The epidemiology of alcohol use and problems in Maryland

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Alcohol and health

- 3.3 million deaths per year globally
 - 88,000 deaths in the U.S., 4300 among under 21s
- Seventh leading cause of death and disability worldwide
- Leading cause of death and disability for 15-49 yearolds worldwide
- Component cause of more than 200 disease and injury conditions
- Carcinogen for which there is no safe level of consumption

Trends in life expectancy in the US – going up forever?



1904 1912 1920 1928 1936 1944 1952 1960 1968 1976 1984 1952 2000 2008 1900 1908 1916 1924 1932 1940 1948 1956 1964 1972 1980 1988 1996 2004



Above since 1900; left from 1970 to 1990

But trends changed...starting in middle aged non-Hispanic Whites, and now for the US as a whole

- Shock for the US: in the first decade of the 21st century, the life expectancy of middle-age white Non-Hispanic adults decreased, mainly in people with lower socioeconomic status (SES)
- More recently, overall life expectancy has decreased in the US
- Why? Since 1900 major decrease in life expectancy in the US happened in World Wars (WW) I and II and the 1918-19 Influenza Pandemic (which killed more people than WW I).
- BUT CVD and cancer mortality continue to decline

Case & Deaton, 2015 (including Figure 1); Rehm et al., 2016



Fig. 1. All-cause mortality, ages 45–54 for US White non-Hispanics (USW), US Hispanics (USH), and six comparison countries: France (FRA), Germany (GER), the United Kingdom (UK), Canada (CAN), Australia (AUS), and Sweden (SWE).

Causes of death responsible for middleaged non-Hispanic whites

Opioids (prescription Poisoning/ opioids, heroin) Alcohol overdose Other pharmaceutical For the overall losses in Alcohol life expectancy in the last Suicide Illegal drugs • year... More than 50% Liver alcohol-attributable cirrhosis Illegal drugs \rightarrow HCV lacksquare

U.S. Per Capita Alcohol Consumption, 1935-2014





Alcohol consumption on the rise

- Comparing 2001-2002 to 2012-2013, for the total population:
 - Alcohol use in the past 12 months grew 11.2%
 - High-risk drinking grew 29.9%
 - DSM-IV alcohol use disorders increased by 49.4%
- Increases were greatest among:
 - Women
 - Older adults
 - Racial/ethnic monitories
 - Individuals with lower educational levels and family incomes

Source: JAMA Psychiatry 74(9):911-923, 2017.

Alcohol problems on the rise

- Between 2000—2016, death rates from alcohol increased 55% Source: TFAH, 2018
- ED visits in the US, 2006-2014
 - Includes alcohol-specific causes (acute and chronic) as well as external cause of injury coded as alcohol contributing significantly to the visit or course of treatment
 - ED visits involving alcohol consumption increased by 61.6%, costing \$15.3 billion
 - Annual percentage change was larger for females than for males (5.3% vs. 4.0%)



1. Center for Behavioral Health Statistics and Quality, Results from the 2013 National Survey on Drug Use and Health: Detailed Tables. 2015, Substance Abuse and Mental Health Services Administration: Rockville, MD. 2. Centers for Disease Control and Prevention, BRFSS Prevalence and trends data. 2016, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health: Atlanta, GA.

3. Mokdad, A.H., et al., Actual causes of death in the United States, 2000. Jama, 2004. 291(10): p. 1238-45.

4. Stanre, M., Roeber, J., Kanny, D., Brewer, R., & Zhang, X. (2014). Contribution of excessive alcohol consumption to deaths and years of potential life lost in the United States. Preventing Chronic Disease, 11:130293. 5. Rehm, J., et al., Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. The Lancet, 2009. 373(9682): p. 2223-2233.



Cost of excessive drinking in the United States, 2010

Sacks, J.J., et al., 2010 national and state costs of excessive alcohol consumption. American journal of preventive medicine, 2015. 49(5): p. e73-e79.

Public Health Impact of Excessive Drinking in the U.S.

- □ 88,000 deaths every year
- 30 years of life lost per death (2.5 million in total)
- □ 4th leading preventable cause of death
- □ \$249 billion in economic costs (2010) or ~\$2.05/drink
- **2** in 5 dollars paid by government
- **9** in 10 excessive drinkers are not alcohol dependent

Alcohol-Related Disease Impact (ARDI); available at: <u>www.cdc.gov/alcohol</u>; Mokdad A, et al JAMA 2004; 291(10):1238-45; Sacks, et al Am J Prev Med 2015; 49(5):e73–e79; Esser et al. Prev Chronic Dis 2014;11:140329.



Dependent Non-dependent

Dependent Non-dependent

Source: Woerle, 2007

MOST BINGE DRINKERS ARE NOT DEPENDENT

Progress in prevention of alcoholimpaired driving stalled in the U.S.

- Each day, 29 people in the U.S. die in an alcohol-impaired driving crash.
- On average since 1982, 1/3 of all traffic fatalities were from alcoholimpaired driving fatalities.
- 10,497 people were killed in alcohol-impaired driving crashes in 2016.
- 214 children (≤14 years) were killed in alcohol-impaired driving crashes in 2016.



Magnitude of the Problem

- Second-hand effects of alcohol-impaired driving:
 - In 2016, almost 40% of alcohol-impaired driving fatalities were victims other than the drinking driver
 - By comparison, 8.5% of smoking-related deaths due to second-hand smoke
- Economic cost of alcohol-impaired driving crashes in 2010: \$121.5 billion
 - Includes medical costs, legal expenses, and property damages



one driver with a BAC ≥0.08%, 2016. SOURCE: Data from NCSA, 2017b.

Binge Drinking is the Most Deadly, Costly, & Common Pattern of Excessive Drinking in the U.S.



CDC. Vital Signs: Binge Drinking Prevalence, Frequency and Intensity Among Adults–United States, 2010. NIAAA. NIAAA Scientific Advisory Council Approves Binge Drinking Definition Newsletter. 2004;3(3)



Distribution of Alcohol Consumption Among Adults (age 18+) in Maryland's Population



Excessive Drinkers
Non-Excessive Drinkers
Abstainers

(2011 figures)

Trends in Maryland drinking



Trends in Maryland binge drinking



Trends in alcohol dependence in MD



Maryland overview

- Years of life lost to death and disability because of alcohol use in Maryland increased 6.8% from 2000 to 2016
- 58% of Marylanders 12+ drank in the past month (SEOW, 2014)
- Binge drinking is rising among adults 26 and older, falling among 18-25 year-olds
- Last federal estimate of MD deaths attributable to alcohol was 2010: 1,324 deaths
- Alcohol intoxication deaths (canary in the coal mine) in Maryland have been steadily rising since 2010
 - Nearly doubled from 2015-16: 310 to 582

Figure 29. Number of Alcohol-Related Deaths Occurring in Maryland, 2007-2016.



Acute				Chronic					
100% Attributable to Alcohol	Partially Attributable to Alcohol			100% Attributable to Alcohol			Partially Attributable to Alcohol		
Accidental Excessive blood alcohol levels	Air space transport	Aspiration	Assault	Alcohol-	Alcohol abuse	Alcohol psychosis	Acute pancreatitis	Breast cancer	Chronic hepatitis
	Child maltreatment	Drowning	Falls	Alcoholic cardiomyopathy	Alcoholic gastritis	Alcoholic liver disease	Epilepsy	Esophageal cancer	Esophageal varices
	Fire/flame injuries	Firearm injuries (unintentional)	Homicide	Alcoholic polyneuropathy	Fetal alcohol syndrome		Gastroesophageal hemorrhage	Hypertension	Ischemic heart disease
	Hypothermia	Low birth weight	Motor vehicle non-traffic				Laryngeal cancer	Liver cancer	Liver cirrhosis
	Motor vehicle traffic	Occupational and machine injury	Other road vehicle				Oral cancer	Portal hypertension	Prostate cancer
	Poisoning (not alcohol)	Robbery	Sexual assault				Psoriasis	Spontaneous abortion	Stroke) hemorrhadic
	Suicide	Water transport					Stroke, ischemic	Supraventricular cardia dysrhythmia	

AAFs

Alcohol-attributable fractions (AAFs) are the proportion of outcomes that are causally attributable to excessive alcohol use.



Examples of Fatal AAFs



Bouchery, E., C. Simon, and H. Harwood, Economic costs of excessive alcohol consumption in the United States, 2006. 2013, Centers for Disease Control and Prevention.

Prevalence of Alcohol Use, Baltimore 2013

Total population 490,705

Current drinkers 255,167 52% of total population

Current binge drinkers 83,420 17% of total population 33% of current drinkers



Current heavy drinkers

29,442

6% of total population 12% of current drinkers 35% of binge drinkers



Top Ten Most Common Alcohol-Related Outcomes in Hospitals, Baltimore 2013



Number of Cases

Top Ten Alcohol-Related Outcomes with Greatest Mortality, Baltimore 2013



Top Ten Alcohol-Related Outcomes with Greatest Direct Medical Costs, Baltimore 2013



Total Economic Costs of Excessive Alcohol Consumption in Baltimore, 2013 \$0.5m **EMS TRANSPORTS** \$12.9m CORRECTIONS \$14.7m **MOTOR VEHICLE CRASHES** MEDICAL \$27.5m **\$581** million \$44.1m ALCOHOL TREATMENT \$474.6m LOST PRODUCTIVITY

MD ~\$5 Billion



COSTS OF EXCESSIVE DRINKING

\$487,600,000 -\$1,933,600,000 \$2,073,300,000 -\$4,683,800,000 \$4,964,700,000 -\$35,010,600,000

Source: Centers for Disease Control and Prevention, 2010

Total cost in MD: \$5.6 billion
Cost per drink consumed: \$2.22
Cost per capita: \$707
Cost to government per drink: \$.94
% of cost due to binge drinking: 77.6%
State tax receipts from alcohol, 2017: \$310 million