Policy Research on Alcohol and Drugs: Traffic Safety as an Example

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ICARA – International Confederation of ATOD Societies
2016 Annual Meeting

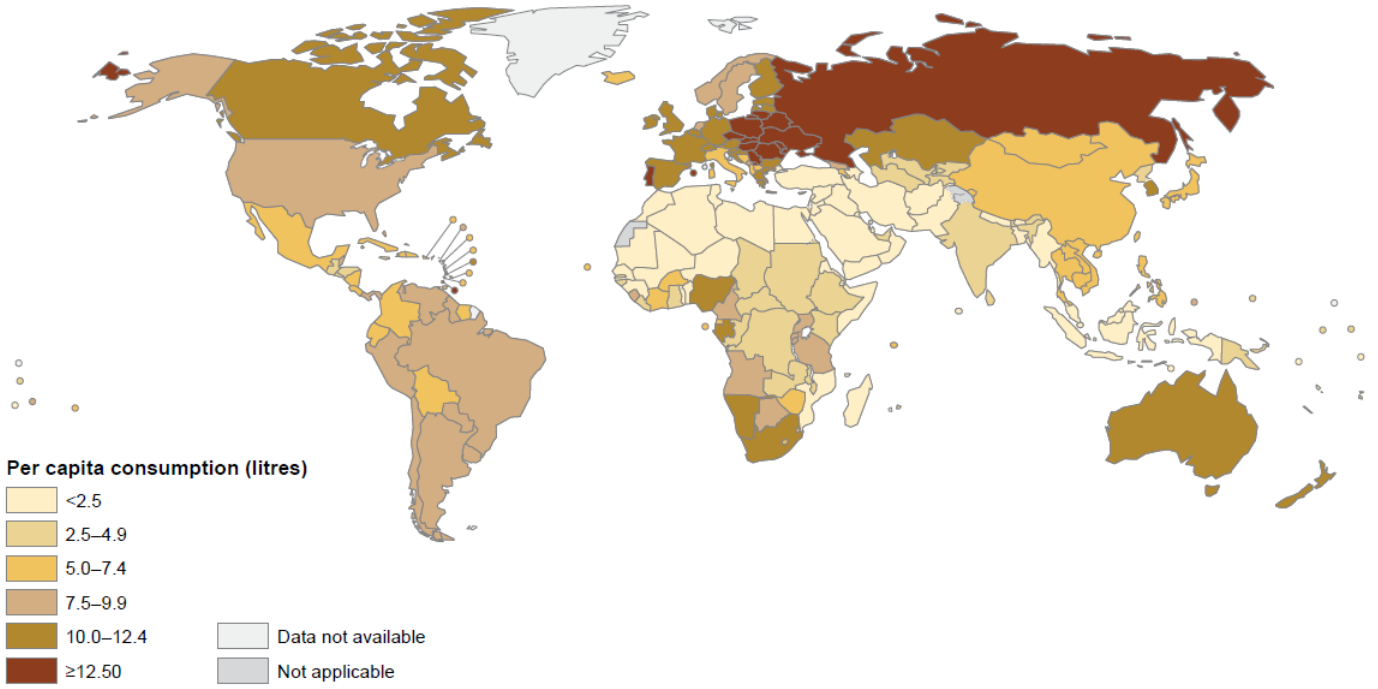
Windsor Park, United Kingdom

July 25, 2016

Alcohol and Global Health

- Growing concern worldwide
- World Health Assembly charged WHO with developing a Global Strategy Strategic Plan to reduce harm linked to alcohol (report due in Spring 2010)
- WHO Conferences in six regions:
  - Stakeholders (producers and sellers of alcohol)
  - NGOs
  - Government representatives of member countries (report draft under review)
- U.S. delegate for Regional Meeting of the Americas in Sao Paulo, Brazil, May 4-6, 2009
- Data monitoring meeting, Valencia, Spain, Oct. 21-24, 2009
- Plan released in February 2011

Figure 2. Total alcohol per capita consumption (15+ years; in litres of pure alcohol), 2010



Average per capita alcohol consumption:

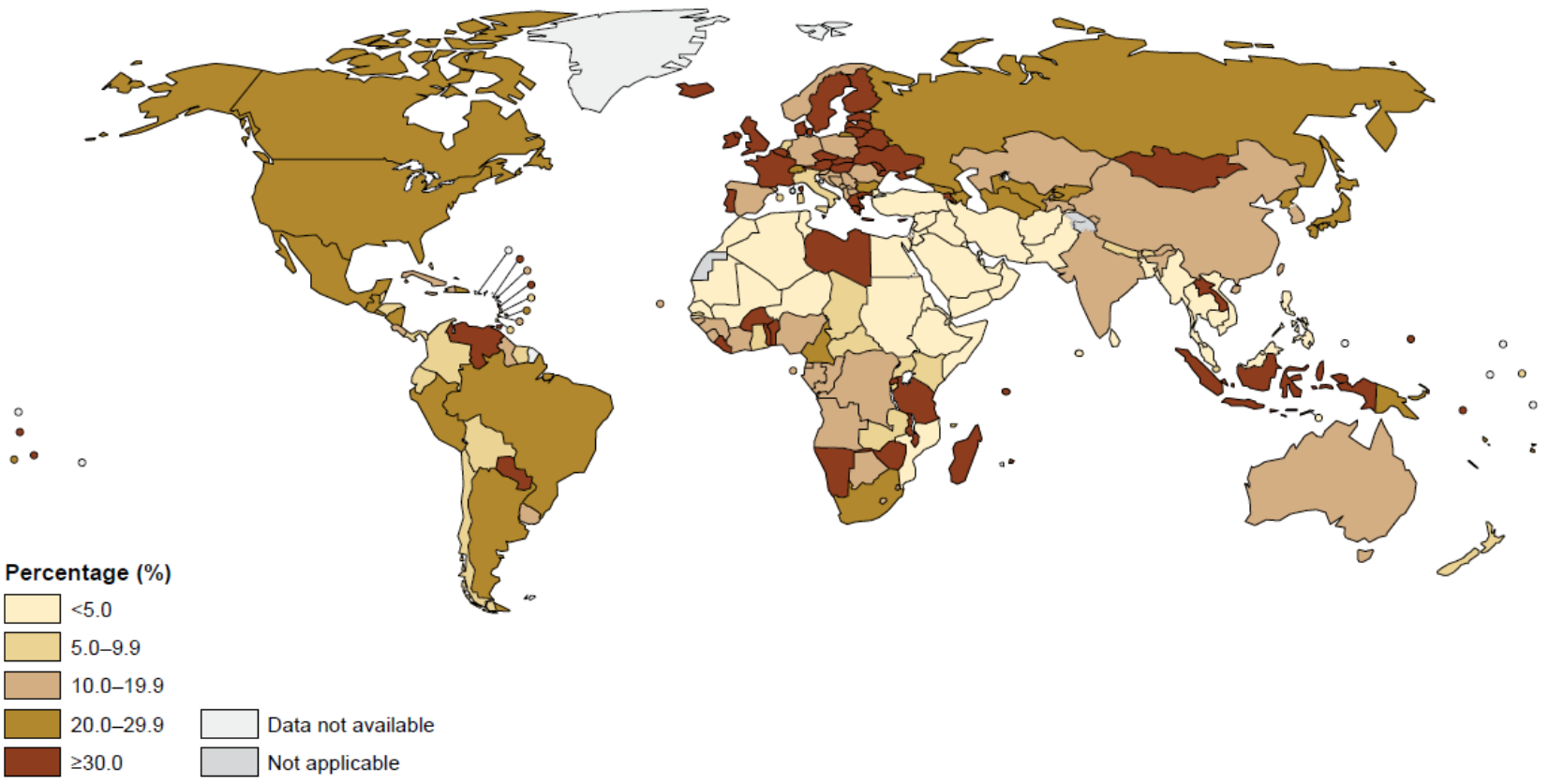
- 6.2 liters pure alcohol
- 13.5 grams/day=1 drink
- 48% of persons age 15 and older drank in the past year
- 25% of alcohol consumed illicit or unrecorded

Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Region	Liters per person per year
Europe	10.4
Americas	8.4
Western Pacific Region	6.8
Africa	6.0
Southeast Asian Region	3.4
Eastern Mediterranean	0.7
WORLD	6.2

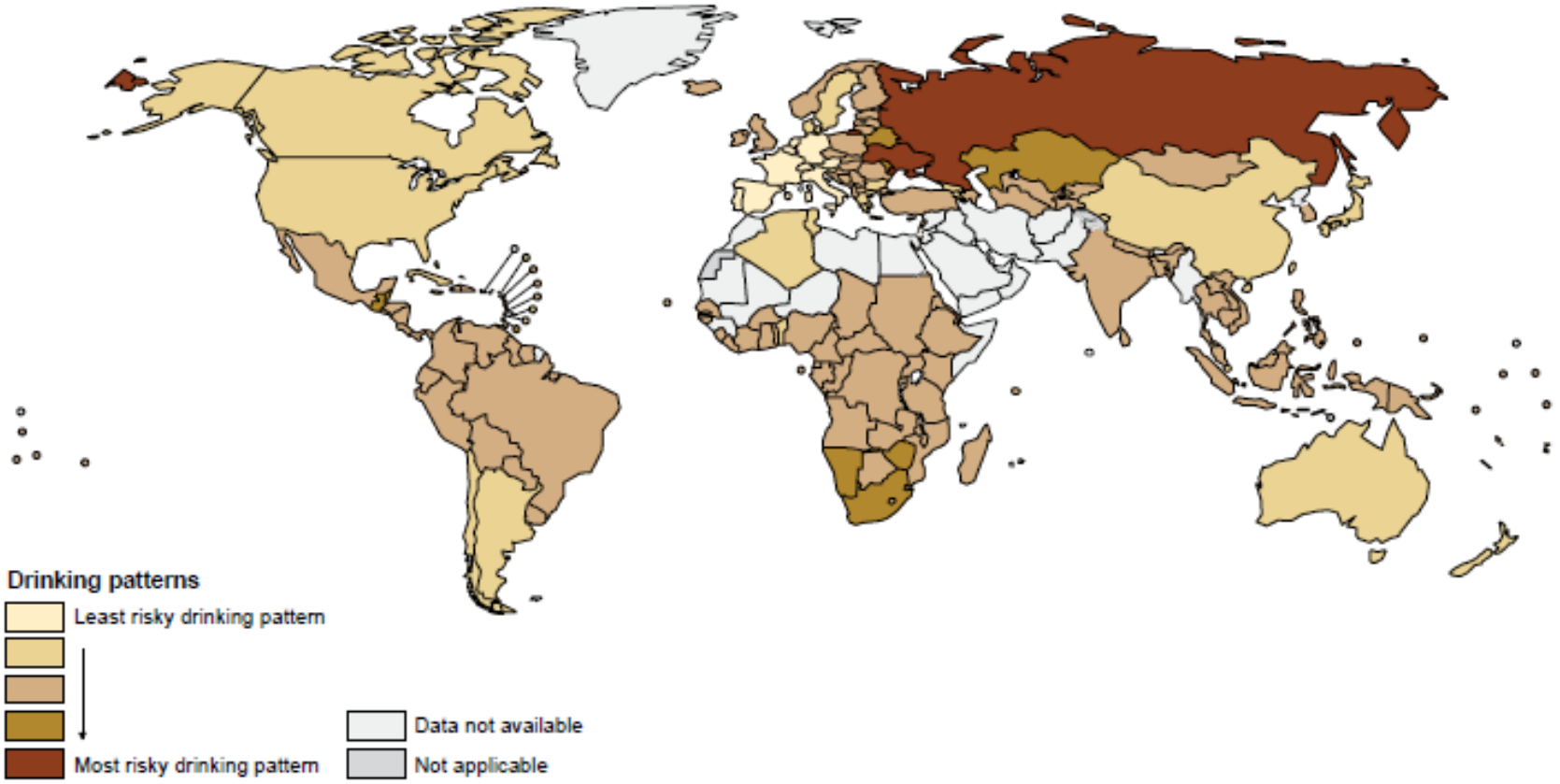
Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Figure 7. Prevalence of heavy episodic drinking among current drinkers (%; 15+ years), 2010



Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Figure 8. Patterns of drinking score (15+ years), 2010



Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Alcohol and Global Health, 2012

- 3.3 million deaths annually attributable to alcohol misuse
- 5.9% of all deaths (5th leading cause of death)
- Leading risk factor for death for males ages 15-59
- 5.1% global burden of disease: disability adjusted life years (DALYs) (5th leading cause of DALYs)
- Among the top 5 risk factors for disease, disability, and death
- Alcohol misuse a causal factor in more than 200 diseases and injury conditions: intentional and unintentional, e.g.:
  - Alcohol dependence
  - Liver cirrhosis
  - Injuries: Intentional and unintentional
  - Tuberculosis
  - HIV/AIDS
  - Pneumonia
  - Neuropsychotic conditions: Depression and anxiety disorders
  - Fetal Alcohol Syndrome

Drug Use and Consequences: United Nations' Office on Drugs and Crime: World Drug Report, 2014

- 183,000 drug-related deaths (2012)
- 162 million to 324 million had used an illicit drug (3.5-7% of the world's population ages 15-64

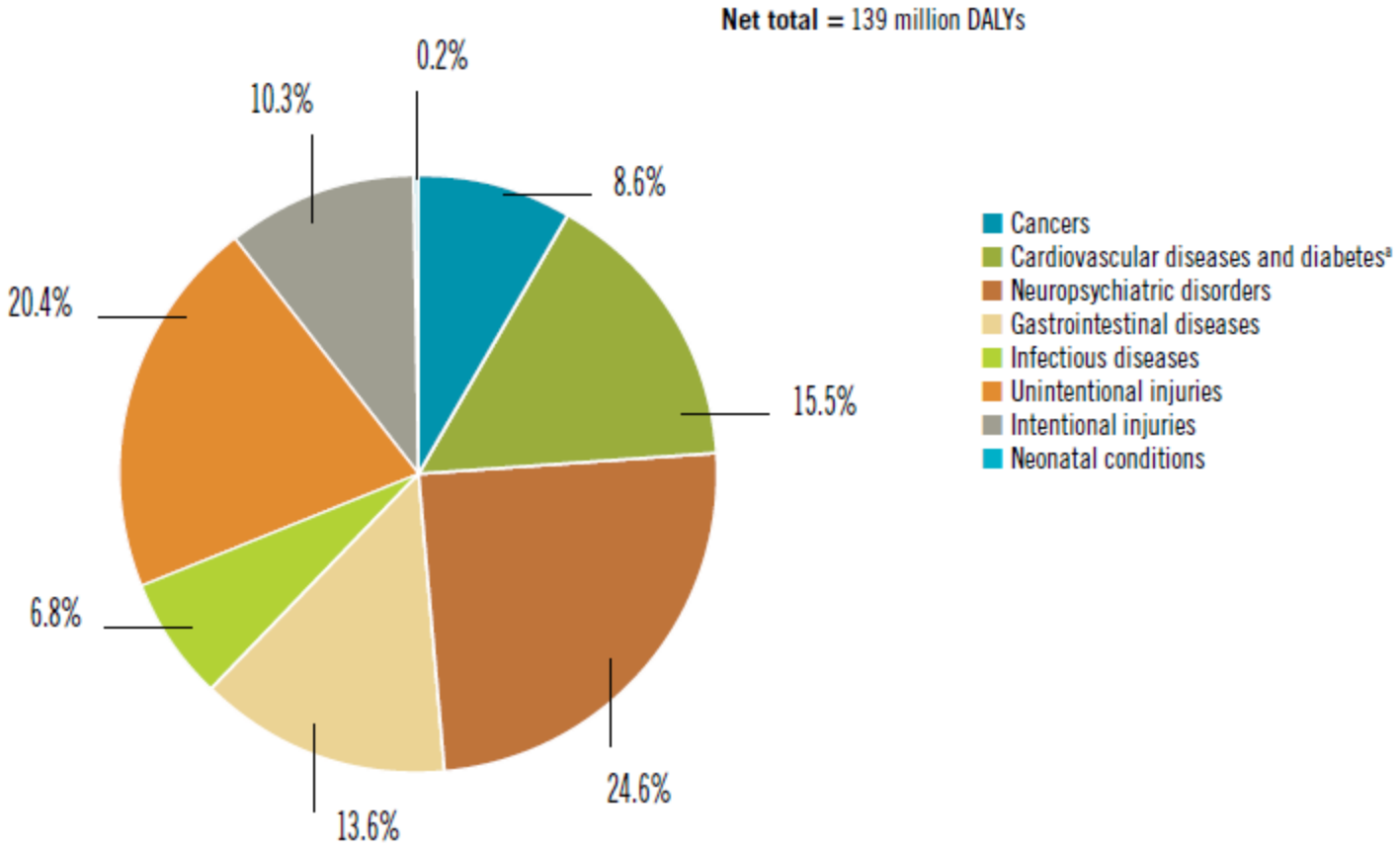
Mainly	Best estimate in millions
Cannabis	178
Opioid	33
Cocaine	17
Amphetamine-type stimulant	34
Ecstasy	19

- 3.6 million years of life lost
- 16.4 million years lived with disability
- 20 million disability adjusted life years
- 2 million years of life lost to HIV transmitted by injecting drugs

Alcohol Misuse: Social Costs

- Cost to society: 1.3%-3.3% gross domestic product
- $300-400 per person annually
- Harms to others:
  - Injuries: assaults, homicides, traffic crashes
  - Neglect, abuse
  - Default on social role
  - Property damage
  - Fetal Alcohol Syndrome
  - Family disruption

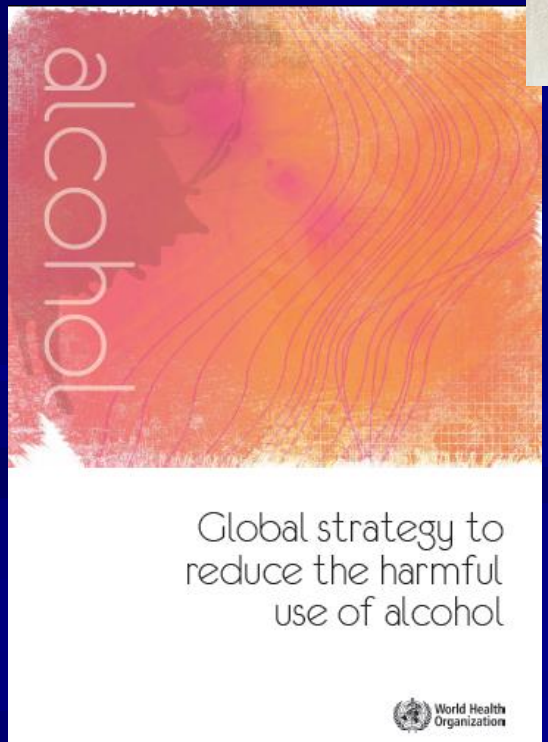
Figure 18. Distribution of alcohol-attributable burden of disease, as a percentage of all alcohol-attributable DALYs by broad disease category, 2012

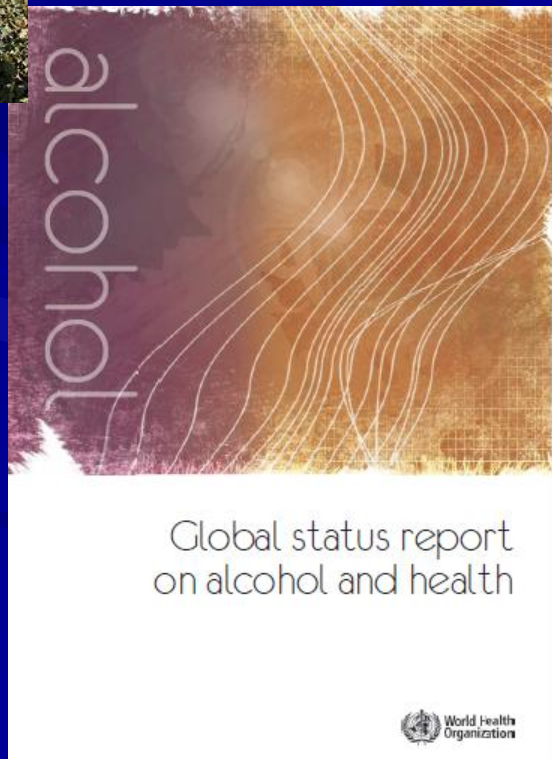


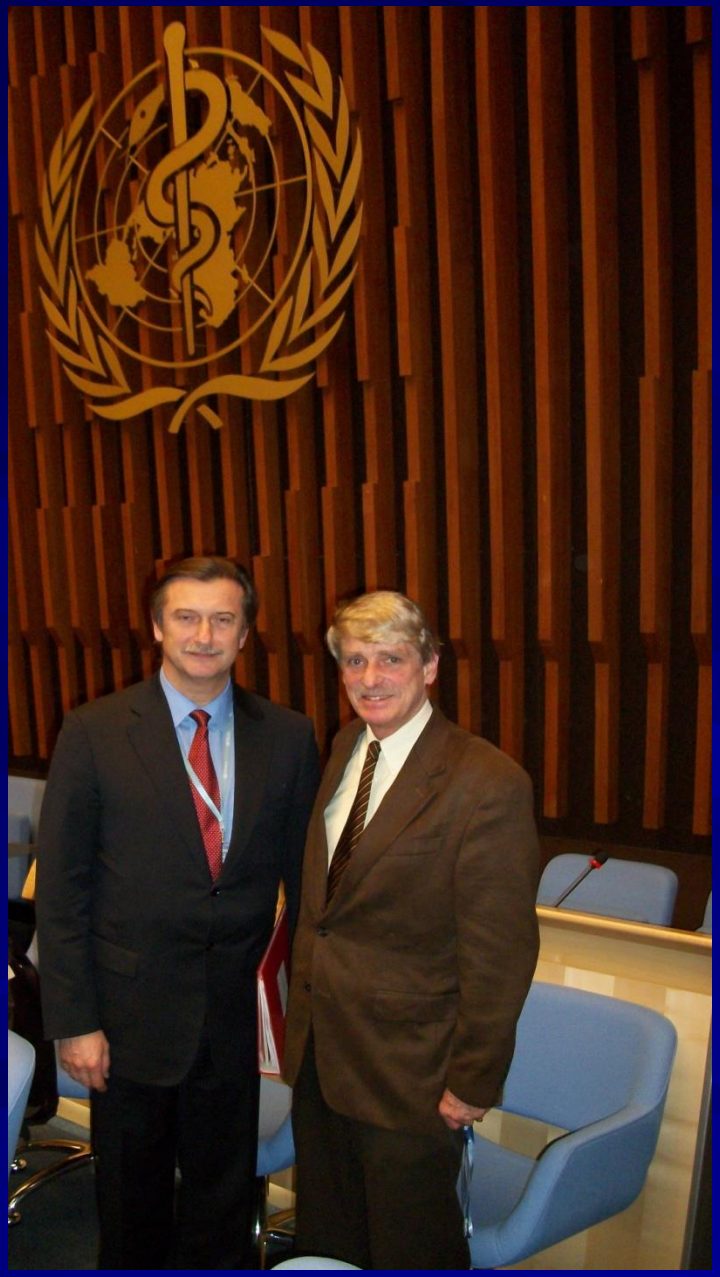
[a] Including beneficial effects of low-risk drinking patterns on some diseases.
Note: Percentages may not add up to 100% due to rounding.

Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Two International Meetings to Promote the Strategic Plan, Geneva, Switzerland, February 2011, May 2014








World Health Organization
Alcohol
and society
The third leading risk factor for global health
Harmful use of alcohol can destroy families, damage the fabric of communities and hinder social development
Alcool et société
www.who.int/substance_abuse

WHO Global Strategy to Reduce the Harmful Use of Alcohol

- **Five Objectives:**

1) Raise global awareness and nature of the health, social, and economic problems caused by harmful use of alcohol and increase commitment by governments to address harmful use of alcohol
2) Strengthen knowledge base on the magnitude and determinants of alcohol-related harm and on effective interventions to reduce harm
3) Increase support to and enhance capacity of member states to prevent harmful use of alcohol and manage alcohol use disorders and associated health conditions
4) Strengthen partnerships and better coordination among stake holders and increase mobilization of resources required for appropriate and concerted action to prevent harmful use of alcohol
5) Improve systems for monitoring and surveillance and disseminate information for advocacy policy development and evaluation

WHO Global Strategy to Reduce the Harmful Use of Alcohol

- **10 Recommended Target Areas:**

1) Leadership, awareness, and commitment
2) Health services response
3) Community action
4) Drink-Driving policies and countermeasures
5) Availability of alcohol (tax, outlet density, MLDA)
6) Marketing of alcoholic beverages
7) Pricing policies
8) Reducing the negative consequences of drinking and alcohol intoxication
9) Reducing the public health impact of illicit alcohol production and informally-produced alcohol
10) Monitoring and surveillance

1) Leadership, Awareness, and Commitment

- Develop or strengthen national and subnational strategies
- Establish or appoint a main institution or agency responsible for follow-up on national strategies and plans
- Coordinate alcohol strategies with work in other relevant sectors, including different levels of government and other health strategies and plans
- Ensure broad access to information and effective education and public awareness programs about alcohol-related harm and need for effective preventive action
- Raise awareness of harm to others and vulnerable groups while discouraging discrimination against individuals and groups

Leadership awareness and commitment

- Overall, 66 (39%) of reporting countries have written national alcohol policies
- An increase from the 59 (36%) reporting countries in 2008
- 30 countries have adopted these policies formally through the national government, 18 through the national parliament, 13 through a specific ministry and five through another national body
- Twelve countries reported adopting their national alcohol policy since 2010,

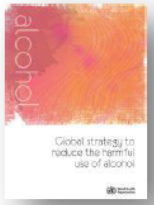
4) Drunk Driving Policies and countermeasures

- Introducing and enforcing an upper limit for blood alcohol concentration, with a reduced limit for professional drivers and young or novice drivers
- Promoting sobriety check points and random breath-testing
- Administrative suspension of driving licenses
- Graduated licensing for novice drivers with zero-tolerance for drink-driving
- Using an ignition interlock, in specific contexts where affordable, to reduce drink-driving incidents
- Mandatory driver-education, counselling, and as appropriate, treatment programs
- Encouraging provision of alternative transportation, including public transport until after the closing time for drinking places
- Conducting public awareness and information campaigns in support of policy and to increase the general deterrence effect
- Running carefully planned, high-intensity, well-executed mass media campaigns targeted at specific situations, such as holidays, or audiences such as young people

Source: WHO Global Strategy to Reduce Harmful Alcohol Use, 2014: Implementation Kit

10) Monitoring and Surveillance

- Establishing effective frameworks for monitoring and surveillance activities including periodic national surveys on alcohol consumption and alcohol-related harm and a plan for exchange and dissemination of information
- Establishing or designating an institution or other organizational entity responsible for collecting, collating, analyzing, and disseminating available data, including publishing annual reports
- Defining and tracking a common set of indicators of harmful use of alcohol and of policy responses and interventions to prevent and reduce such use
- Creating a repository of data at the country level based on internationally agreed indicators and reporting data in the agreed format to WHO and other relevant international orgs
- Developing evaluation mechanisms with the collected data to determine the impact of policy measures, interventions, and programs put in place to reduce the harmful use of alcohol



Global Surveys

2002: Global Alcohol Policy survey

2008: Global Survey on Alcohol and Health
(consumption, harm and policy integrated)

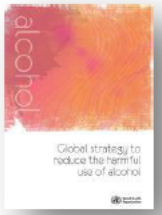
2012: Global Survey on Alcohol and Health through DataCol online data collection

A. Proposed indicators for each of the ten recommended target areas for national action	
1. Leadership, awareness and commitment	
a	An adopted written national policy on alcohol
b	Action plan for implementation of the national policy on alcohol *
2. Health services' response	
a	Number of beds available for treatment of alcohol use disorders per 100 000 population
b	Annual number of health professional trained on identification and management of hazardous drinking and alcohol use disorders per 100 000 population
c	Number of health professionals with specialization in identification, diagnosis and management of alcohol or substance use disorders per 100 000 population
3. Community action	
	National government support to communities to reduce the harmful use of alcohol *
4. Drink-driving policies and countermeasures	
a	Legal blood alcohol concentration (BAC) limit when driving a vehicle, for the general population, young and novice drivers, and professional and commercial drivers, respectively
b	Random breath testing
c	Sobriety checkpoints *
d	Suspension of driving license *
e	Mandatory driver education for habitual offenders

5. Availability of alcohol	
a	Monopoly and licensing on production and sale of alcohol
b	Restrictions for on-/off-premise sales of alcoholic beverages
c	On-premise restrictions on sales of alcoholic beverages to intoxicated persons
d	Age limit for on-premise alcohol service and off-premise alcohol purchase
e	Restrictions on alcohol use in public places
6. Marketing of alcoholic beverages	
a	System of surveillance of marketing of alcohol products *
b	Penalties for infringements on marketing restrictions *
7. Pricing policies	
	Trend in real price of alcoholic beverages relative to consumer price index (CPI) over the past five years

8. Reducing the negative consequences of drinking and alcohol intoxication	
a	Health warning labels on alcohol containers
b	Consumer information about calories, additives, vitamins, micro elements, standard alcoholic drink on alcohol containers *
9. Reducing the public health impact of illicit alcohol and informally produced alcohol	
a	Duty paid or excise stamp on alcohol container
b	Rules to prevent illegal production and sale of home- or informally produced alcohol
c	Legislation to prevent illegal production and sale of home- or informally produced alcohol *
10. Monitoring and surveillance	
	System for monitoring alcohol-related harm

* Not yet included in the Global Information System on Alcohol and Health (GISAH)

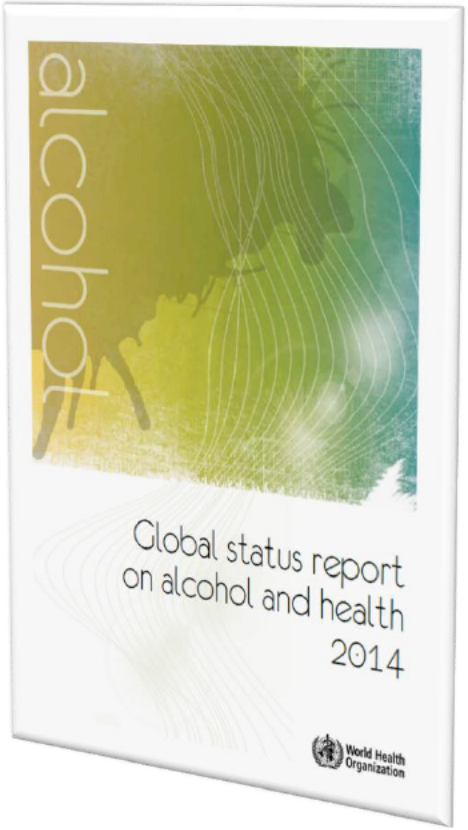


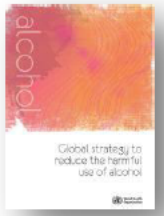
The Content

- Chapter 1: Alcohol and public health
- Chapter 2: Alcohol consumption
- Chapter 3: Health consequences
- Chapter 4: Alcohol policy and interventions

Appendices

- Country profiles
- Additional indicators
- Data sources and methods
- References





Country profiles: key indicators

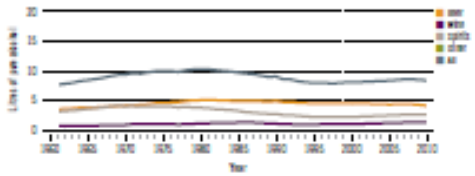
- Recorded (time series), unrecorded, total (among drinkers, males, females) alcohol per capita (15+ years) consumption
- Abstainers, heavy episodic drinking (among drinkers), patterns of drinking score
- Age-standardized death rates and alcohol-attributable fractions (liver cirrhosis, road traffic accidents), years of life lost score
- Alcohol use disorders, alcohol dependence
- Adopted written national policy and national action plan
- Excise tax
- Age limits for on-premise service and off-premise purchase
- Sales restrictions (time, location, events, intoxicated persons, petrol stations)
- Blood alcohol concentration (BAC) limits
- Restrictions on advertising, product placement, sponsorship, sales promotion
- Warning labels
- Community action
- Monitoring systems

United States of America

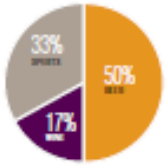
Total population: 312 000 000 ➤ Population aged 15 years and older (15+): 80% ➤ Population in urban areas: 82% ➤ Income group (World Bank): High income

ALCOHOL CONSUMPTION: LEVELS AND PATTERNS

Recorded alcohol per capita (15+) consumption, 1961–2010



Recorded alcohol per capita (15+) consumption (in litres of pure alcohol) by type of alcoholic beverage, 2010



Alcohol per capita (15+) consumption (in litres of pure alcohol)

	Average 2003–2005	Average 2008–2010	Change
Recorded	8.5	8.7	➡
Unrecorded	1.0	0.5	↘
Total	**8.5**	**9.2**	➡
Total males / females	13.6 / 4.9		
WHO Region of the Americas	9.2	8.4	

Total alcohol per capita (15+) consumption, drinkers only (in litres of pure alcohol), 2010

Males (15+)	18.1
Females (15+)	7.8
Both sexes (15+)	13.3

Prevalence of heavy episodic drinking* (%), 2010

	Population	Drinkers only
Males (15+)	23.2	30.9
Females (15+)	10.9	17.3
Both sexes (15+)	16.9	24.5

*Consumed at least 60 grams or more of pure alcohol on at least one occasion in the past 30 days.

Abstainers (%), 2010

	Males	Females	Both sexes
Lifetime abstainers (15+)	6.2	17.4	12.0
Former drinkers* (15+)	18.6	19.6	19.1
Abstainers (15+), past 12 months	24.8	37.0	31.1

*Persons who used to drink alcoholic beverages but have not done so in the past 12 months.

Patterns of drinking score, 2010 — LEAST HEAVY < 1 **2** 3 4 5 > WORST HEAVY

HEALTH CONSEQUENCES: MORTALITY AND MORBIDITY

Age-standardized death rates (ASDR) and alcohol-attributable fractions (AAF), 2012

	ASDR*		AAF (%)	
Liver cirrhosis, males / females	14.9	7.1	60.6	62.4
Road traffic accidents, males / females	18.6	7.0	12.4	4.2

*Per 100 000 population (15+).

Years of life lost (YLL) score*, 2012 — LEAST < 1 2 3 **4** 5 > WORST

*Based on alcohol-attributable years of life lost.

Prevalence of alcohol use disorders and alcohol dependence (%), 2010*

	Alcohol use disorders**	Alcohol dependence
Males	10.7	6.9
Females	4.2	2.6
Both sexes	7.4	4.7
WHO Region of the Americas	6.0	3.4

*12-month prevalence estimates (15+).
**Including alcohol dependence and harmful use of alcohol.

POLICIES AND INTERVENTIONS

Written national policy (adopted/revised) / National action plan	Yes (2011/2012) / Yes
Excise tax on beer / wine / spirits	Yes / Yes / Yes
National legal minimum age for off-premise sales of alcoholic beverages (beer / wine / spirits)	21 / 21 / 21
National legal minimum age for on-premise sales of alcoholic beverages (beer / wine / spirits)	21 / 21 / 21
Restrictions for on-/off-premise sales of alcoholic beverages:	
Hours, days / places, density	Subnational / Subnational
Specific events / intoxicated persons / petrol stations	

National maximum legal blood alcohol concentration (BAC) when driving a vehicle (general / young / professional), in ‰	0.08 / Subnational / 0.04
Legally binding regulations on alcohol advertising / product placement	No / No
Legally binding regulations on alcohol sponsorship / sales promotion	No / No
Legally required health warning labels on alcohol advertisements / containers	Yes / Yes
National government support for community action	Yes
National monitoring system(s)	Yes

Global Road Safety: Traffic Crashes

- 1.3 million deaths- 2010
- 46% increase in 20 years
- 8th leading cause of death
- Leading cause of death: ages 15-29
- 60% between 15-44
- 20-50 million injuries annually
- 10th cause of DALYs (death and disability)
- 181 million people living with disabilities from road crash injuries
- 2007-2010: road traffic deaths decreased in 88 countries and increased in 87 countries

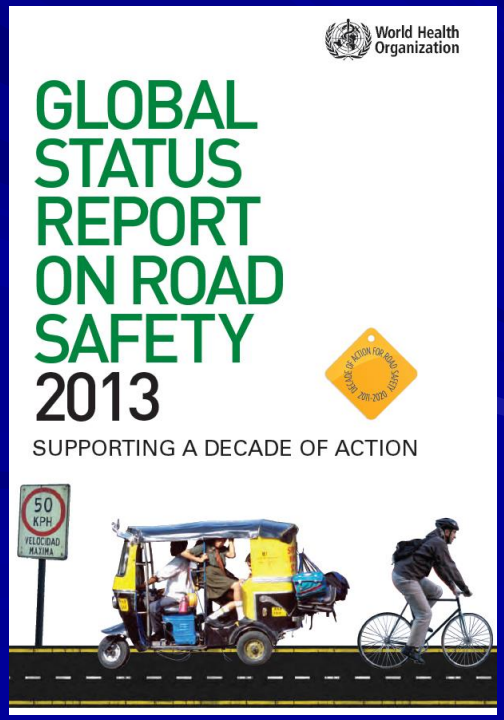
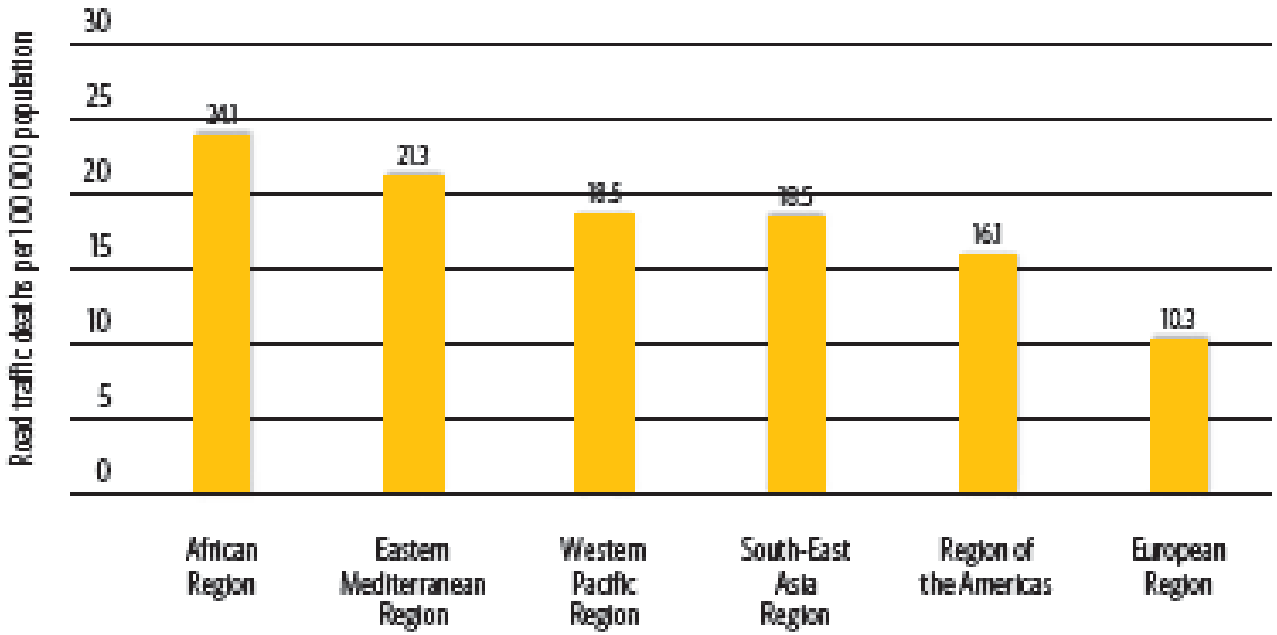


Figure 6

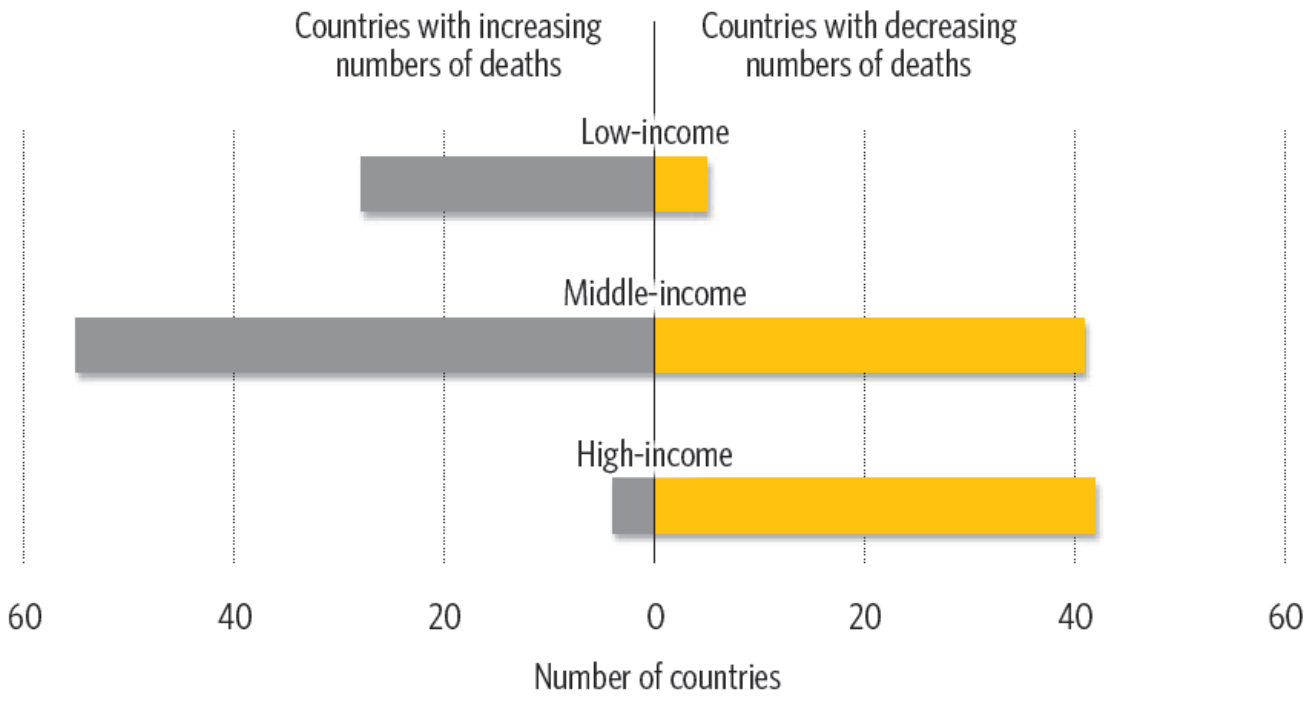
Road traffic deaths per 100 000 population, by WHO region



Source: WHO, Global Status Report on Road Safety: 2013

Figure 3

Countries with changes in numbers of road traffic deaths (2007–2010), by country income status[a]



a See Table A2 in Statistical Annex for information on income-level classifications

Source: World Health Organization, Global Status Report on Road Safety, 2013

Low/Middle Income Countries

- Traffic deaths and injuries are increasing
- 90% of traffic deaths worldwide
  - Twice the death rate/100,000 as high income countries
  - Less than ½ registered vehicles
- Nearly half of traffic deaths are:
  - Pedestrians
  - Motor cyclists, bicyclists, or passengers in public transport
- Traffic deaths in 2013 cost 1-2% of gross domestic product

Source: World Health Organization, Global Status Report on Road Safety, 2009, 2013

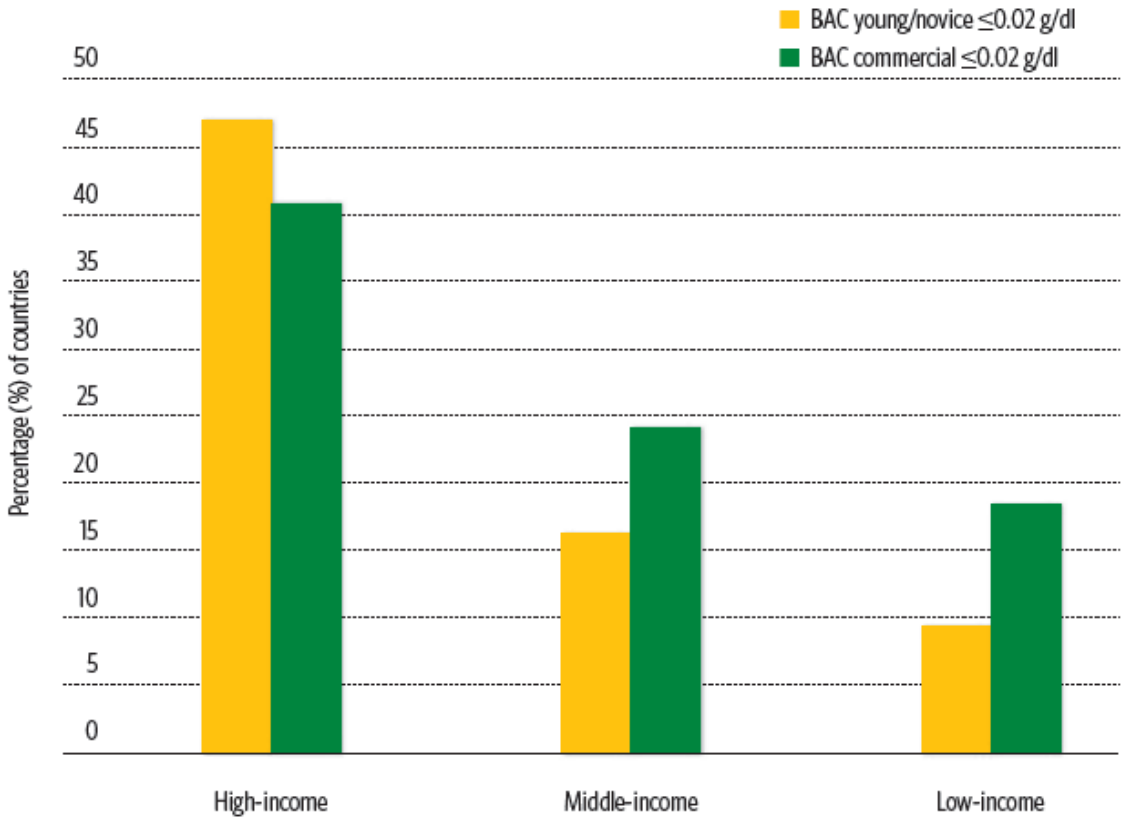
Alcohol in Fatal Crashes

- Reports from 93 countries
- In 29% of countries, 30% or more of fatal crashes involve alcohol
- WHO recommends 0.05% legal BAC
  - 89 of 177 countries with legal BAC limits have a BAC of 0.05% or lower (66% of world population)
  - 34 countries have no drink driving laws

Sources: World Health Organization, Global Status Report on Road Safety, 2009; World Health Organization, Global Status Report on Alcohol and Health, 2014

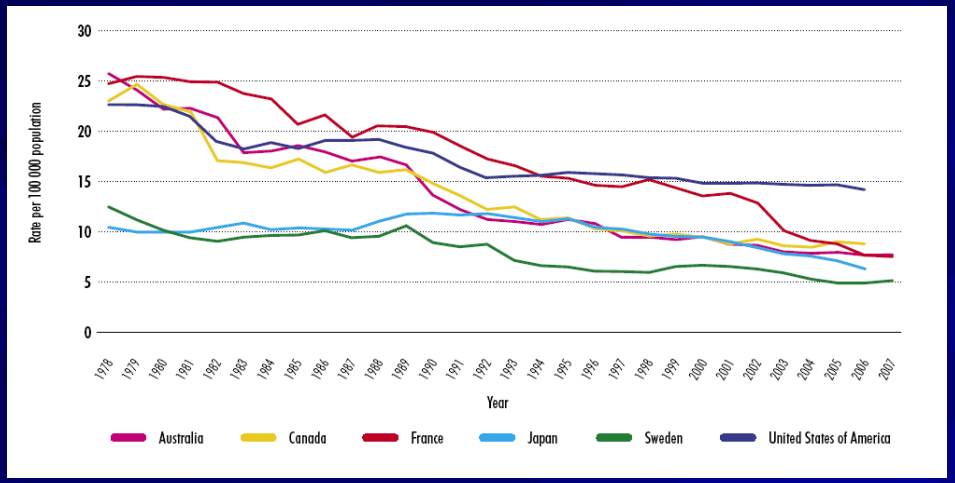
Figure 15

Proportion of countries with lower blood alcohol concentration (BAC) limits for high-risk groups of drivers



Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Trends in Road Traffic Safety Rates in Selected High-Income Countries



Source: World Health Organization, Global Status Report on Road Safety, 2009

- Alcohol-Related traffic deaths have declined since the early 1980s in many high-income countries, including:
  - Australia
  - Canada
  - France
  - Germany
  - The Netherlands
  - Sweden
  - United Kingdom
  - United States

Source: Sweedler and Stewart, "Worldwide Trends in Alcohol and Drug Impaired Driving," in Drugs, Driving and Traffic Safety, Verster et al. (Eds.), Birkhauser Verlag AG, 2009

Concern

- Alcohol-Related Fatal Crashes will increase in developing countries:
  - Increase in motor vehicle crashes
  - Increases in per capita alcohol consumption

"Economic Development is usually associated with an increase in levels of both alcohol consumption and alcohol problems"

-- Room et al. European Addiction Research (2003)

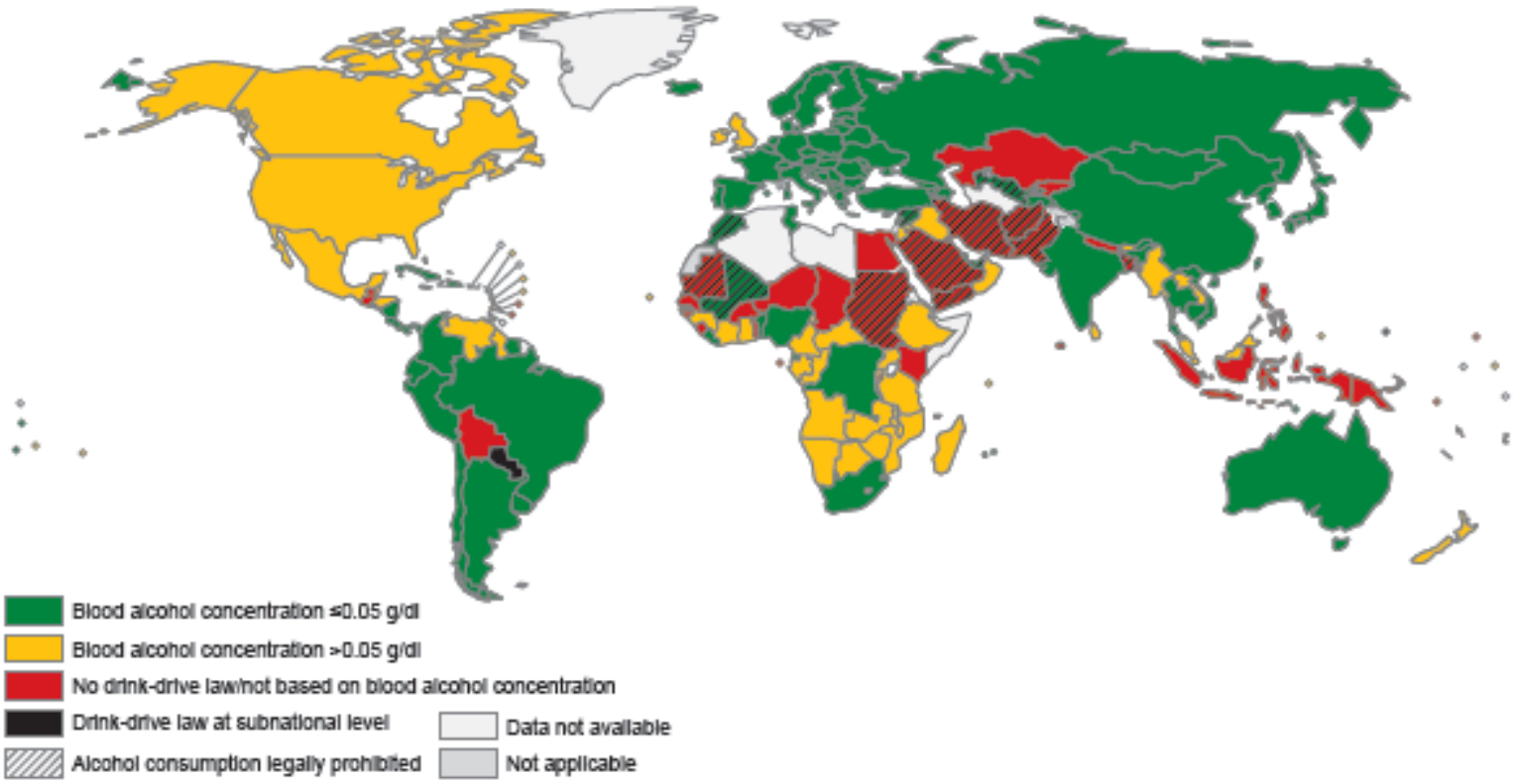
Percent of World Population Covered by Comprehensive Legislation

Legislation	Percentage
Drink Driving	67
Helmets	77
Seat belts	68
Speeding	38
Child restraints	33

- Since 2008, 35 countries passed new laws in these areas
- Only 7% of the world's population (449 million) is covered by comprehensive laws in all 5 areas (28 countries)

Source: World Health Organization, Global Status Report on Road Safety, 2009

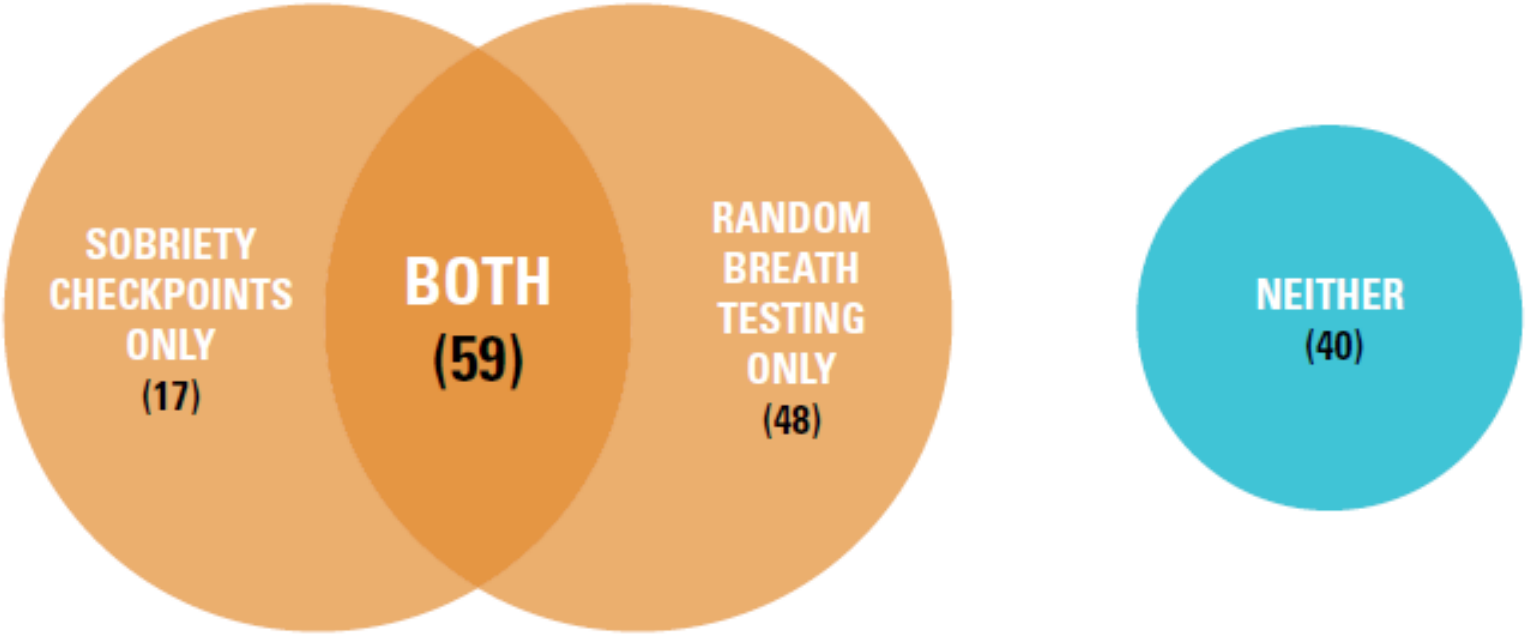
Figure 14
Drink–drive laws, by country/area



Source: World Health Organization, Global Status Report on Road Safety, 2013

Figure 30. Methods of enforcing the maximum legal BAC, by number of countries, 2012

(*n* = 165 countries reporting on sobriety checkpoints and 166 countries reporting on random breath testing)



Source: World Health Organization, Global Status Report on Alcohol and Health, 2014

Data Monitoring Needs

- Almost half of all countries lack data on alcohol-related traffic deaths
- 109 countries (62%) did a national alcohol survey since 2000
- 93 countries (53%) did a youth survey

Alcohol Attributable Deaths in the United States, Annual Average, 2006-2010

- 87,798 (twice the number of drug deaths)
- 4th leading cause of preventable deaths
- Injury (including poisoning): 49,544
- Chronic disease: 38,253
- 5,754 alcohol attributable deaths are ages 18-24
- Nearly 4,358 injury deaths under 21

Sources: CDC, ARDI and WISQARS, 2016

CDC Reports Excessive Alcohol Consumption

- **Costs the U.S. $224 Billion in 2006 ($746 per person)**
  - **72% lost work place productivity**
  - **11% heathcare expenses**
  - **9% law enforcement and criminal justice expense**
  - **6% impaired driving and motor vehicle crashes**
- 42% of costs paid by federal, state, and local government
- 42% paid by excessive drinkers and their families
- 16% paid by others in society
- Three-quarters of costs result from binge drinking (exceeding NIAAA daily low-risk guidelines).
- 12% from underage drinking

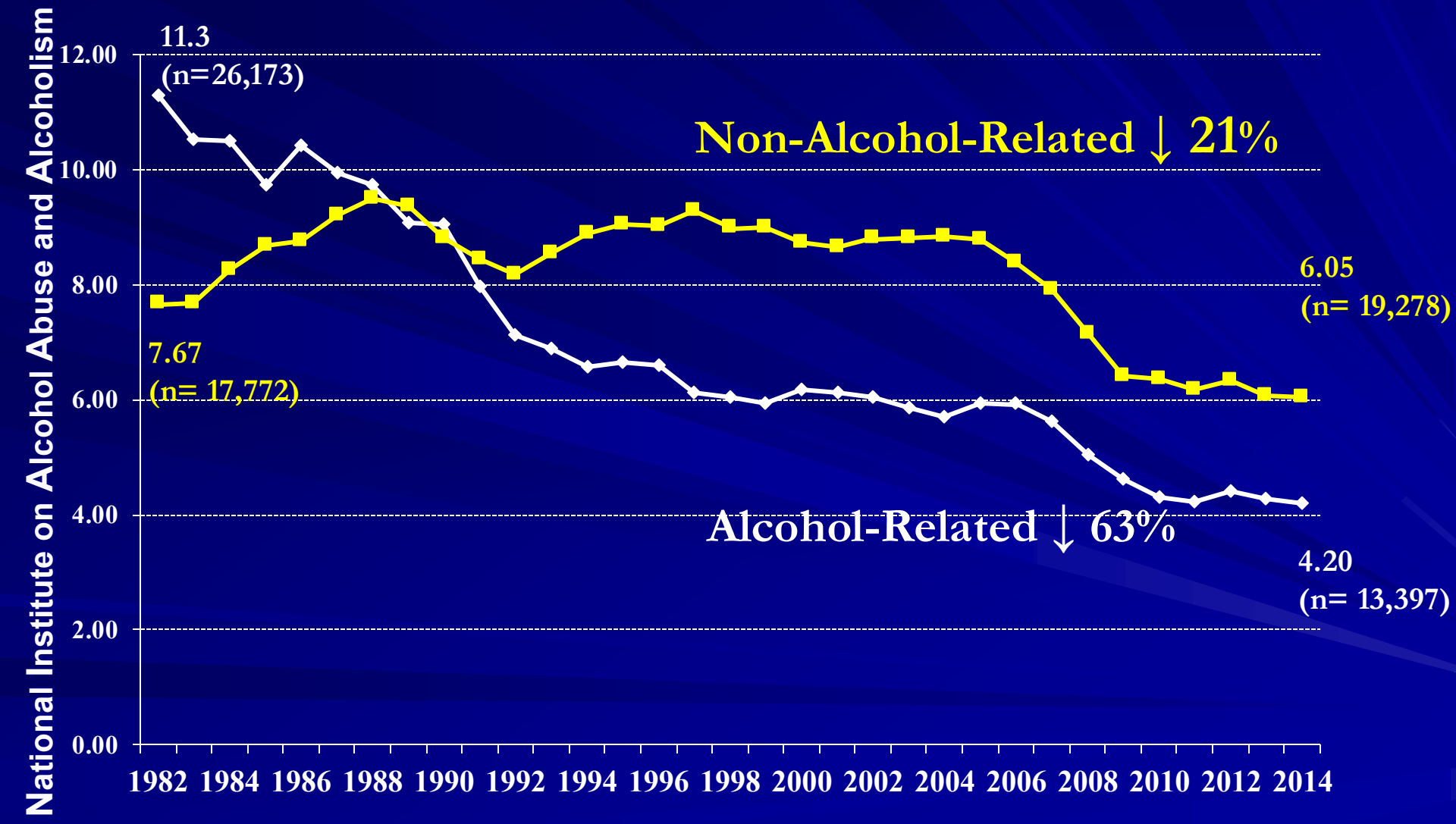
Alcohol Attributable Deaths: Annual Average, 2006-2010

Acute Conditions 49,544

Motor Vehicle Traffic	12,460
Homicide	7,756
Suicide	8,179
Falls	7,541
Poisoning (Not alcohol)	8,404
Poisoning (Alcohol)	1,647
Fire Injuries	1,089
Drowning	963
Other	1,505

Source: CDC: ARDI, 2014

Alcohol- vs. Non-Alcohol-Related Traffic Fatalities, Rate Per 100,000, All Ages, United States, 1982-2014



Sources: National Highway Traffic Safety Administration, 2016; U.S. Census Bureau, 2016

- From 1982-2001 in the U.S, 153,168 lives were saved by decreased drinking and driving. This is more than the combined numbers of lives saved by increased use of
  - Seat belts 129,297
  - Airbags 4,305
  - Motorcycle helmets 6,475
  - Bicycle helmets 239

  Total 140, 316

- Over 300,000 deaths were prevented according to more recent estimates

Sources: Cummings, Rivara, Olson, Smith. Injury Prevention, 2006; Fell & Voas, Traffic Injury Prevention, 2006

- One reason for this dramatic progress is that most fatally injured drivers are tested for alcohol, and alcohol involvement is reported by community and state on an annual basis.

- In states where not all drivers are tested for alcohol, the National Highway Traffic Safety Administration (NHTSA) uses an “imputation formula” and multiple imputation methods to estimate which fatal crashes involved alcohol.

Source: NHTSA, Transforming to Multiple Imputation: A New Method to Estimate Missing Blood Alcohol Concentration (BAC) Values in FARS, NHTSA Technical Report, DOT 809403, 2002.

National Institute on Alcohol Abuse and Alcoholism

U.S. Department of Transportation

NHTSA
www.nhtsa.gov

TRAFFIC SAFETY FACTS 2014

A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System

- This permits evaluation of laws aimed at reducing drinking and driving, by comparing fatal crash trends in states that pass such laws with states that do not (e.g. per se laws, ALR, minimum legal drinking ages, & illegal blood alcohol limits).
- Community programs to reduce drunken driving, e.g.:
  - Saving Lives Program
  - Communities Mobilizing for Change
  - Community Trials
  - Fighting Back

Increased Risk of Driver Single Vehicle Crash Death at Various BACs Relative to Sober Drivers

Driver Age	Blood Alcohol Concentration (BAC)				
	0.02-0.049%	0.05-0.079%	0.08%-0.099%	0.100-0.149%	0.150+
16-20	3.8	12.2	31.9	122.4	4728.0
21-34	3.4	9.7	23.2	78.7	2171.5
35+	3.3	9.0	20.9	68.1	1684.9

Source: Voas et al., JSAD, 2012

- Risk of death increases with higher BAC
- Risk is highest for drivers ages 16-20

Key Strengths MADD

- Support victims – channel victim energy
- Personalizes the problem – anyone can be affected
- Family – Mothers Against Drunk Driving
- Clear measurable goals
- Attention to research findings
- Grassroots – inclusive (everyone can be part of the solution)

Poll says MADD is America's top charity

NRA at opposite end of survey

Countermeasures That Work:

A Highway Safety Countermeasure Guide For State Highway Safety Offices Eighth Edition, 2015

U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA
www.nhtsa.gov

Environmental Policy Interventions

- Legislation to reduce drinking & driving
  - Criminal per se laws
  - Administrative license revocation laws
  - Mandatory assessment & treatment laws
  - Primary safety belt laws
  - Ignition interlock for first offenders
  - Lower legal blood alcohol limits for convicted offenders
  - 0.08% criminal per se BAC level laws
  - Zero tolerance laws
- Enhanced enforcement- publicized sobriety checkpoints

Environmental Policy Interventions

- Legislation to reduce availability of alcohol
  - Minimum legal drinking age

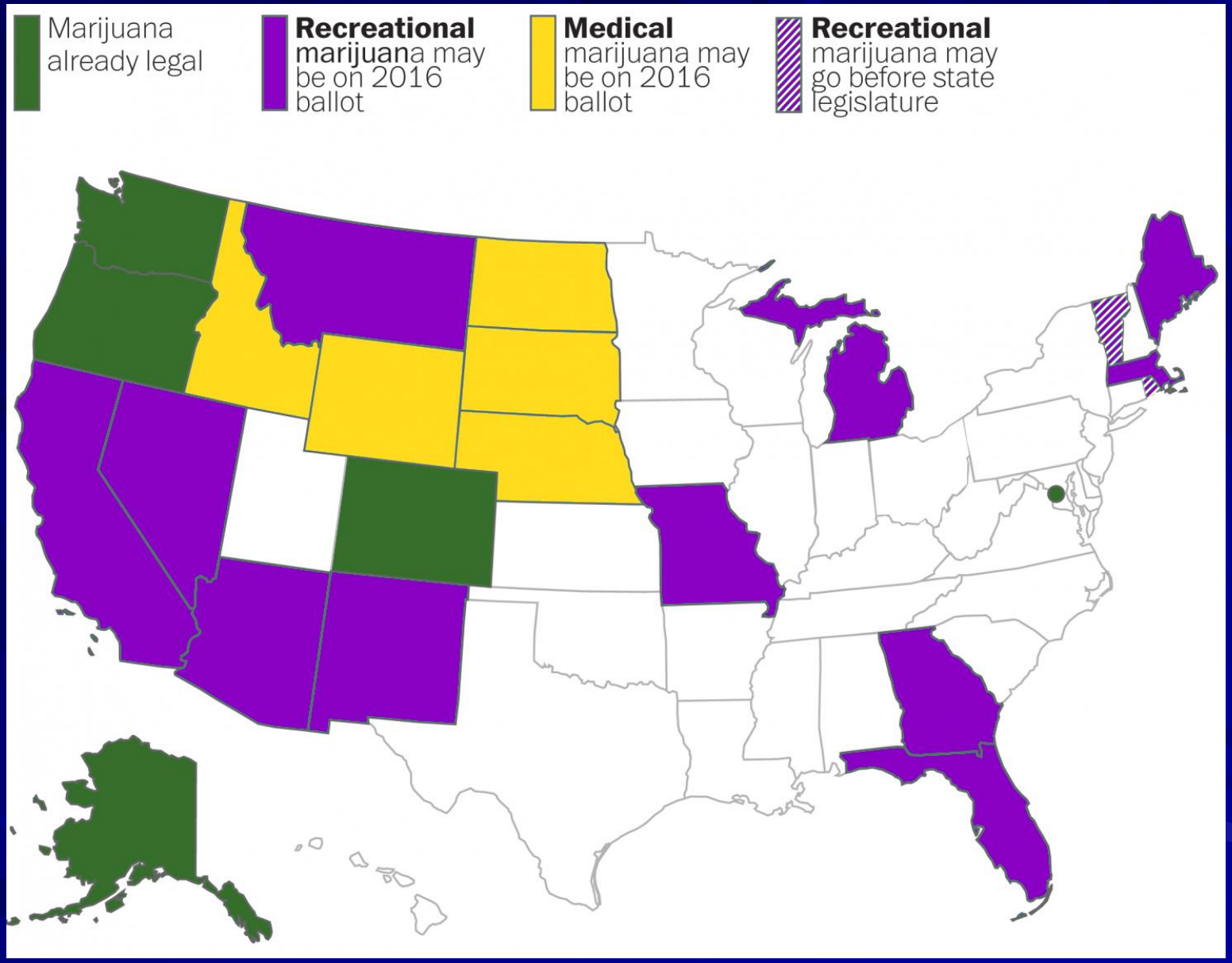
    (Shults et al., *Am. J. Prev. Med*., 2001; Wagenaar & Toomey, *J. Stud Alcohol Drugs*, 2002; Institute of Medicine, 2004)
  - Reduce alcohol outlet density

    (Gruenwald & Remer, *Alcohol: Clin. Exp. Res*., 2006; Campbell et al., *Am J Prev Med*, 2009)
  - Increase price

    (Wagenaar et al., *Addiction,* 2009; Institute of Medicine, 2004; Elder et al., *Am J Prev Med*, 2010; WHO, 2009; Maldonado-Molina & Wagenaar, *ACER*, 2010)

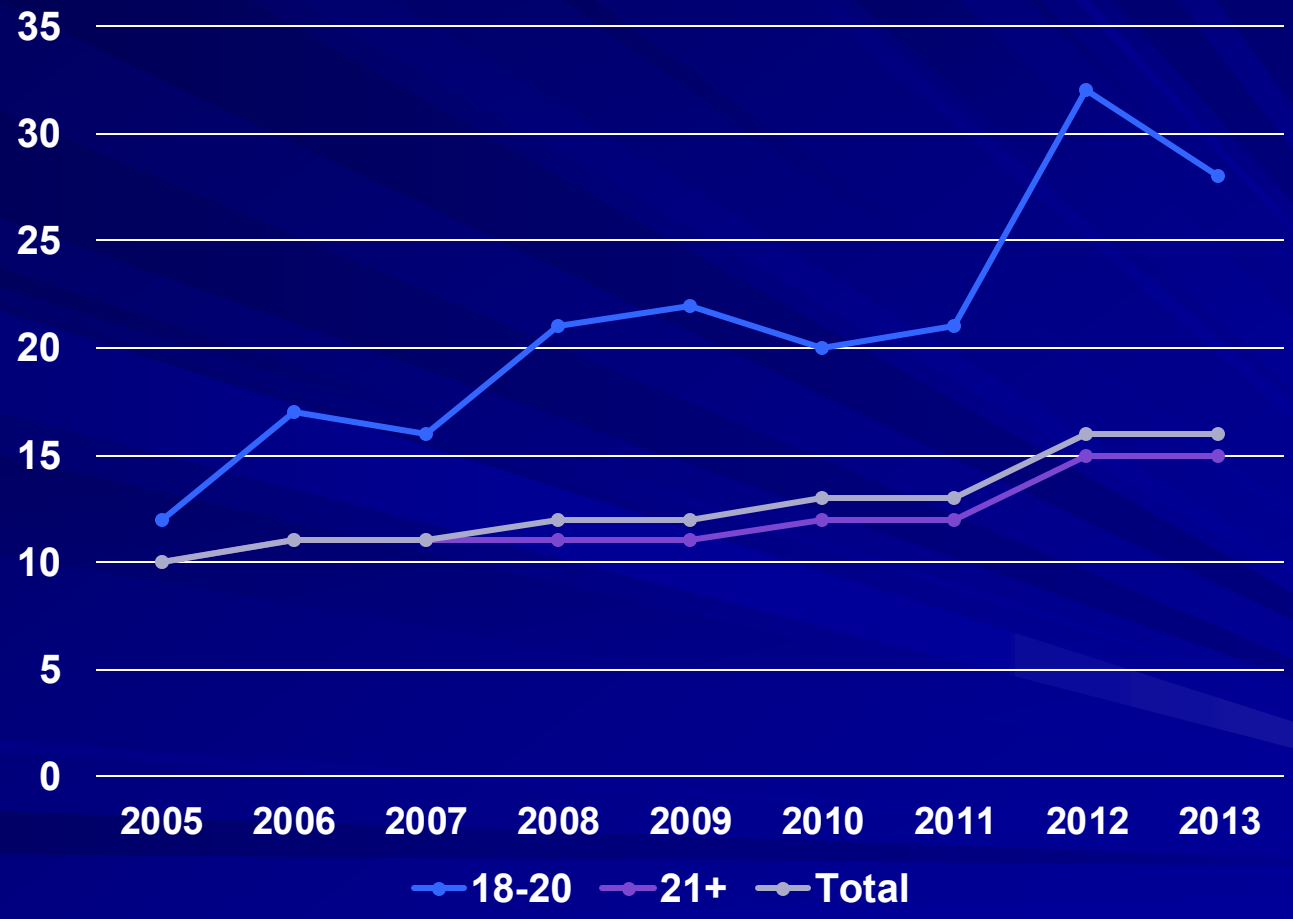
Growing Concern about Driving after Drug Use

- The latest National Roadside Survey (NHTSA, 2015) indicates that at night on weekends, a higher percentage of drivers test positive for drugs than alcohol (22.5% vs. 8.3%)
- Driving after drugs increased while driving after drinking decreased from 2007 to 2013/2014
- Only 22 states have either zero tolerance or per se laws making it illegal to drive with positive drug blood levels (Governors Highway Safety Association, 2016)



Source: Washington Post, 2016

Presence of Marijuana in Fatally Injured Drivers, 2005-2013: Nine States* that Test 70% or More of Fatally Injured Drivers for Both Alcohol and Drugs

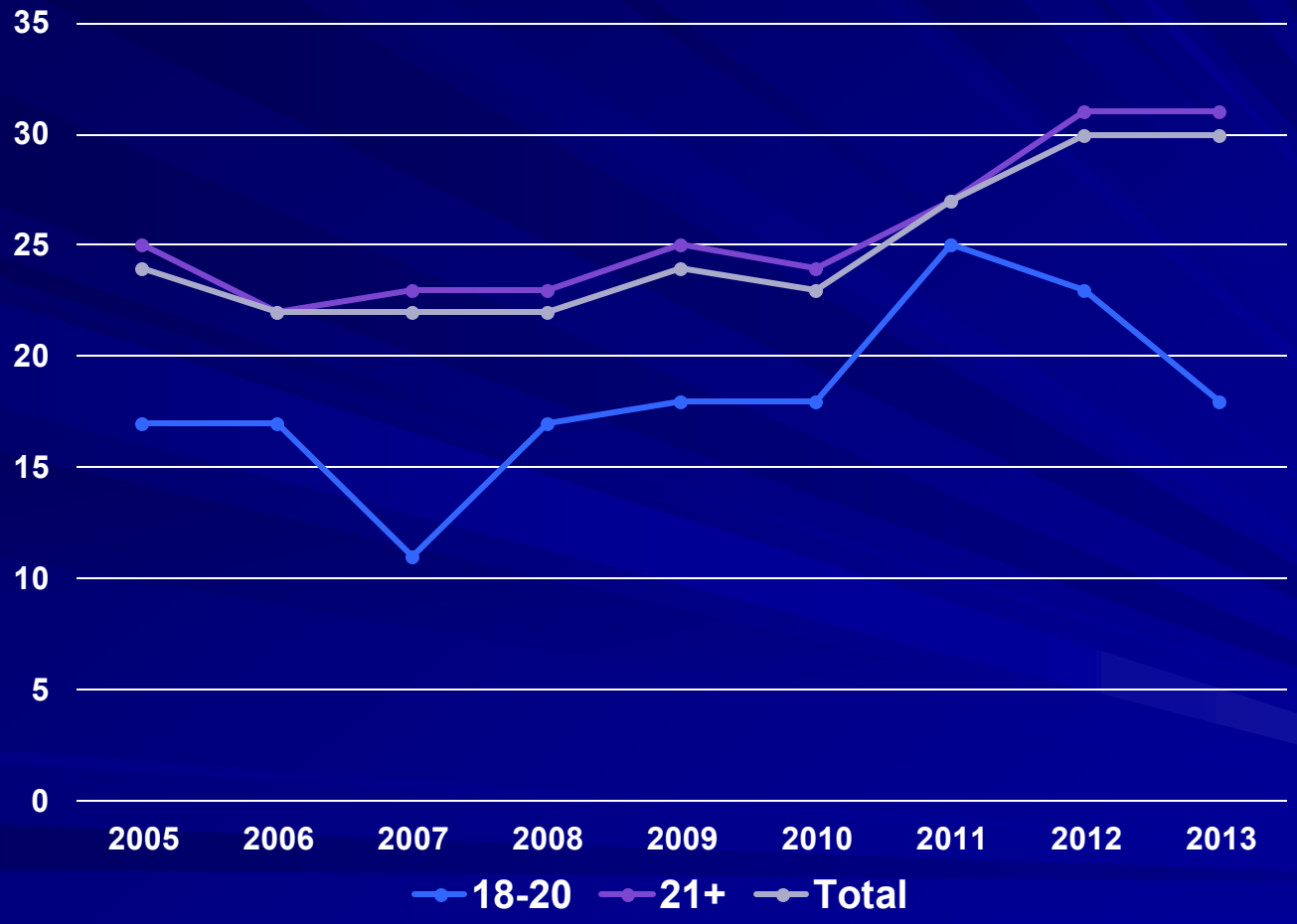


*CA, IL, MT, NH, NJ, RI, VT, WA, WV

Note: Percentages of fatal crashes involving marijuana are increasing

National Institute on Alcohol Abuse and Alcoholism

Presence of Other Drugs in Fatally Injured Drivers, 2005-2013: Nine States* that Test 70% or More of Fatally Injured Drivers for Both Alcohol and Drugs



*CA, IL, MT, NH, NJ, RI, VT, WA, WV

Note: Percentages of fatal crashes involving other drugs are increasing

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Key Facts: Alcohol-Impaired Driving

NEED SIMILAR INFO FOR DRUG DRIVING

1) 40% of people who die in crashes involving drinking drivers are people other than the drinking driver (50% with drinking drivers under age 25)
   - **Need to protect other people from drinking drivers**

2) The more severe the traffic crash, the greater the likelihood alcohol was involved:
   - 40% of traffic deaths are in alcohol-related crashes
   - 9% of people injured were in alcohol-related crashes
   - 5% of vehicle damage only
   - **Important to focus attention on traffic deaths**

Key Facts: Alcohol-Impaired Driving (cont.)

3) Only a small minority of drivers in alcohol-related fatal crashes have prior DUI convictions
   - **Underscores the importance of general deterrence in addition to specific deterrence**

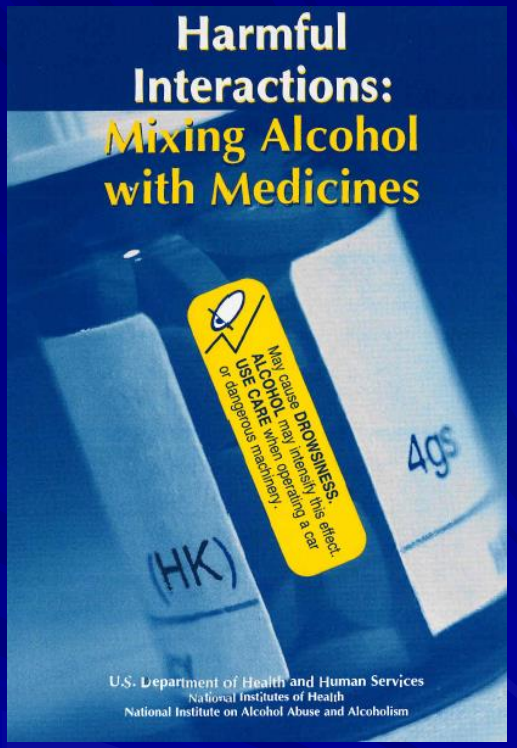
4) a. 32% of drivers recently in crashes under the influence of alcohol met DSM-IV alcohol dependence criteria, and 58% met alcohol abuse

   b. 35% of those dependents and 18% of those abusers received alcohol treatment during that period
   - **Need screening to identify more drinking drivers with alcohol dependence**

Source: NESARC, Waves 1 and 2

Research Priority #1: Alcohol, Drugs, and Driving

1. Need research to assess crash/fatal crash risk
   - Driving after various drugs
     - Alone/In combination
     - Relative to alcohol
     - Drugs and alcohol combined at various BACs
   - Risk to others
   - Risks for different age groups



Possible Types of Studies

- Experimental laboratory
  - Effect on cognitive tasks needed to safely operate a vehicle (e.g., simple reaction time, divided attention, tracking, recovery from glare, etc.)
- Road Course strudies
- Epidemiologic studies
  - Culpability studies
  - Case/control studies
  - Cohort studies

Strand et al. Driving under the influence of non-alcohol drugs, *Forensic Sci Rev*, 2016

- **Methods:**
  - Experimental studies on the impairing effects of drugs on driving-related performance published from 1998 to 2015 were reviewed
  - Examined effects of the following drugs:
    - Alprazolam
    - Amphetamine
    - Antidepressants
    - Antihistamines
    - Buprenorphine
    - Clonazepam
    - Cocaine
    - Codeine
    - Diazepam
    - Fentanyl
    - Flunitrazepam
    - GHB
    - Ketamine
    - MDMA (Ecstasy)
    - Methadone
    - Methamphetamine
    - Methylphenidate
    - Morphine
    - Nitrazepam
    - Oxazepam
    - Oxycodone
    - Phenazepam
    - THC
    - Tramadol
    - Zolpidem

Strand et al. (cont.)

- **Methods (cont.)**
  - Looked at experimental laboratory tests of traffic relevance
    - Sedation
    - Drowsiness
    - Divided attention
    - Continuous perception motor coordination
    - Speed and accuracy of decision making
    - Vigilance
    - Short-term memory
  - Looked at on-road driving and driving simulations
- **Results**
  - Found significant psychomotor impairment
    - Benzodiazepines
    - Cannabis (dose dependent effect on both experienced and novice users)
    - GHB
    - Ketamine
  - Low doses of stimulants did not cause impairment
  - Alcohol interacted with THC and methamphetamine to increase impairment

Gjerde et al. Driving under the influence of non-alcohol drugs: An Update Part I: Epidemiologic Studies, *Forensic Sci Rev*, 2015

- Drugs that increase traffic crash risk:
  - Benzodiazepines and z-Hypnotics: 25/28 studies
  - Cannabis: 23/36 studies
  - Opioids: 17/25 studies
  - Amphetamines: 8/10 studies
  - Multiple drugs: 12/12 studies- greatest risk
- Conclusions:
  1. After alcohol, amphetamines are the single substance with the highest traffic crash risk
  2. The combined use of 2 or more drugs is greater than the risk of any single drug
  3. The combined use of alcohol and psychoactive drugs is associated with the highest road traffic safety risk
  4. Test greatest risk most widely used

National Highway Traffic Safety Administration's Case/Control Study

- Future Questions:
  1) The more severe a crash, the greater the likelihood
     - Need case/control studies of fatal crashes
  2) Need study of single-vehicle fatal crashes where the driver is most likely to be responsible
  3) Each drink increase fatal crash risk more for younger drivers than adult drivers
     - Need analysis specifically focused on young drivers

Research Priority #2

- Increase drug testing of drivers in fatal crashes
  - In 2013:
    - 9 states tested 70% or more of fatally-injured drivers for both alcohol and drugs (42 for alcohol)

Research Priority #3

- Develop Imputation for various drugs

States that Test 70% or More of Fatally-Injured Drivers for Alcohol and Drugs: Test Results, 2012

	Any		Only		Alcohol & Drugs
Age	**Alcohol**	**Drugs**	**Alcohol**	**Drugs**	
16-20	30%	38%	18%	26%	12%
21+	40	36	23	19	17
Total	38	36	22	16	16

- Drivers 16-20 are more likely to test positive for drugs (38%) than alcohol (30%)
- Drivers 21+ are more likely to test positive for alcohol (40%) than drugs (36%)

Drugs Used Among Fatally-Injured Drivers Tested for Drugs, 2012

Age	Drug	Good Testing States
16-20	Cannabis	64%
	Narcotic	7
	Depressant	8
	Stimulant	14
	Other Drugs	29
21+	Cannabis	64%
	Narcotic	19
	Depressant	19
	Stimulant	25
	Other Drugs	32

Research Priority #4

Study effects of policy changes in drugs and driving (control for alcohol policies)

- Adoption of drug per se or zero tolerance laws
- Administrative license revocation for driving after drug use
- Heightened penalties for driving while impaired by alcohol and drugs combined
- 24/7 drug and alcohol monitoring (felony arrestees)
- Random drug monitoring periods before license reinstatement
- Mandatory assessment and treatment of convicted offenders for both alcohol and drugs

Research Needs

- Studies of various enforcement strategies
  - Sobriety check points combining alcohol and drug driving detectors (effects of being highly publicized)
  - Saturation patrols
  - Combined
    - Speed- alcohol/drug impaired driving
    - Safety belt- alcohol/drug impaired driving
- Multi-Component community interventions to reduce alcohol and drug impaired driving
  - What combinations of strategies are most effective at the least cost?

Alcohol Policy Information System (http://www.alcoholpolicy.niaaa.nih.gov/)

National Institute on Alcohol Abuse and Alcoholism

35 Policy Topics, 1998-present:

- Alcohol control systems
- Alcohol beverage taxes
- DWI laws
- BAC limits (adults, youths)
- Health insurance parity
- Insurers' liability for losses due to intoxication (UPPL)
- Vehicular insurance exclusions
- Open container laws
- Underage drinking policies
- Keg registration
- Beverage server training
- Hours/Days sale
- Alcohol and pregnancy

Adding:

- Legalized/Recreational marijuana
- Drug driving laws

Proposed APIS: Marijuana Recreational Legalization

- Taxation
- Underage restrictions
- Driving under the influence of cannabis and other drugs
- Cultivation restrictions
- Retail outlet licenses (maximum number and types of outlets, such as convenience or grocery stores)
- On premises consumption
- Product types permitted
- Pricing controls
- Local authority
- Primary state agency

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Key Policy Questions

I. How do policies related to alcohol misuse and underage drinking affect harmful outcomes?

II. What are the mechanisms through which public policy acts to reduce harmful outcomes?

III. Can policies regarding other substances (e.g., tobacco and drugs) influence alcohol misuse and vice versa?

IV. How does enforcement (and other aspects of policy implementation such as education and public awareness) affect outcomes?

Is Passing Laws Enough?

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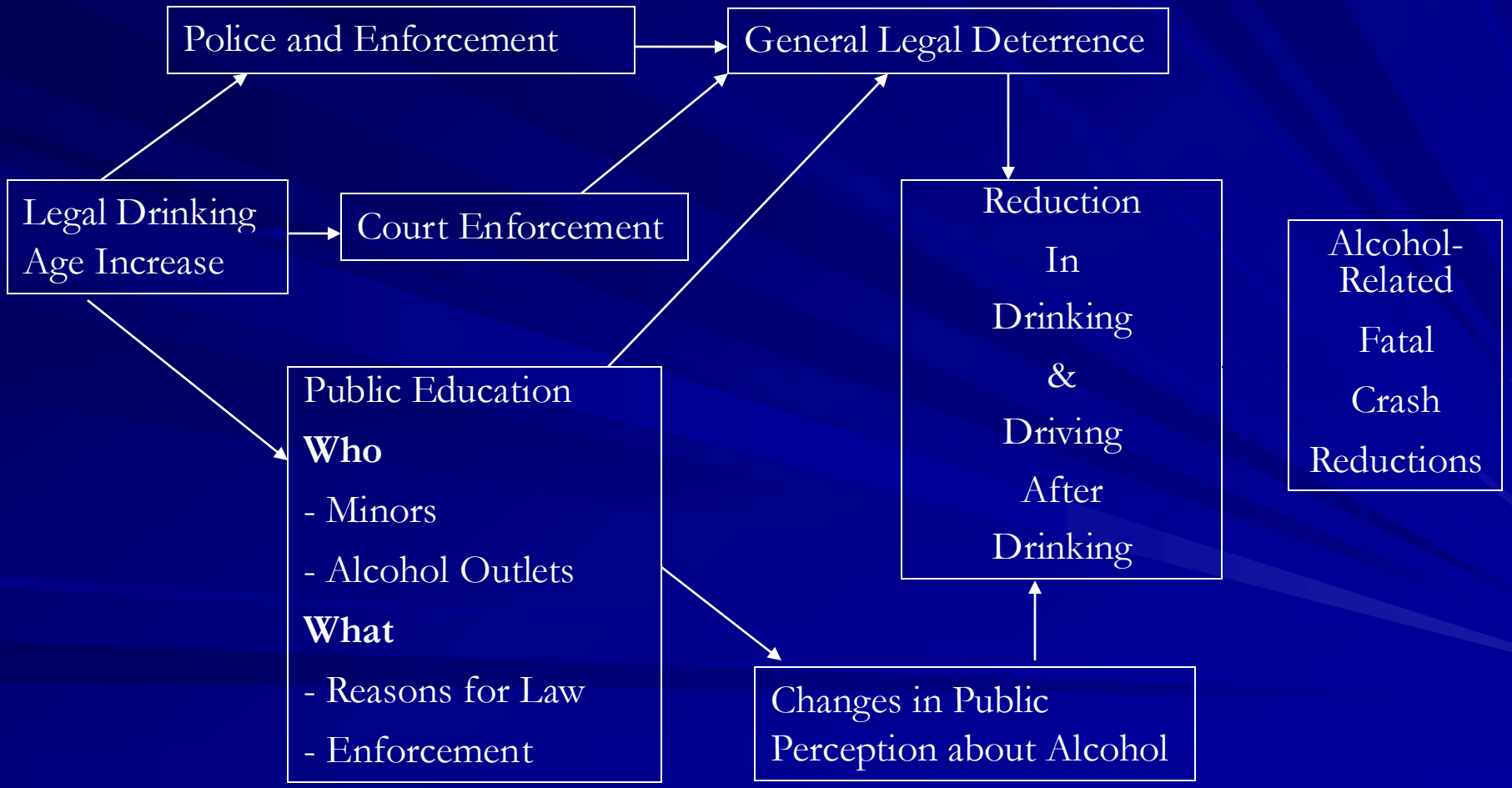
STATUS REPORT

INSURANCE INSTITUTE FOR HIGHWAY SAFETY

Underage Youths Easily Buy Beer and Their Traffic Deaths Go Up

Potential Process of Change After a Drinking Age Increase



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Successful Comprehensive Community Interventions

- Saving Lives Program, Hingson (1996)
- Project Northland, Perry (1996)
- Communities Mobilizing for Change, Wagenaar (2002)
- Community Trials, Holder (2000)
- A Matter of Degree, Weitzman (2004)
- Fighting Back, Hingson (2005)
- Sacramento Neighborhood Prevention Project, Treno, (2007)
- State Coalitions to Reduce Underage Drinking, Wagenaar (2007)
- Neighborhoods Engaging with Students (NEST), Saltz (2009)
- Communities That Care, Hawkins et al. (2009)
- College community program, McCartt et al. (2009)
- Safer California Universities, Saltz (2010)
- SPARC, Wolfson et al., 2012

Key Unanswered Questions: Comprehensive Community Interventions to Reduce Youth Alcohol Problems

1) Will a combination of
   - environmental interventions to reduce alcohol availability and enforce alcohol policy, e.g. DWI and drinking age laws
   - increased alcohol screening and early intervention

   achieve greater problem reduction than either alone?
2) Are programs that target both underage youth and young adults more effective in reducing youth alcohol problems than underage oriented programs only?

Key Unanswered Questions: Comprehensive Community Interventions to Reduce Youth Alcohol Problems

3) Will programs that reduce youth consumption produce carry over alcohol problem reduction in adult life?
4) Will programs that reduce youth alcohol misuse also reduce drug use?
5) How can effective comprehensive community interventions be sustained over time?
6) What types of community interventions are most effective in reducing youth alcohol problems with the least cost?

Need Studies on Screening and Brief Intervention for Alcohol and Drugs

National Institute on Alcohol Abuse and Alcoholism

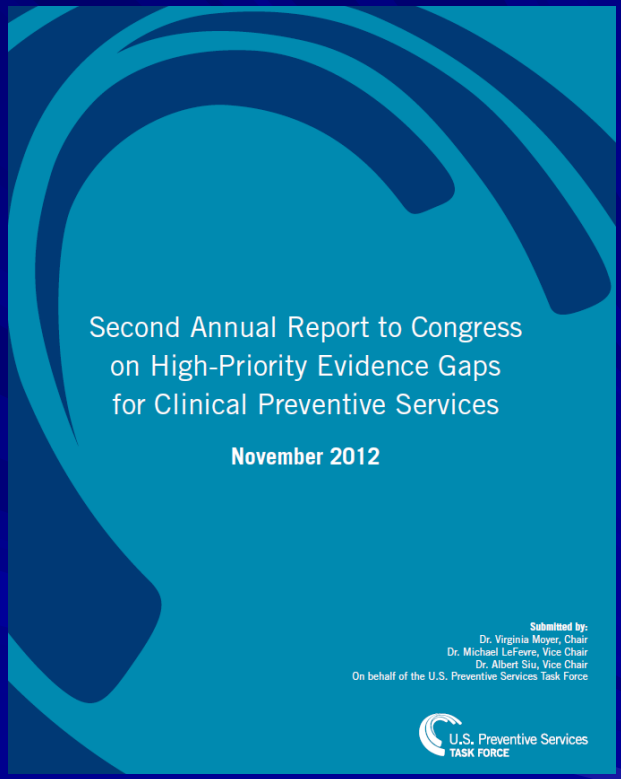
High certainty of substantial net benefit for screening and counseling:

- Alcohol misuse by adults and pregnant women in primary care

Insufficient evidence:

Screening/Counseling for:

- Alcohol: Adolescents
- Illicit drug use: Adolescents, adults, and pregnant women



Source: U.S. Preventive Services Task Force, 2012

DEPR Research Priority

5. **Expand Comprehensive Community interventions to Reduce Alcohol Related Injuries and other Problems**
   - Assess the relative effectiveness of :
     - Environmental oriented interventions
     - Screening brief intervention, treatment
     - Both combined
   - Assess the impact of interventions that combine these approaches
   - Assess more outcomes than drinking, impaired driving, and traffic injuries
     - Alcohol related unintentional injuries
     - Homicide, suicide, sex assaults, child abuse
     - Academic and job performance
     - Illicit drug use

Tanner-Smith & Lipsey, Brief alcohol interventions for adolescents and young adults: A systematic review and meta-analysis, J Subst Abuse Treat, 2014

- **Methods:**
  - A comprehensive literature search yielded 185 experimental studies of brief alcohol interventions (universal, selective, or indicated) aimed at reducing alcohol use or alcohol-related problems among adolescents ages 11-18 and young adults ages 19-30
- **Results:**
  - Overall, brief alcohol interventions tied to significant reductions in:
    - Alcohol consumption
    - Alcohol-Related problems
  - Effects persist up to one year
  - Effects did not vary across:
    - Participant demographics
    - Intervention length
    - Intervention format

Tanner-Smith & Lipsey (cont.)

- Results (cont.):
  - Adolescents already exhibiting heavy or hazardous consumption experienced larger intervention effects
  - For adolescents, motivational enhancement treatment in high school setting in a single session of more than 15 minutes yielded the greatest drinking reduction
  - For young adults, a self-administered computerized expectancy challenge conducted on a university campus, including the following yielded the greatest drinking reductions:
    - BAC information
    - Decisional balance
    - Goal setting
    - Money/cost information

Young Adults at Risk for Excess Alcohol Consumption are Often Not Asked or Counseled About Drinking

- 2/3 of 18-39 year olds nationwide saw a physician in the past year
- Only 14% of them (12% 18-20 year olds):
  - Were asked about their alcohol consumption and
  - Given advice about what drinking patterns pose risk to health
- Persons 18-25:
  - Were most likely to exceed low-risk drinking guidelines (68% vs. 56%)
  - Were least likely to have been asked about their drinking (34% vs. 54%), especially those under age 21 (26%)

Helen Marie Witty

Source: Hingson et al., *J Gen Intern Med*, 2012

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Next Generation Health Study, Wave 1, National Survey (N=2,519 10th graders average age 16)

- 82% saw a doctor in the past year
- At their last MD visit:

All Respondents	Drinking alcohol	Smoking	Other Drug use
Doctor asked about	54%	57%	55%
Advised about related health risks	40	42	40
Advised to reduce or stop	17	17	17
Frequent Substance Users	**Drunk**	**Smoking**	**Other Drug use**
Doctor asked about	60%	58%	56%
Advised about related health risks	52	46	54
Advised to reduce or stop	24	36	42

- Drunk, smoking 6+ times past month: 7%, 9%
- Drugs 6+ times past year: 5%

Source: Hingson et al., *Pediatrics*, 2013

Screening and Brief Intervention Studies for Drugs Not Showing Benefit – Drug Use

- White et al., J Stud Alcohol Drugs, 2006
- Marsden et al., Addiction, 2006
- Peterson et al., Psych Addict Behav, 2008
- Lee et al., Psychol Addict Behav, 2010
- Bogenschutz et al., JAMA, 2014
- Saitz et al., JAMA, 2014
- Roy-Byrne et al., JAMA, 2014

Screening and Brief Intervention Studies for Drugs that Show Some Benefit – Drug Use

- Bashir et al, Brit J Gen Practice, 1994
- Stephens et al., J Clin Consult Psychol, 2000
- McCambidge et al, *Addiction*, 2004
- Baker et al., Addiction, 2005
- Bernstein et al, *Drug Alcohol Depend*, 2005
- Srisurapanont et al., Am J Addictions, 2007
- Ondersma et al., Am J Prev Med, 2007
- Stephens et al, *Addiction*, 2007
- D'Amico et al., J Subst Abuse Treat, 2008

Screening and Brief Intervention Studies for Drugs that Show Some Benefit – Drug Use Screening

- Madras et al, *Drug Alcohol Depend*, 2009
- Magill et al., J Stud Alcohol Drugs, 2009
- Grossbard et al, *J Subst Abuse Treat*, 2010
- Kim-Harris et al, *Pediatrics*, 2012
- Humeniuk et al, *Addiction*, 2012
- Lee et al, *J Consult Clin Psychol*, 2013
- Schwartz et al., Addiction, 2014
- Winters , Psych Addiction, 2014
- Gelberg et al., Addiction, 2015

Tanner-Smith et al., Can Brief Alcohol Interventions for Youth also Address Concurrent Illicit Drug use? Results from a Meta-Analysis, *J Youth Adol*, 2015

- **Methods**:
  - A comprehensive literature review identified 30 eligible samples, average subject age 17
    - 7 brief interventions for alcohol only
    - 23 targeted both alcohol and drugs
  - Most were U.S. randomized trials with low attrition and 6-month follow-up
  - Most used motivational interview (motivational enhancement therapy), lasting 50-60 minutes

Tanner-Smith et al. (cont.)

- **Results**
  - Alcohol only interventions produced
    - Reductions in drinking
    - Little variability across studies
    - No effects on drug use
  - Drug and alcohol interventions produced
    - Reductions in use of marijuana, other hard drugs, alcohol
  - Alcohol reductions were comparable in both alcohol only interventions and in alcohol and drug interventions
    - The greatest reductions were for drugs other than marijuana

Summary: Brief Interventions for Drugs

- Brief interventions for drugs show less consistent benefit than brief intervention for alcohol, but studies showing benefit for drug use reduction are increasing
- No studies looked at driving after drugs, drug driving crashes, crashes involving drugs and alcohol
- Need more research- both outcomes

Conclusions

- Drug driving is increasing and a concern
- Drug driving increases traffic crash risk but not as much as BAC of 0.08%+
- Highest crash risk occurs when people drive after simultaneous drinking and drug use
- Still need research on drug driving:
  - Crash risk
  - Fatal crash case/control studies
  - Experimental studies on driving, drugs, and tasks

Conclusions

- Need more research on:
  - Policy interventions to reduce drug driving and driving after alcohol and drugs
  - Policy interventions to delay and reduce underage:
    - Drinking and drug use
    - Driving after drinking and drug use
  - Screening and brief intervention for drug driving, particularly in combination with alcohol
  - Community interventions to reduce alcohol and drug use
- Need more and standard testing for drugs in FARS
- Need to explore imputation for drugs in FARS

Conclusion: What can International Research Societies Do?

1) Report and disseminate research
   a) Effects of alcohol and drug use and simultaneous alcohol and drug use on health (injuries, poisoning, chronic disease)
   b) Social problems (e.g., academic and work performance, crime, violence, unintentional and intentional injuries, and death)
   c) Harms to others
2) Examine and report on which of the following prevention programs at different levels are most effective in reducing substance abuse:
   a) Individual
   b) Family
   c) School/College
   d) Web-based
   e) Community
   f) Policy

Conclusions (cont.)

3) Encourage standardized repeat surveillance collection of survey data on:
   a) Alcohol use
   b) Drug use
   c) Simultaneous alcohol and drug use
   d) Related harms in every country
4) Encourage testing of all unintentional and intentional injuries for both alcohol and most commonly used or highest risk drugs
5) Encourage periodic reports on surveillance results at national and local levels
6) Encourage cross-national research
7) Encourage and facilitate recruitment of scientists and research with added attention to low- and middle- income countries