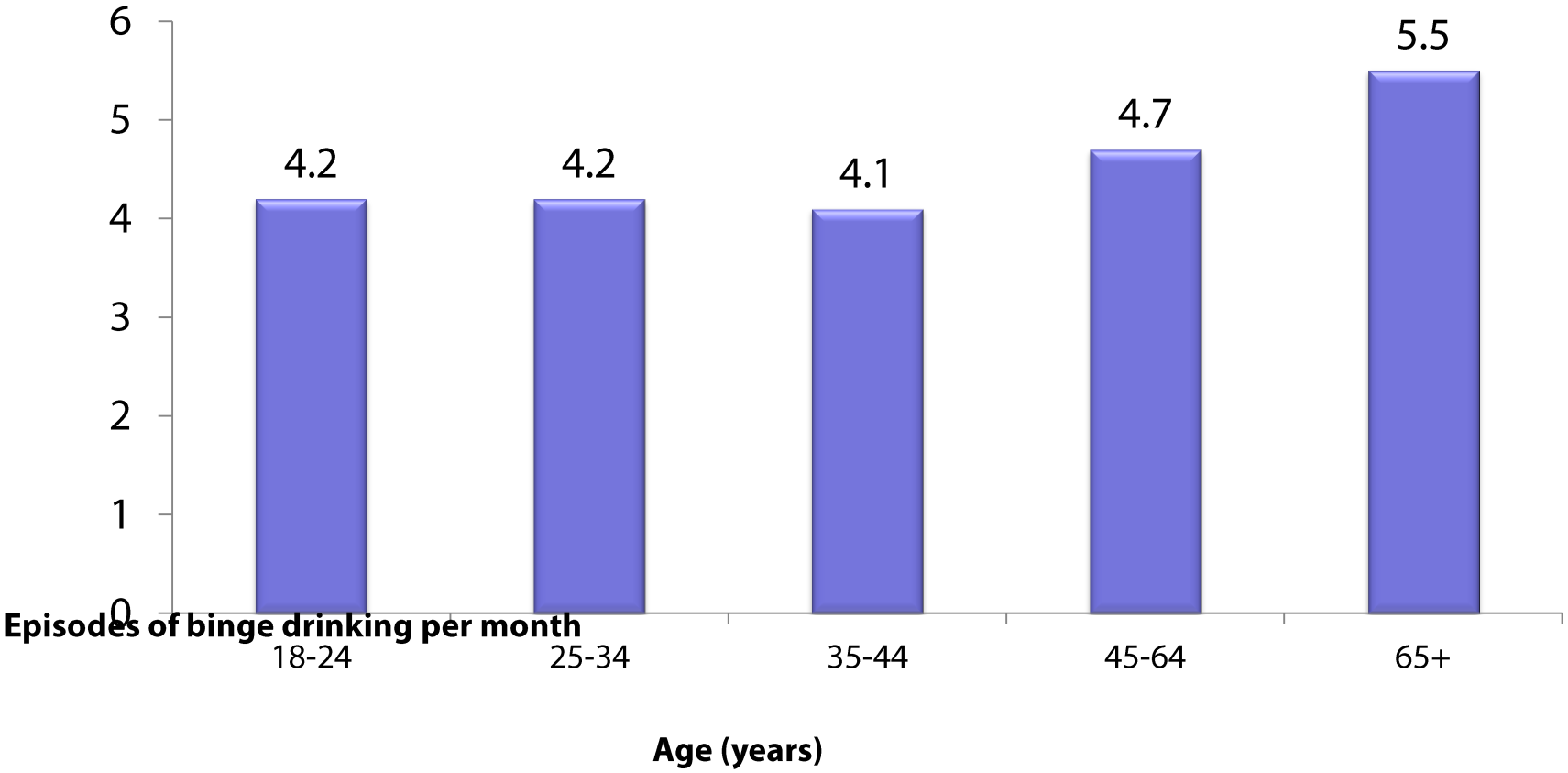
CDC. Vital Signs: Binge Drinking Among High School Students and Adults — United States, 2009

Binge Drinking Increases with Household Income



CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults — United States, 2010

Frequency of Binge Drinking Increases with Age



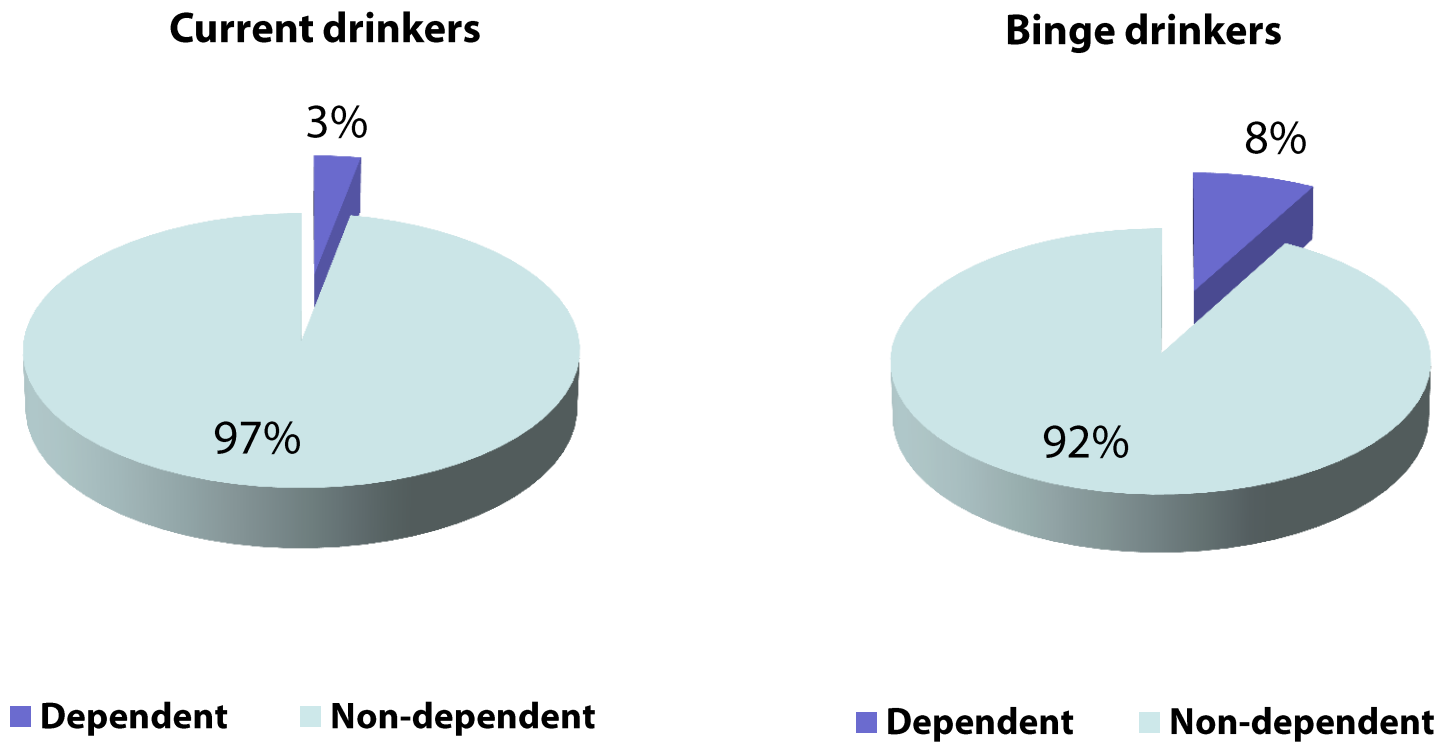
CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults — United States, 2010

Binge Drinkers Drink Intensively

Sex	Average number of drinks*
Male	9.0
Female	5.9
Age in years	
18 – 24	9.3
25 – 34	8.4
35 – 44	7.6
45 – 64	6.8
≥65	5.7

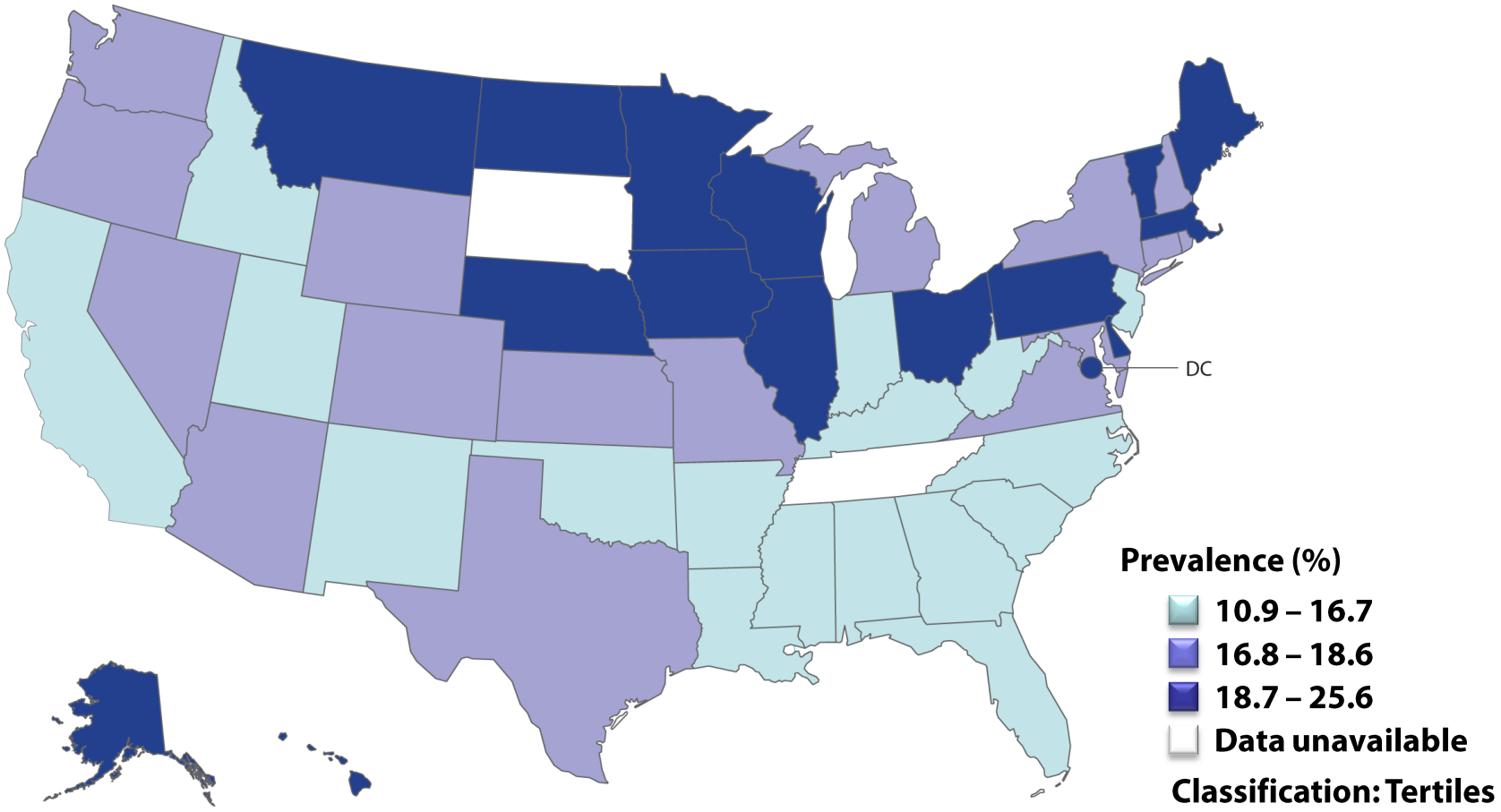
*Average largest number of drinks consumed on occasion among binge drinkers
CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults — United States, 2010

Most Binge Drinkers Are Not Alcohol Dependent



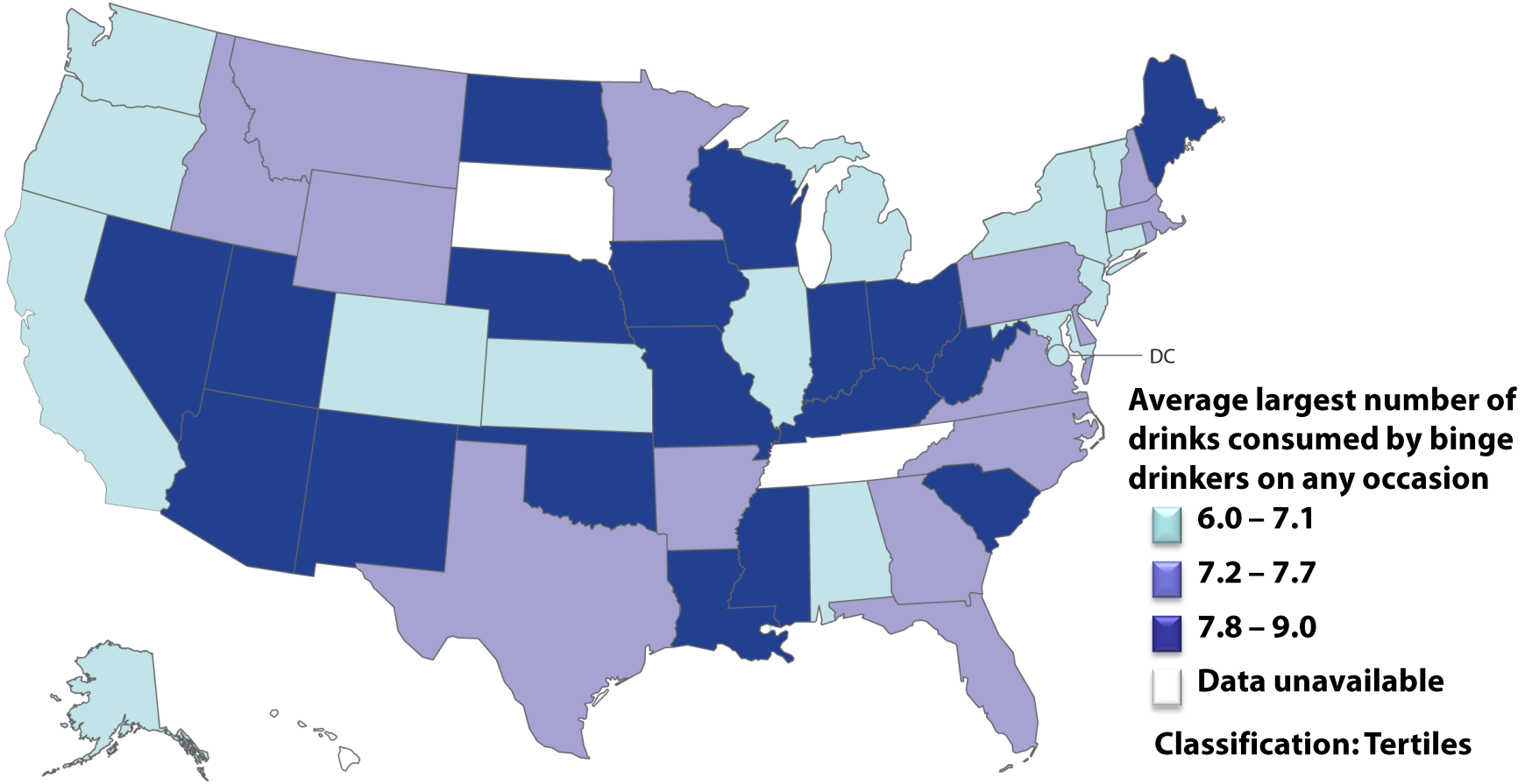
Woerle et al. Alcohol Clin Exp Res 2007;31(2):293–8
BRFSS, Behavioral Risk Factor Surveillance System

Prevalence of Binge Drinking Varies by State



CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults — United States, 2010

Intensity of Binge Drinking Varies by State



CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults — United States, 2010

Drinking by Adults and Youth Are Closely Related

- **Youth-adult relationship**
  - Youth tend to model their drinking behavior after adults
  - Adults are often the source of the alcohol consumed by youth
- **Alcohol policies**
  - Most alcohol control policies affect the drinking behavior of adults and youth

Type of Alcohol Consumed by Binge Drinkers Varies by Age

- 50% of U.S. high school students who binge drink consume liquor
- 74% of U.S. adults who binge drink consume beer
- Differences probably reflect drinking patterns, access to alcohol, and other factors
- Youth exposure to liquor advertising has also increased

Siegel et al. Am J Prev Med 2011;40(4):419–426; Naimi et al. Am J Prev Med 2007;33(3):188–93
Center of Alcohol Marketing and Youth. Youth Exposure to Alcohol Marketing on Television, 2001–09
Baltimore: Center on Alcohol Marketing and Youth, 2010

Guide to Community Preventive Services

- **Community Guide recommended several prevention strategies for excessive drinking**
  - Based on systematic reviews of the scientific literature on intervention effectiveness
- **Recommendations made by the Community Prevention Services Task Force**
  - Independent, nonfederal, volunteer body of experts in public health and prevention research, practice, and policy
  - Determines strength of evidence

www.thecommunityguide.org/index.html

Community Guide Recommendations for Preventing Excessive Drinking

- **Recommendations, 2005–2011**
  - Increase alcohol taxes
  - Regulate alcohol outlet density
  - Dram shop (commercial host) liability
  - Avoid privatization of alcohol sales
  - Maintain limits on days of sale
  - Maintain limits on hours of sale
  - Enhance enforcement of laws prohibiting alcohol sales to minors

Increasing Alcohol Excise Taxes

- Increasing price by 10% would reduce overall alcohol consumption by approximately 7%
- Tax increases result in price increases
- Reductions in excessive alcohol consumption are proportional to the size of the tax increase

Elder et al. Am J Prev Med 2010;38(2):17–29

Regulating Alcohol Outlet Density

- **Concentration of retail alcohol outlets within a small geographic area**
  - Higher alcohol outlet density is associated with increased alcohol consumption and related harms (e.g., violent crime)
  - Most studies assessed the impact of relaxing controls on outlet density (e.g., privatization of retail sales)

Campbell, et al. Am J Prev Med 2009 ;37(6):556–9

Commercial Host (Dram Shop) Liability

- **Alcohol retailers can be held liable for harms caused by intoxicated or underage patrons**
- **Laws vary in scope and evidence requirements**
- **Can help reduce alcohol-related harms, including motor vehicle crash deaths, homicide, and alcohol-related medical conditions**
  - Alcohol-related motor vehicle crash deaths reduced by 6%

Rammohan et al. Am J Prev Med, 2011

Challenges in Mobilizing a Public Health Response

- Misperception that excessive drinking is only a problem among youth
- Lack of attention to policy and environmental factors that significantly influence drinking behavior
- Limited public health capacity to inform community prevention strategies

Alcohol Marketing as a Risk Factor for Underage Drinking

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The Center on Alcohol Marketing and Youth

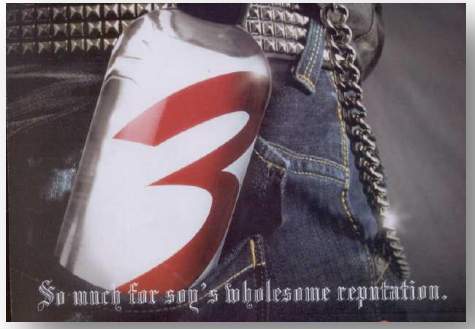
Johns Hopkins Bloomberg School of Public Health

www.jhsph.edu
www.camy.org

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

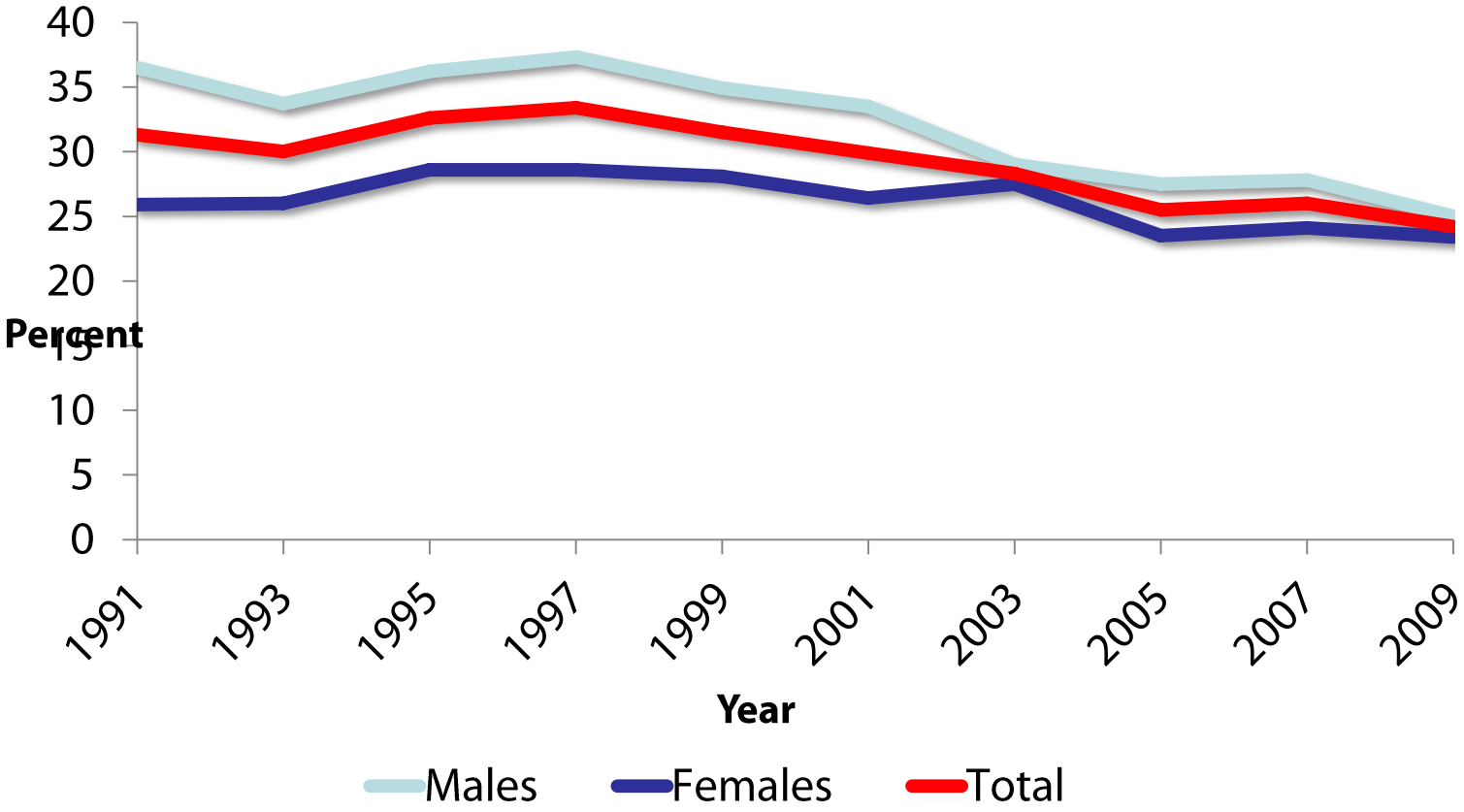
Youth Drinking in the United States

- **Alcohol use is the number 1 drug problem among young people**
- **In 2010, among 12–20 years olds**
  - 10 million (26%) reported drinking in the past month
  - 6.5 million (17%) reported binge drinking
  - Alcohol is a factor in 3 leading causes of death
    - Unintentional injuries, homicide, and suicide
- **Lives lost**
  - Every day, 4,500 youth <16 years old drinking
  - Every year, 4,700 persons <21 years old die of alcohol-related causes



National Survey on Drug Use and Health
CDC Alcohol-Related Disease Impact Software (ARDI)
CDC Web-based Injury Statistics Query and Reporting System (WISQARS)

Binge Drinking* in Past 30 Days
9th–12th Graders



* YRBS does not utilize gender-specific binge drinking definitions

YRBS, Youth Risk Behavior Survey

Alcohol Marketing
A Major Risk Factor for Underage Drinking

- **≥14 longitudinal studies**
  - Followed groups of young people over time, monitoring alcohol marketing exposure and drinking behavior
  - Linked increased exposure to alcohol advertising and marketing is associated with drinking initiation and increased consumption, even after controlling for other variables

Anderson et al. Alcohol 2009:44:229–43

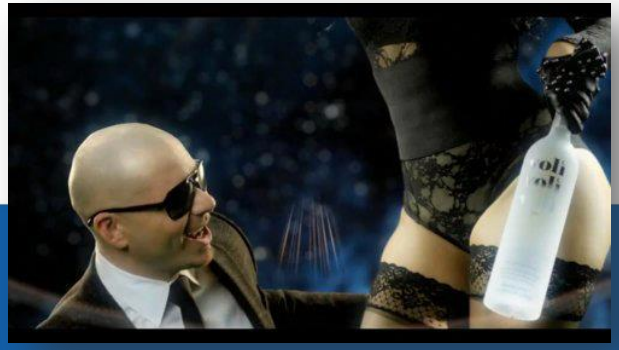
Alcohol Marketing
A Major Risk Factor for Underage Drinking

- **Forms of alcohol advertising and marketing that predict drinking onset among youth**
  - Alcohol advertisements in magazines
  - Beer advertisements on television
  - Alcohol advertisements on radio
  - Alcohol advertisements on billboards
  - In-store beer displays and sports concessions
  - Alcohol use in movies
  - Ownership of alcohol promotional items

Collins et al. J Adolesc Health 2007;40:527–34; Snyder et al. Arch Pediatr Adolesc Med 2006:160:18–24; Stacy et al. Am J Health Behav 2004:38:498–509; Pasch et al. J Stud Alcohol Drugs 2007:68:586–596; McClure et al.Am J Prev Med 2006:30:277–83; Stoolmiller et al.BMJ Open 2012:Feb 20;2:e000543; Sargent et al.J Stud Alcohol. 2006:67:54–65; Henriksen et al. J Adolesc Health 2008:42:28–35

The Problem
Alcohol Advertising Is Self-regulated

- **Alcohol industry has established its own voluntary codes to guide alcohol advertising**
  - Content: What is in the ads
  - Placement: What age audiences will see, hear, or read them
- **Content violations: Frequent and often unenforceable**
  - Difficult to regulate
    - First amendment
    - Enforcement is subjective
    - Content changes and/or disappears quickly, especially in digital media
  - Example from the distilled spirits code
    - Beverage alcohol advertising and marketing
    - Materials should not contain any lewd or indecent images or language



Self-regulation in the U.S. Alcohol Industry

- **Unlike content, placement can be measured**
  - By 2003, the beer, wine, and distilled spirits industries had all agreed to stop advertising in media venues where >30% of the audience was <21 years old
- **Call for a 15% youth audience maximum**
  - Supported by National Research Council, Institute of Medicine, and 24 state attorney generals
  - 12–20 year-olds are the group most at risk of underage drinking
  - They are <15% of the population
  - The 30% standard allows them to be exposed to alcohol marketing at more than double the rate of the rest of the population

Monitoring and Surveillance of Youth Exposure to Alcohol Marketing

- **The Center on Alcohol Marketing and Youth (CAMY) monitors youth exposure to alcohol marketing**
  - Uses industry-standard data sources, such as Nielsen and Arbitron
  - Monitors industry compliance with voluntary codes regarding placement of advertising
  - Compares youth and adult audiences, and shows where advertising is being placed to more effectively expose youth than adults ("overexposure")

www.camy.org
www.nielson.com

Youth Are Overexposed to Alcohol Advertising in Magazines

- **In 2008, youth 12–20 years old, compared to adults ≥21 years old, saw per capita**
  - 10% more beer ads
  - 16% more ads for alcopops
  - 73% fewer wine ads
- **The overwhelming majority of youth exposure (79%) came from ads placed in magazines with disproportionate youth audiences**

Youth Exposure to Alcohol Advertising in National Magazines, 2001–2009 Baltimore: Center on Alcohol Marketing and Youth, 2010

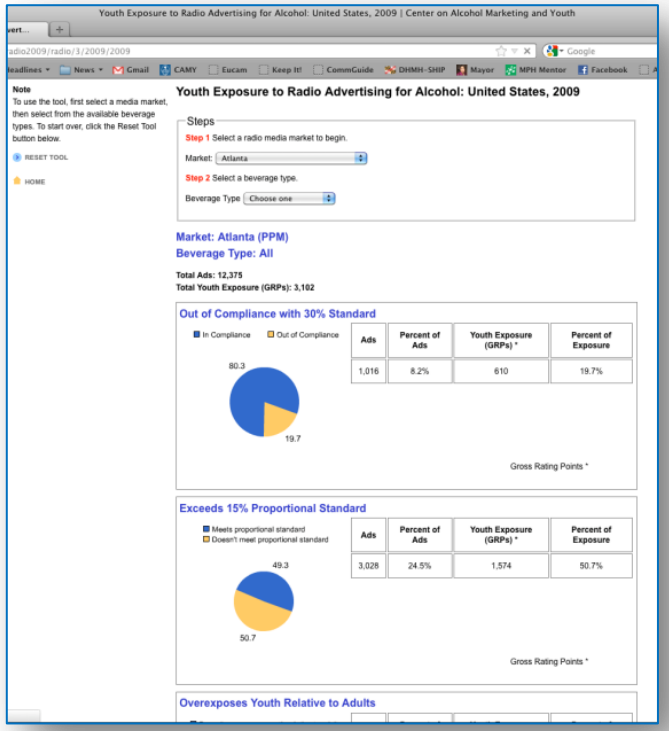
Youth Are Overexposed to Alcohol Advertising on Television

- **315,581 alcohol product commercials appeared on U.S. television in 2009**
  - Youth were more likely (per capita) than adults to have seen 21% of alcohol ads (>67,000 ads)
  - The average TV-watching youth saw 366 alcohol ads: 1/day
  - 23,718 ads (7.5%) played to audiences greater than the industry's 30% threshold
- **Trends**
  - Youth exposure to alcohol advertising on television grew at a rate faster than that for ≥21 years old (2004–2009)

Youth Exposure to Alcohol Advertising on Television, 2001–2009. Baltimore: Center on Alcohol Marketing and Youth, 2010

Youth Are Overexposed to Alcohol Advertising on Radio

- **1 in 11 (9%) of radio placements violated the industry's 30% standard in 2009**
  - Nearly a third (32%) of advertising placements played to disproportionately youthful audiences
  - More than one half of youth exposure came from ads placed on programs that youth were more likely to hear than adults (per capita)



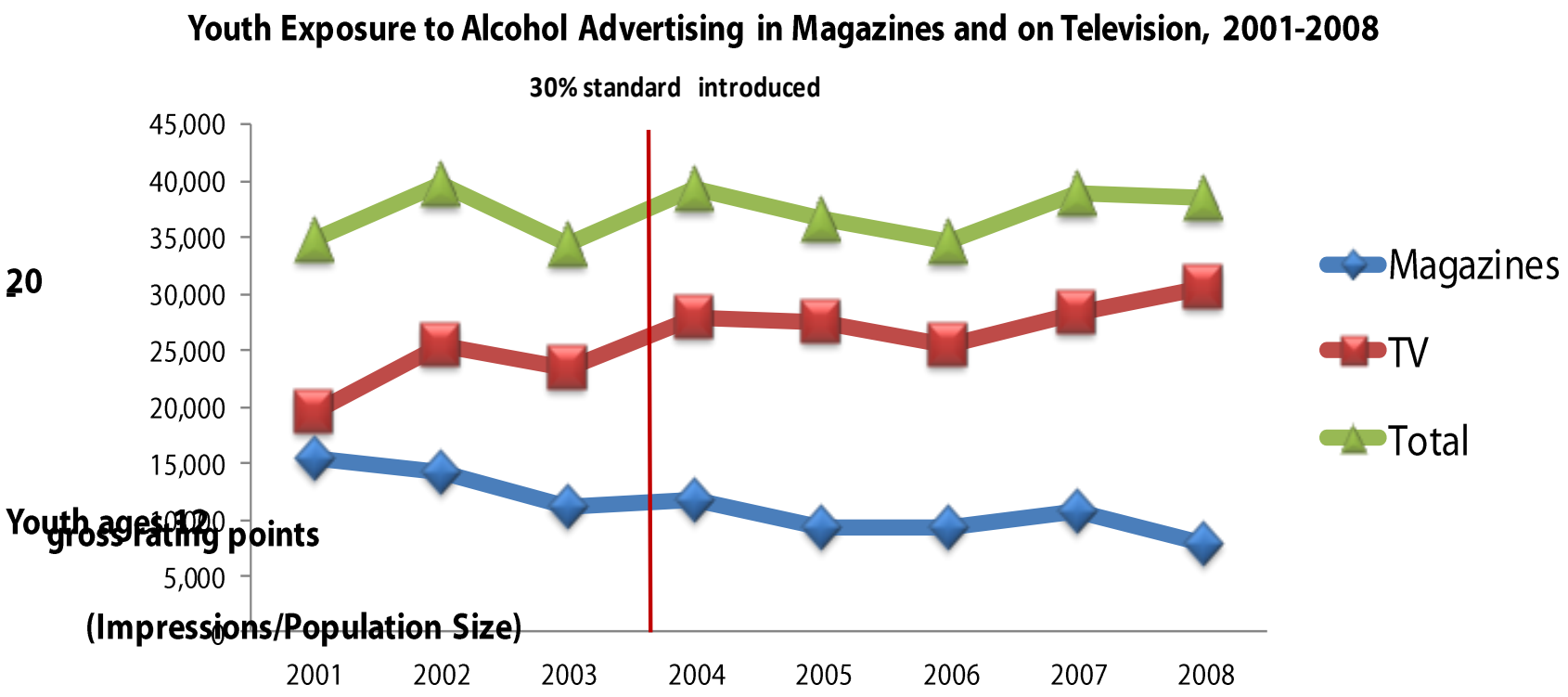
www.camy.org/radiotool

Importance of Monitoring at Brand Level

A Small Percentage of Alcohol Brands Is Responsible for Half of Exposure

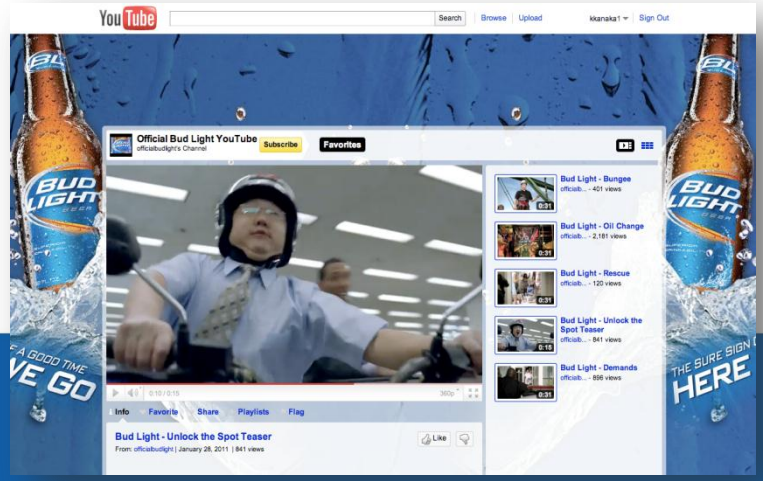
Medium	Year	Total number of brands advertising	Brands responsible for half of youth exposure
Magazines	2008	333	16 (5%)
Television	2009	151	12 (8%)
Radio	2009	77	3 (4%)

Self-regulation Across Media



Challenges of Monitoring Youth Exposure

- **Monitoring is dependent on consumer self-reports of exposure**
- **Survey data is not available on brand-specific youth alcohol consumption**
- **Spending on alcohol advertising on digital media is rapidly increasing**
  - Internet advertising: 90% increase from 2010 to 2011: $64 M
  - Internet advertising is only a small part of digital marketing
    - Facebook, YouTube
    - Mobile applications (“apps”), etc.



Limitations of Monitoring Digital Media

- Third party data sources are not available
- Much of digital alcohol marketing is spread user-to-user ("viral")
- Young people are far ahead of adults in their use of and ease with digital media
- Alcohol companies are among the earliest adopters of new media marketing technologies

Digital Media and Age Protections: A Case Study

- **Alcohol marketing is not shown to persons with Facebook age of <21 years**
- **However**
  - According to *Consumer Reports*, a third of minors on Facebook signed up with false ages
  - People with a Facebook age between 18 and 20 years can change their age with 3 clicks
  - Age-gating only applies to company-generated marketing, not user-generated branded pages, and does not always work

Reducing Youth Exposure to Alcohol Marketing

- **Maintain monitoring of traditional media, and use it to press for stronger standards**
- **Promote compliance with exposure standards**
  - Stronger standard than current self-regulated maximum of 30% of audience comprised of youth
    - Federal Trade Commission has asked industry for 25%
    - Beam Inc. has adopted 25% standard
    - IOM/NRC, Attorney Generals propose 15%
  - CAMY modeled a 15% youth audience standard for 2004 data
    - Reduces youth TV alcohol ad exposure 20%
    - Saves industry 8% of advertising costs
    - Has virtually no effect on ability to reach 21–24 or 21–34 age groups

Jernigan et al. J Publ Health Policy 2005:26:312–325
IOM, Institute of Medicine
NRC, National Research Council
CAMY, The Center on Alcohol Marketing and Youth

Reducing Youth Exposure to Alcohol Marketing

- Collect and report alcohol company marketing expenditures annually (as done for tobacco since 1967)
- Tighten age verification ("age-gating") on digital media sites
- Develop "no-buy" lists of programs and other venues where young people are likely to be overexposed to alcohol advertising (1999 FTC recommendation)

FTC, Federal Trade Commission

Public Health Has an Important Role in Reducing Youth Exposure to Alcohol Advertising

- **State and local entities can inform efforts to strengthen controls over local alcohol advertising**
  - Restrict outdoor alcohol advertising in locations where children are likely to be present: Public transit, festivals, celebrations in public venues, and on billboards
  - Prohibit outdoor alcohol advertising near schools, public playgrounds, and churches
  - Restrict alcohol advertising on alcohol retail outlet windows and outside areas
  - Prohibit alcohol advertising on state-owned property, including college campuses

Understanding Alcohol Regulation in the United States

James F. Mosher, J.D.
President, Alcohol Policy Consultations
Senior Policy Advisor, The CDM Group, Inc.

Overview

- Alcohol regulation in the United States
- Challenges to developing a public health approach to alcohol regulation
- Opportunities for change and how to execute them

Alcohol Regulation in the United States
21st Amendment

- The 21st Amendment of the U.S. Constitution explicitly gives states a substantial role in regulating the alcohol trade

> "The transportation or importation into any state, territory, or possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited."

Alcohol Regulation in the United States
The Role of the Federal Government

- **Federal government**
  - Major role in regulating alcohol producers
  - States generally defer to the federal government regarding regulations of alcohol manufacturing and marketing
  - This deference is voluntary, and States have concurrent authority
  - Alcohol taxes are an exception, as all States as well as the Federal government impose such taxes

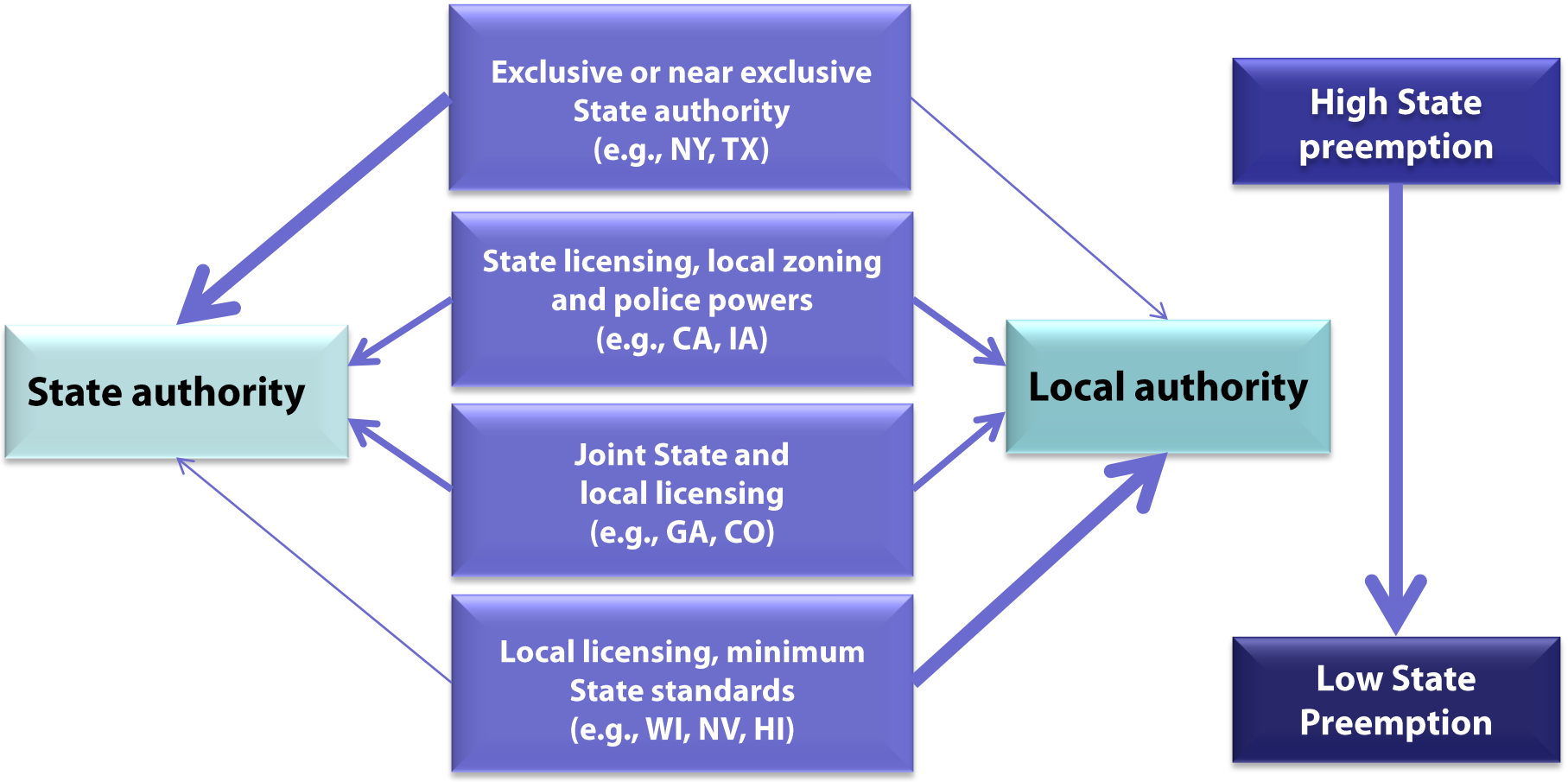
Alcohol Regulation in the United States
The Role of States

- **States focus primarily on the retail sector of the industry**
- **States require commercial retailers to obtain a license (unless operated by the states themselves)**
  - New retail outlets
    - Where, how many, and what kinds of retail outlets are permitted?
  - Alcohol retail operation
    - Procedures for alcohol sales and service (e.g., sales to intoxicated and underage persons)
    - Days and hours of sale
    - Licensee qualifications and staff training requirements
    - Types of products
    - Fees

Alcohol Regulation in the United States
The Role of Local Government

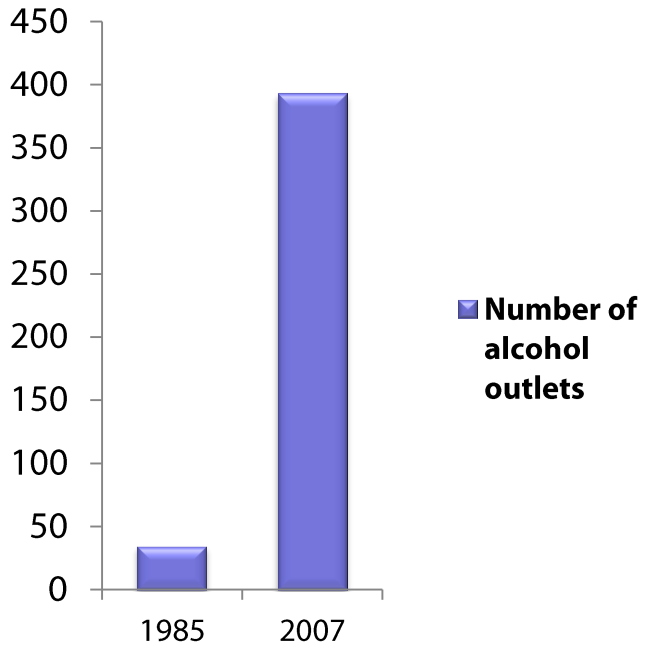
- States may delegate some or most of their authority to local governments
- States may allow localities to impose stricter rules than required by the state
- State preemption: Legal term for describing the extent to which the state limits this local authority

Levels of State Preemption



State Preemption
New York City Case Example

- New York City and its neighborhood councils have the authority to regulate most land uses EXCEPT alcohol retail outlets
- Between 1985 and 2007, the State licensing agency added 358 alcohol retail outlets in a 1.8 square mile area in the Lower East Side of New York City



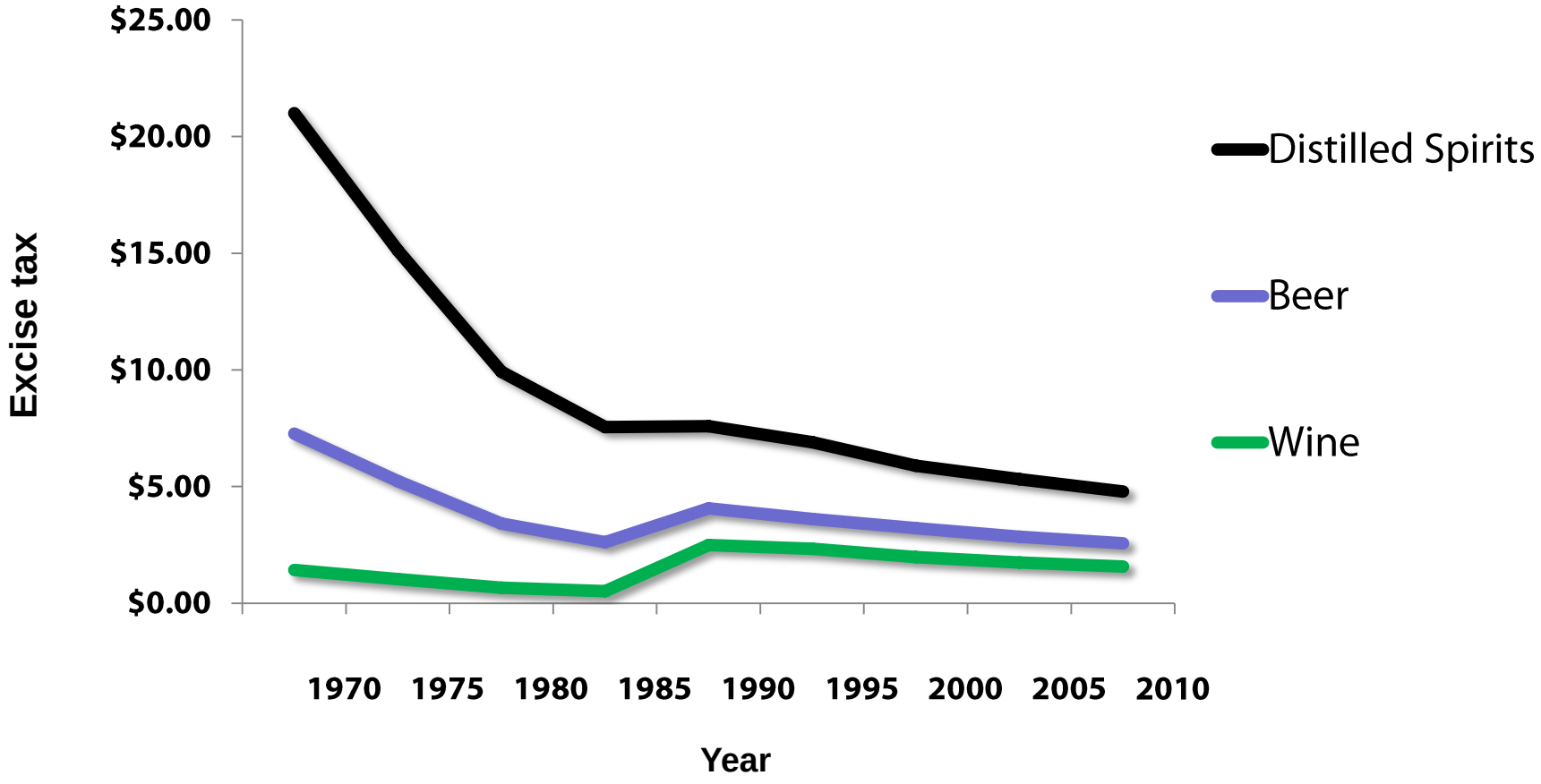
Challenges to Developing a Public Health Approach to Alcohol Regulation

Conflict exists between commercial interests and public health policy reform, particularly at the state/federal levels

Alcohol Taxes

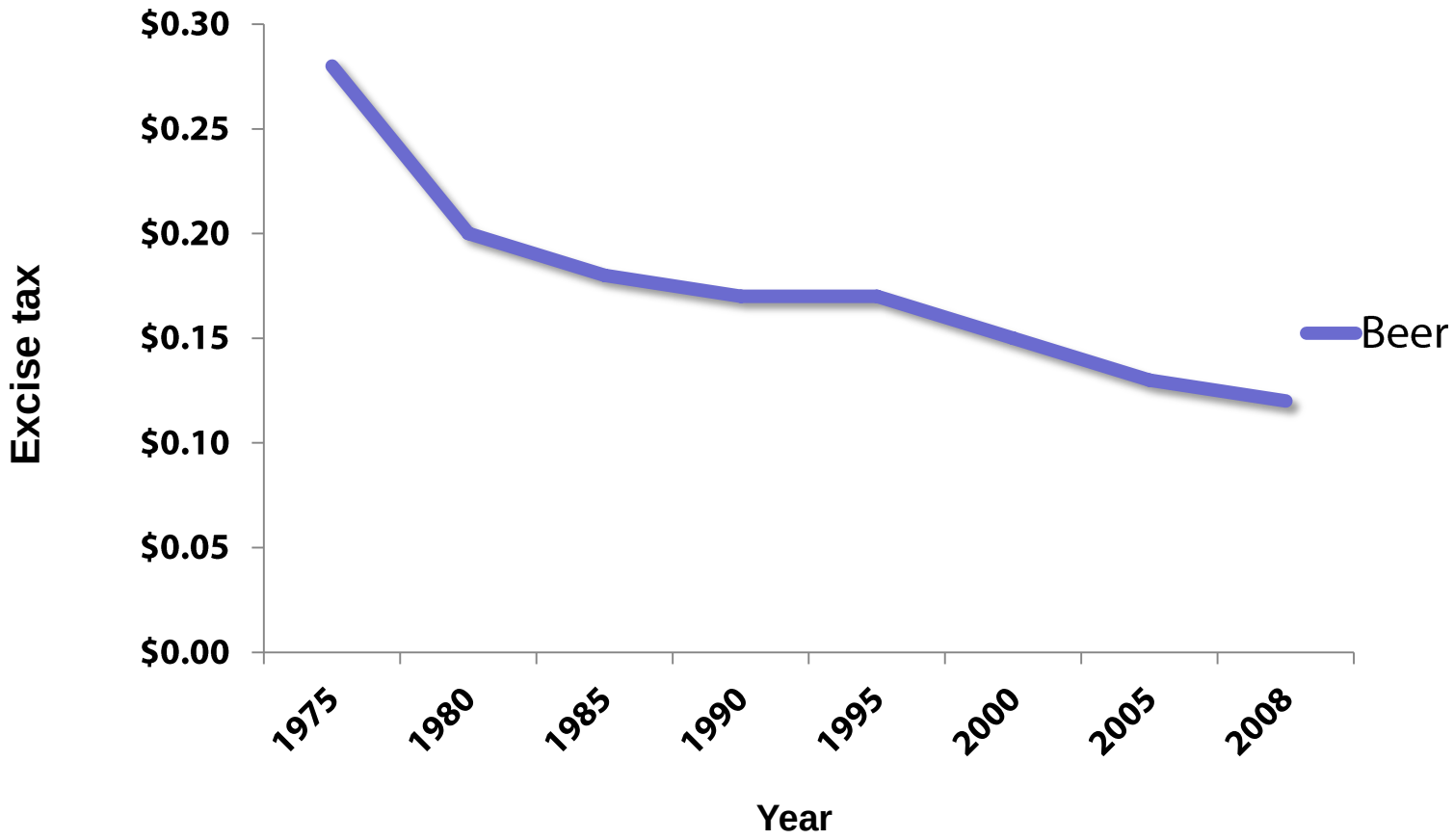
- States and the federal government impose alcohol taxes
- There is strong scientific evidence showing the effectiveness of increasing alcohol taxes for reducing excessive alcohol consumption and related harms
- Alcohol taxes have been steadily and substantially decreasing over the past four decades

Federal Excise Tax Rates Per Gallon Absolute Alcohol, 1970–2010



Adjusted for inflation: 1970 baseline
U.S. Bureau of Labor Statistics

Average State Beer Excise Tax Rates Per Gallon of Beer, 1975–2008

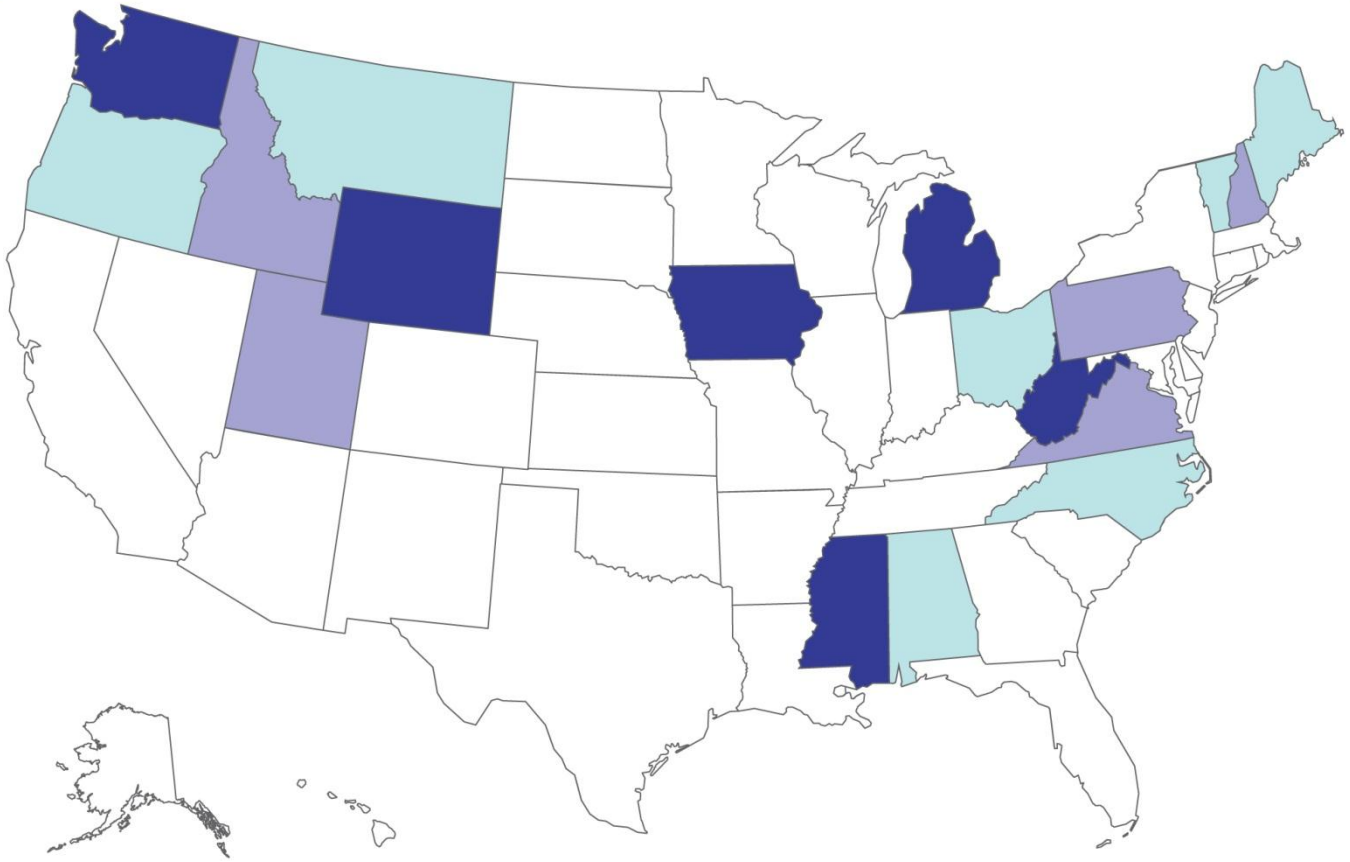


Adjusted for inflation: 1970 baseline
Beer Almanac, 2009;U.S. Bureau of Labor Statistics, 2010

Challenge
Push for Deregulation

- **Increasing pressure in states to deregulate alcohol sales**
- **Public health and law enforcement constituencies do not consider alcohol regulation a high priority**
- **The "ratchet" effect**
  - Once instituted, deregulatory measures are hard to reverse because new economic stakeholders are established

Deregulating (Privatizing) State Alcohol Retail Stores

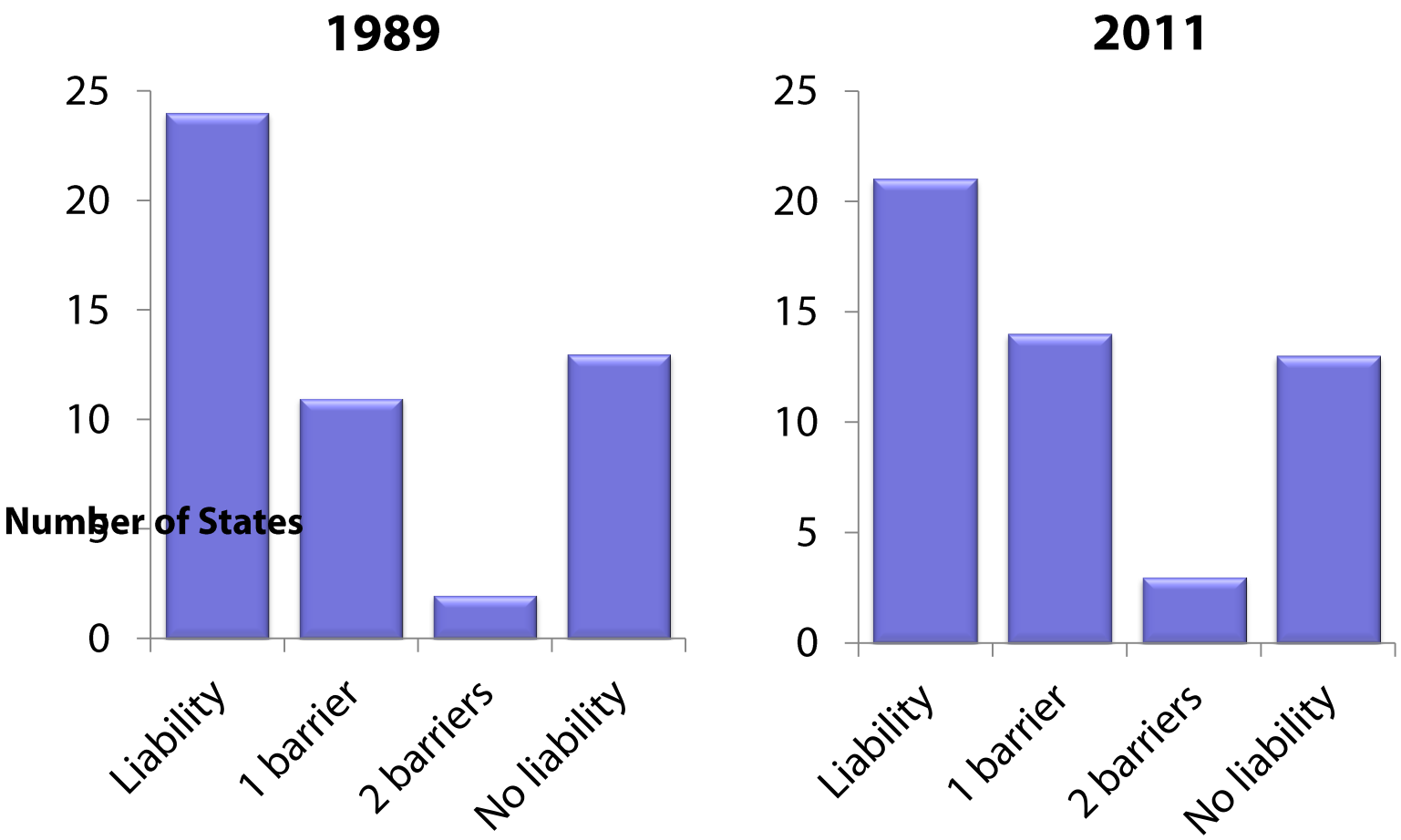


States that privatized state stores

States with proposals to privatize state stores

Other control states

Challenge
Adult Commercial Host Liability



Opportunities for Change
Chicago and Cook County Alcohol Taxes

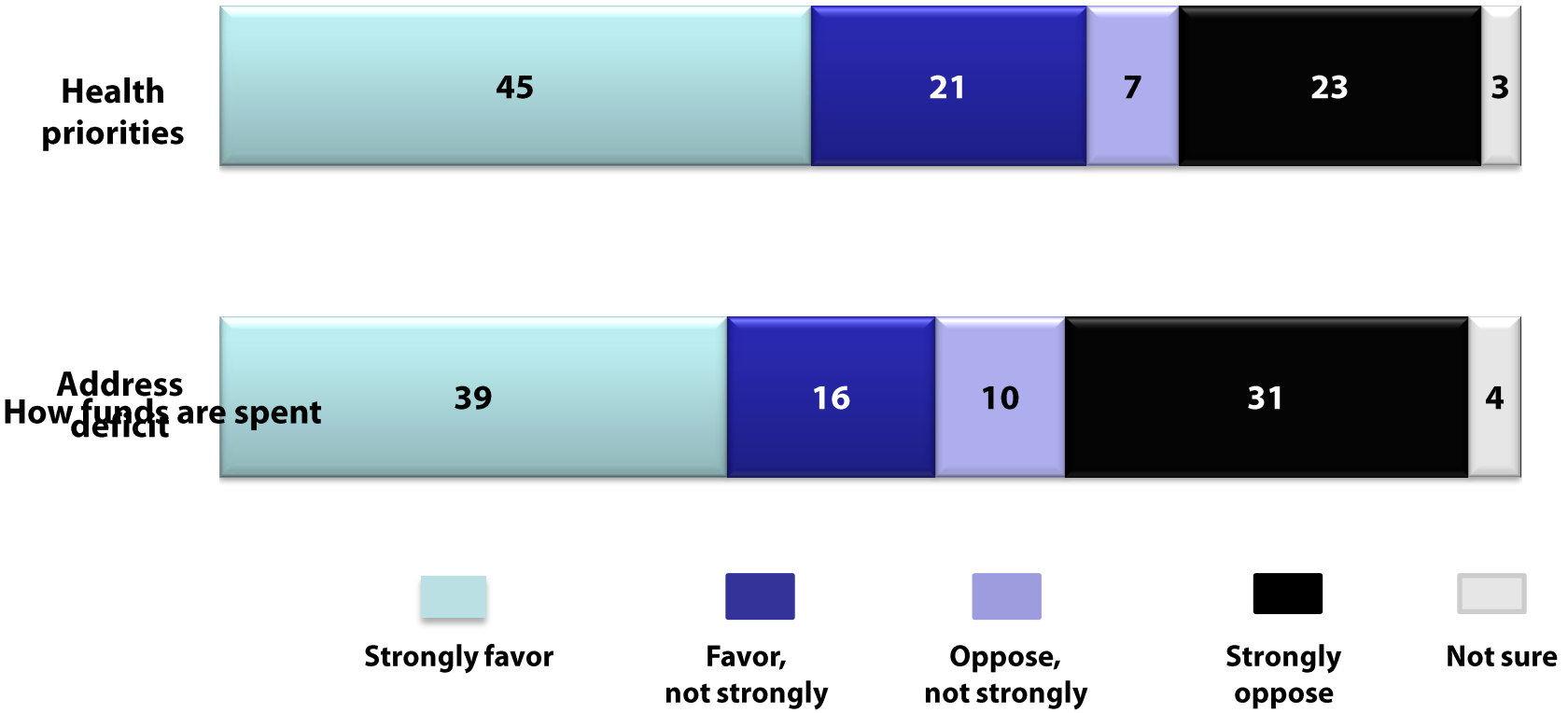
- **Cook County doubled its alcohol taxes effective January 1, 2012**
- **Four increases in Chicago/Cook County since 2005**
- **Current Chicago and Cook County alcohol taxes/gallon**
  - Beer: $.38/gallon
  - Other beverages (based on alcohol content)
    - <14%: $.60/gallon (e.g., table wine, wine coolers)
    - 14%-20%: $1.34/gallon (e.g., fortified wine)
    - >20%: $5.18/gallon (e.g., distilled spirits)

Opportunities
Maryland Alcohol Tax

- Enacted a special 3% alcohol sales tax in 2011
- Promoted by a coalition of 1,200 health care and social services organizations

Opportunities
Public Support for Alcohol Policy Initiatives

Voter support, dime-a-drink alcohol tax, Maryland 2010



Opportunities
Local and State Campaigns: Alcohol Outlet Density

Way Forward

- **Implementation of alcohol policy reforms are feasible and have potential for significant public health gains**
- **Public health constituencies can play an instrumental role in the process**
  - Assessing and disseminating scientific findings
  - Educating decision makers and key constituencies
  - Providing expertise to state and local coalitions
  - Conducting evaluations to determine effectiveness of interventions

Efforts to Address Excessive Drinking in New Mexico

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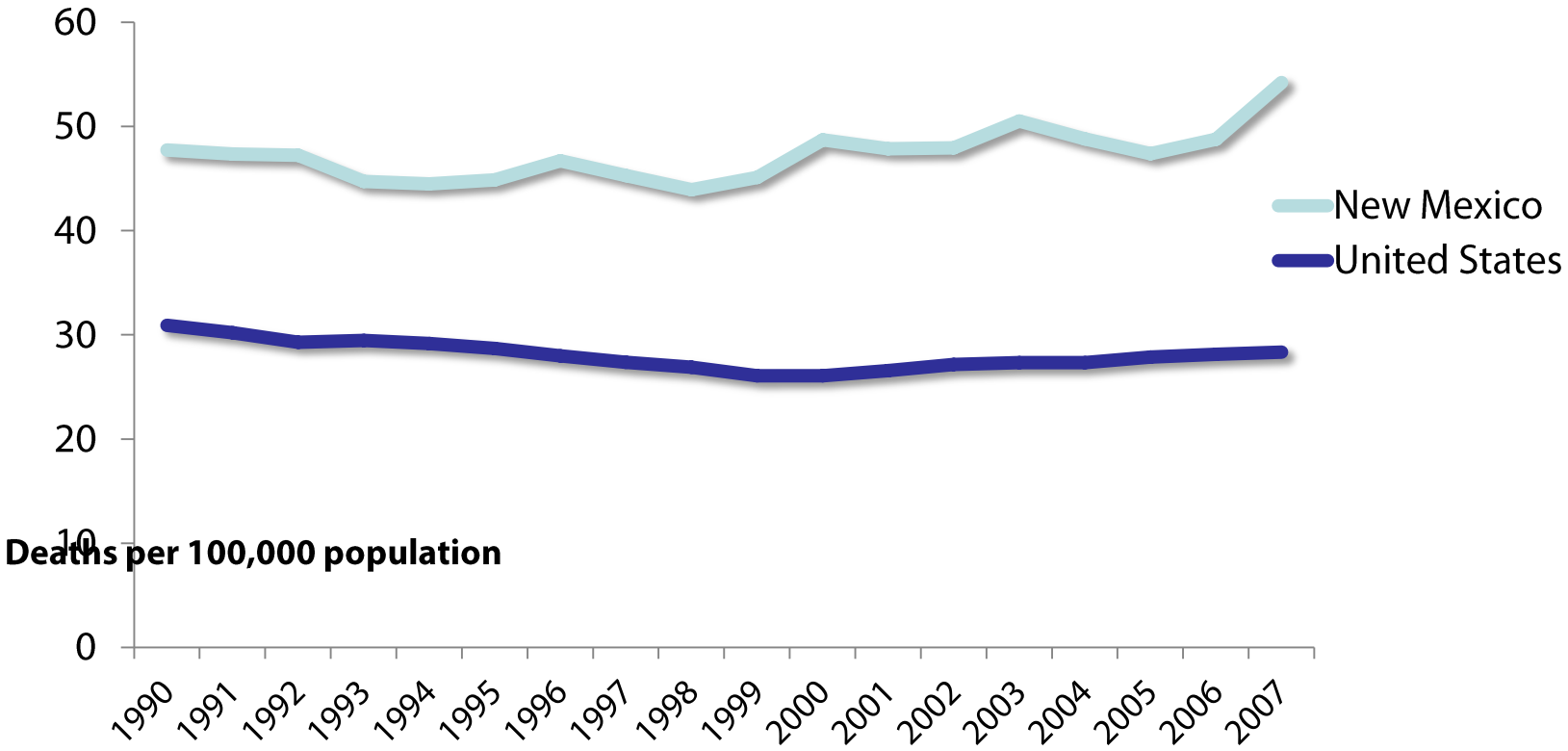
Alcohol Epidemiologist
Injury and Behavioral Epidemiology Bureau
Epidemiology and Response Division
New Mexico Department of Health

Overview

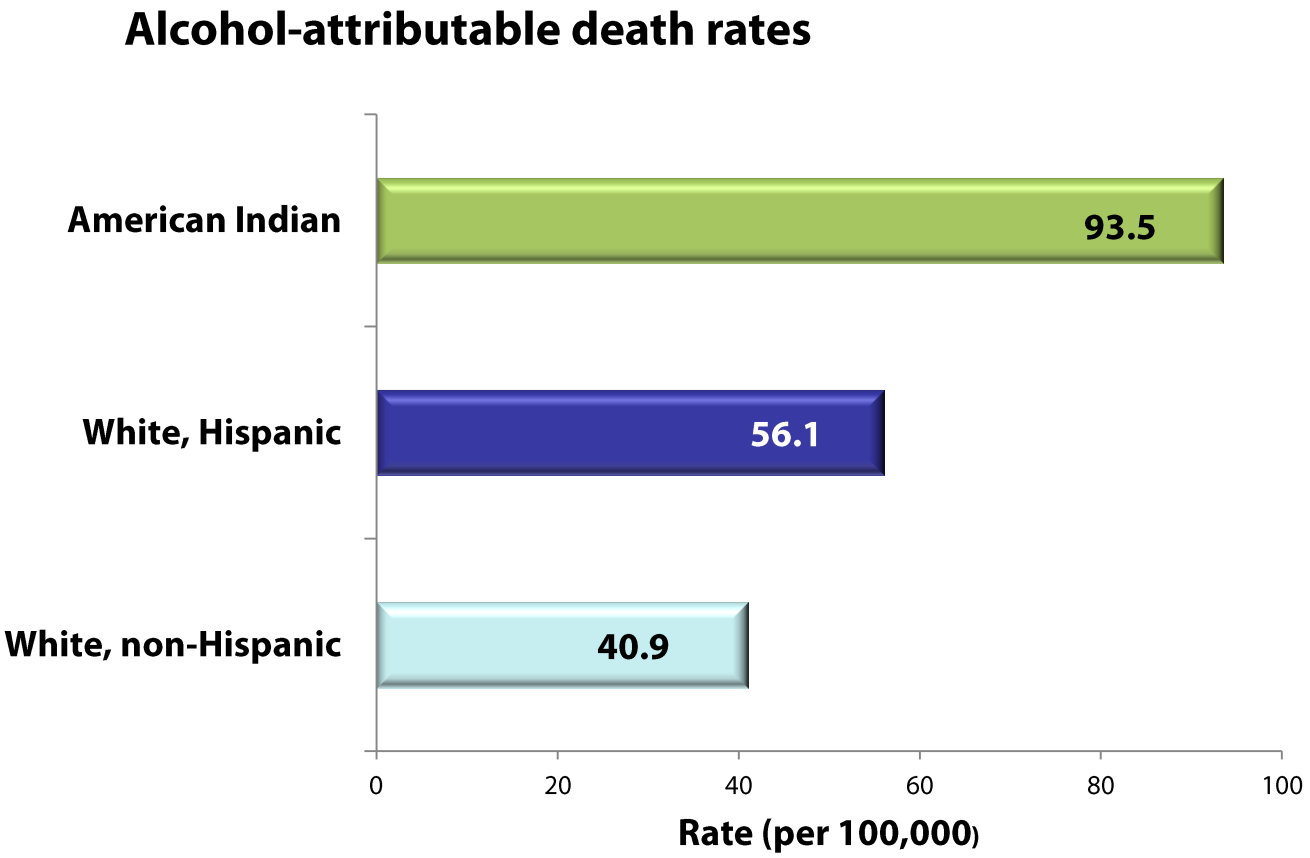
- Epidemiology of alcohol-attributable problems in New Mexico
- Examples of activities taken to implement recommendations from Community Guide
- Lessons learned

New Mexico Has the Nation's Highest Alcohol-attributable Death Rates



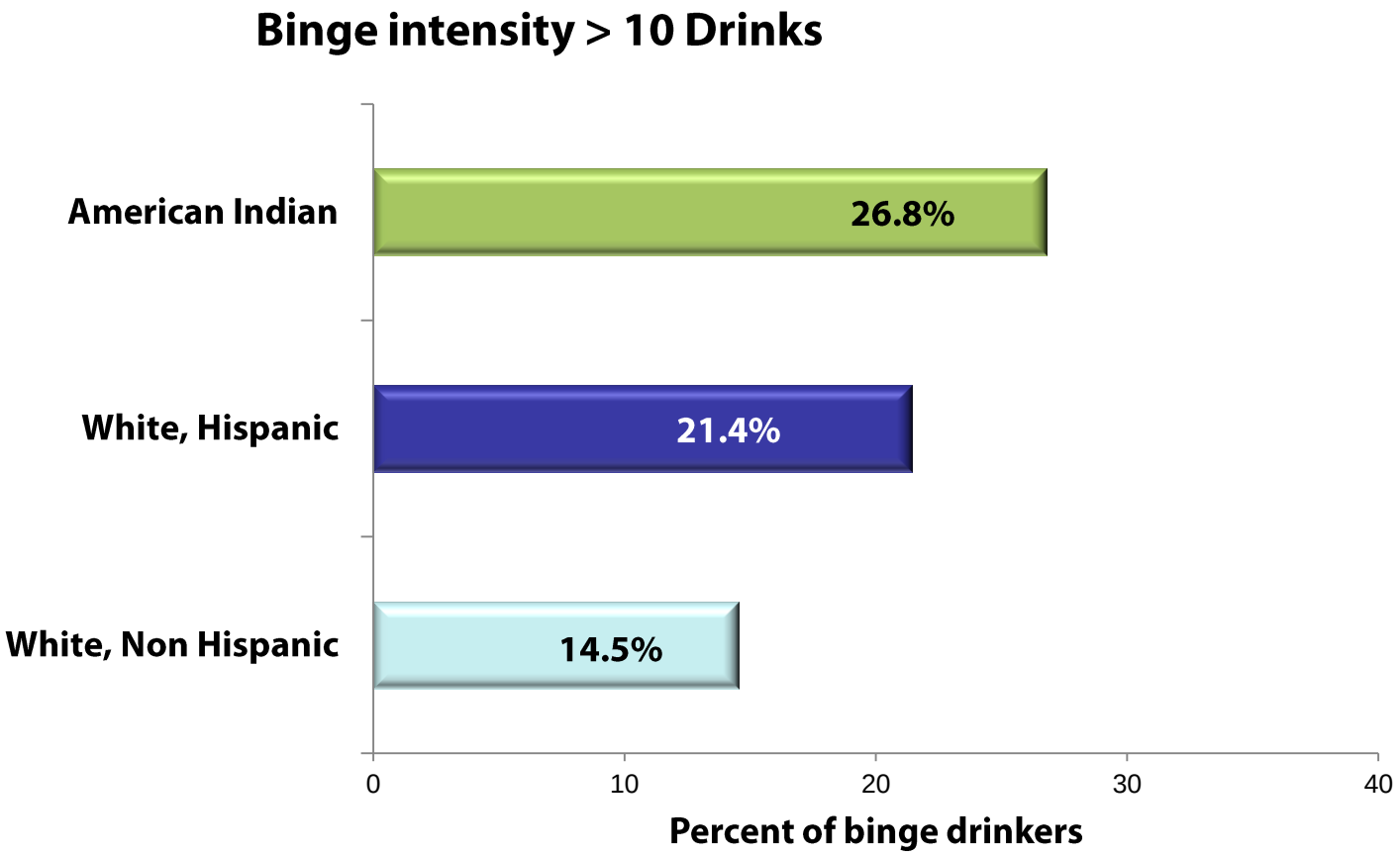
All rates are age-adjusted to the US 2000 standard population
NMDOH BVRHS death files and UNM-BBER population files (NM);
NCHS death and population files (US); CDC ARDI; NMDOH SAES

Disparities in Alcohol-attributable Deaths New Mexico, 2005–2009



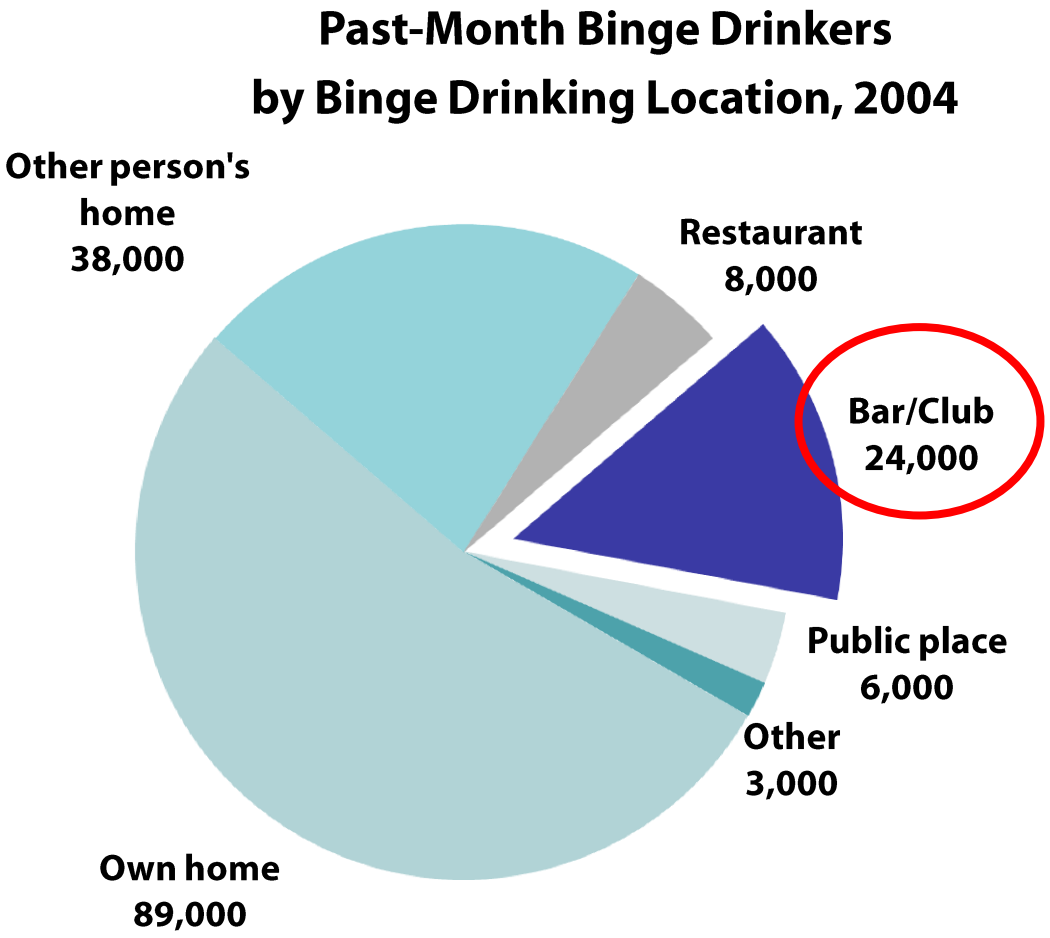
Rates are age-adjusted to the US 2000 standard population
NMDOH BVRHS death files and UNM-BBER population files (NM);
NMDOH Behavioral Risk Factor Surveillance Survey; CDC ARDI; NMDOH SAES

Disparities in Intensity of Binge Drinking New Mexico, 2005–2009



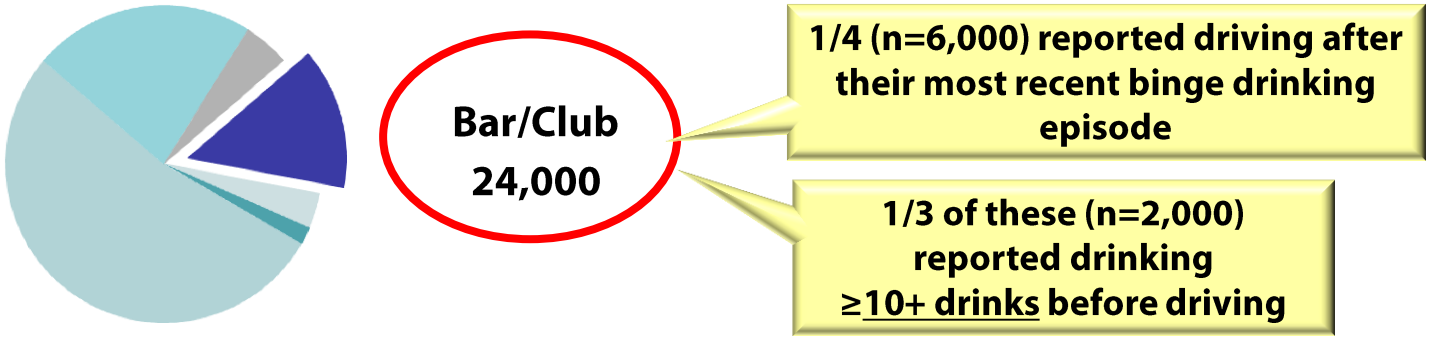
Rates are age-adjusted to the US 2000 standard population
NMDOH BVRHS death files and UNM-BBER population files (NM);
NMDOH Behavioral Risk Factor Surveillance Survey; CDC ARDI; NMDOH SAES

Binge Drinking is Common in New Mexico Bars and Clubs



2004 NMDOH Behavioral Risk Factor Surveillance Survey; event counts are population-weighted to the 2004 New Mexico population
AID after binge drinking, by location, NM, 2004.xls, tab "Per Month AID after binge drink"

Driving After Binge Drinking in Bars and Clubs



- **A number of bars were serving alcohol to persons who were intoxicated (illegal in New Mexico and in most other states)**
- **Use of these findings**
  - Successful argument at 2006 regulatory hearings for changes in New Mexico's liquor control regulations
  - Support for the implementation of an aggressive campaign against binge drinking and driving while impaired

2004 NMDOH Behavioral Risk Factor Surveillance Survey; event counts are population-weighted to the 2004 New Mexico population
AID after binge drinking, by location, NM, 2004.xls, tab "Per Month AID after binge drink"

New Mexico Prevention Campaign

- **Launched in 2005 to reduce alcohol-related problems**
  - Alcohol-impaired motor vehicle crash fatalities
  - Risk behaviors: Binge drinking and alcohol-impaired driving
    - Reducing alcohol service to underage youth and to persons who were already intoxicated (over-service) in licensed alcohol establishments (e.g., bars, clubs, and restaurants)

http://www.mvd.newmexico.gov/Drivers/DWI/Pages/Home.aspx

Before the New Mexico Prevention Campaign

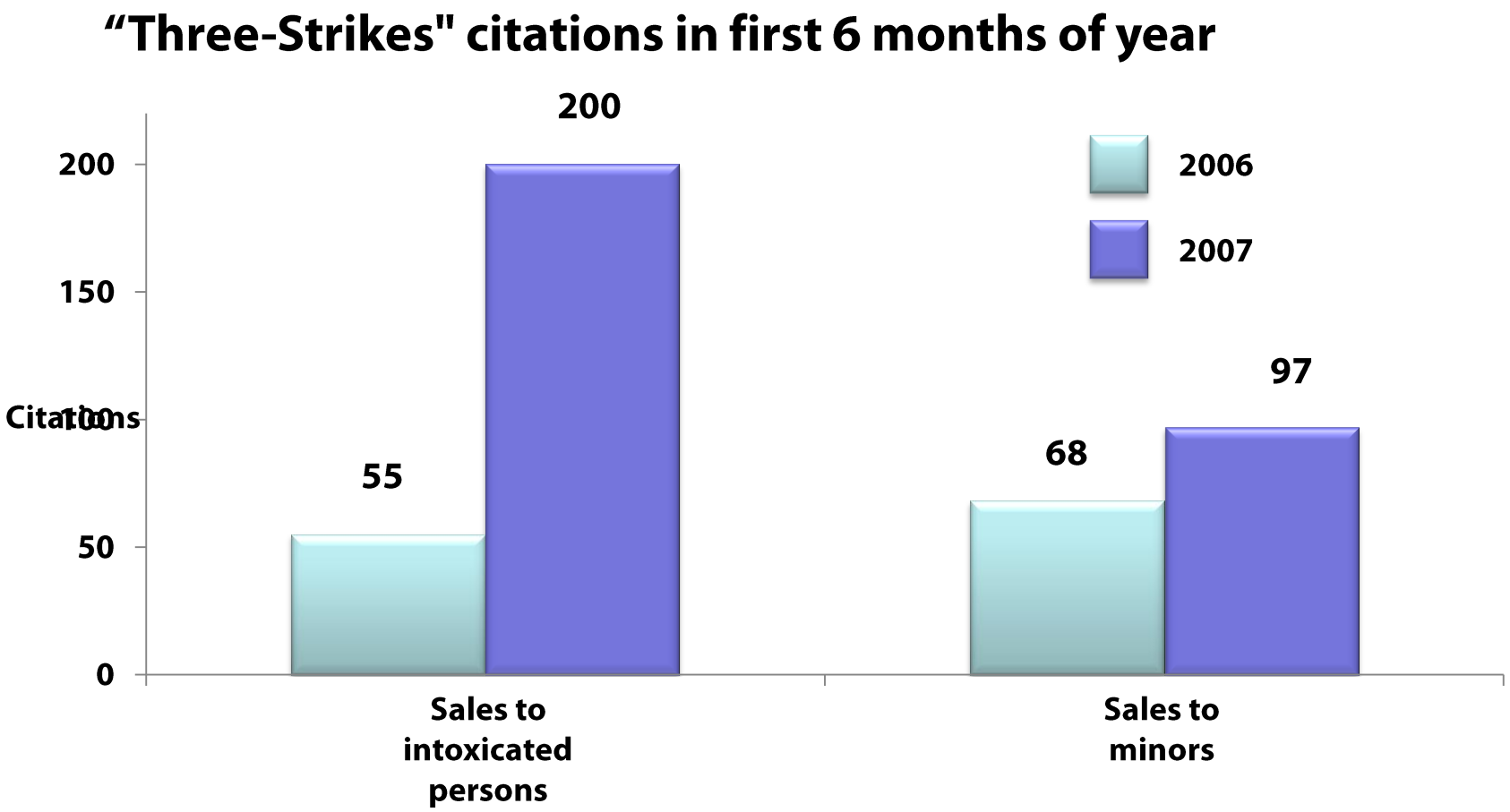
- **New Mexico had a clear legal definition of over-service**
  - If the patron of a retail alcohol establishment is found to have a blood alcohol content (BAC) of ≥0.14 g/dL within 90 minutes of consuming his/her last drink at a retail alcohol establishment…
  - …this BAC can be used as presumptive evidence of intoxication at time of sale, and the licensee can be cited for over-service
- **No NM liquor license had ever been revoked for liquor law violations**

New Mexico Prevention Campaign

- **The state's alcohol beverage control agency proposed to reduce the number of illegal sales and service violations required for license revocation from 5 to 3 violations/year**
- **Implementation of Community Guide's recommended strategies for reducing alcohol-impaired driving**
  - Sobriety checkpoints
  - Media campaign warning drivers about this increased DWI law enforcement

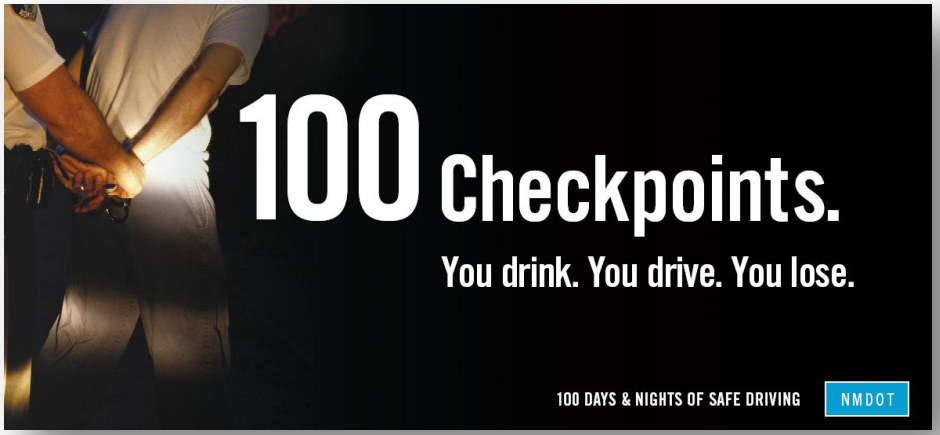
DWI, Driving while intoxicated

Implementation of the Community Guide Recommendations to Reduce Excessive Drinking



2005-2006-2007 Admin. Citation Log by COUNTY (from Sally Archuleta, 08-16-07)_w_JR_changes, v 1.1.xlsx, tab "Chart3"
2011 CDC AID Town Hall Presentation, v 1.0.ppt

Implementation of the Community Guide Recommendations to Reduce Impaired Driving



- Regularly scheduled "Superblitz" periods of increased DWI law enforcement
- A comprehensive media campaign warning drivers about this increased law enforcement

DWI, Driving while intoxicated
2011 "100 days and nights of summer " documented at:
http://dot.state.nm.us/Community/galleries/safe_summer_project_2011/index.html
Image from: 2011 CDC AID Town Hall Presentation, v 1.0.ppt

Outcome: Binge Drinking Intensity and Alcohol-impaired Driving Decreased

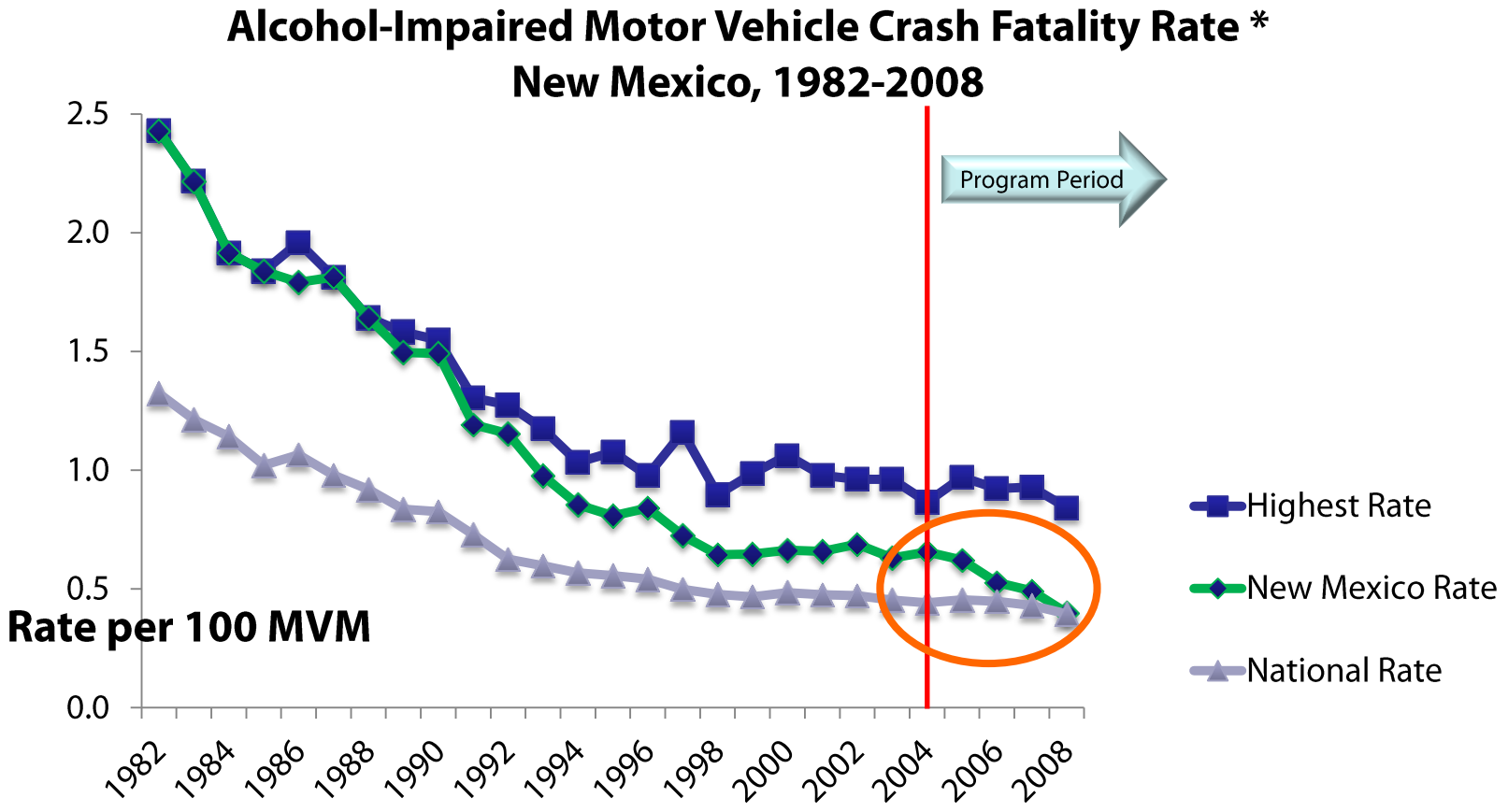
Indicator	% Change
Binge intensity	
Bar/club	**-16%**
Binge drivers	-19%

Indicator	% Change
Alcohol-impaired Driving	-33%*
Males	-36%

* Significance level of change from 2004-05 to 2007-08: $p < 0.05$

2004, 2005, 2007, 2008 NMDOH Behavioral Risk Factor Surveillance Survey

Implementing Community Guide Strategies Can Reduce Alcohol-related Problems



* Fatalities in crashes in which at least one driver had a BAC ≥ 0.08 g/dL; rate per 100 million vehicle miles traveled

National Highway Traffic Safety Administration/Fatality Analysis Reporting System
MVM, Million vehicle miles

Lessons Learned

- Policy challenges can be addressed and progress can be made in reducing excessive drinking in states
- Comprehensive prevention programs can reduce excessive drinking, related risk behaviors, and downstream consequences
- Well-designed and well-managed prevention efforts that focus on Community Guide recommendations can reduce alcohol-related problems in states

PREVENTING EXCESSIVE ALCOHOL USE: WHAT PUBLIC HEALTH CAN DO

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention