

# Abenaa Brewster, M.D., MHS

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## Alcohol and Risk of Cancer

Dr. Abenaa Brewster has indicated she has no relevant financial relationships within the past 12 months.

# Alcohol and Cancer

Abenaa Brewster MD

Professor, Department of Clinical Cancer  
Prevention

# Alcohol and Cancer – Presentation Outline

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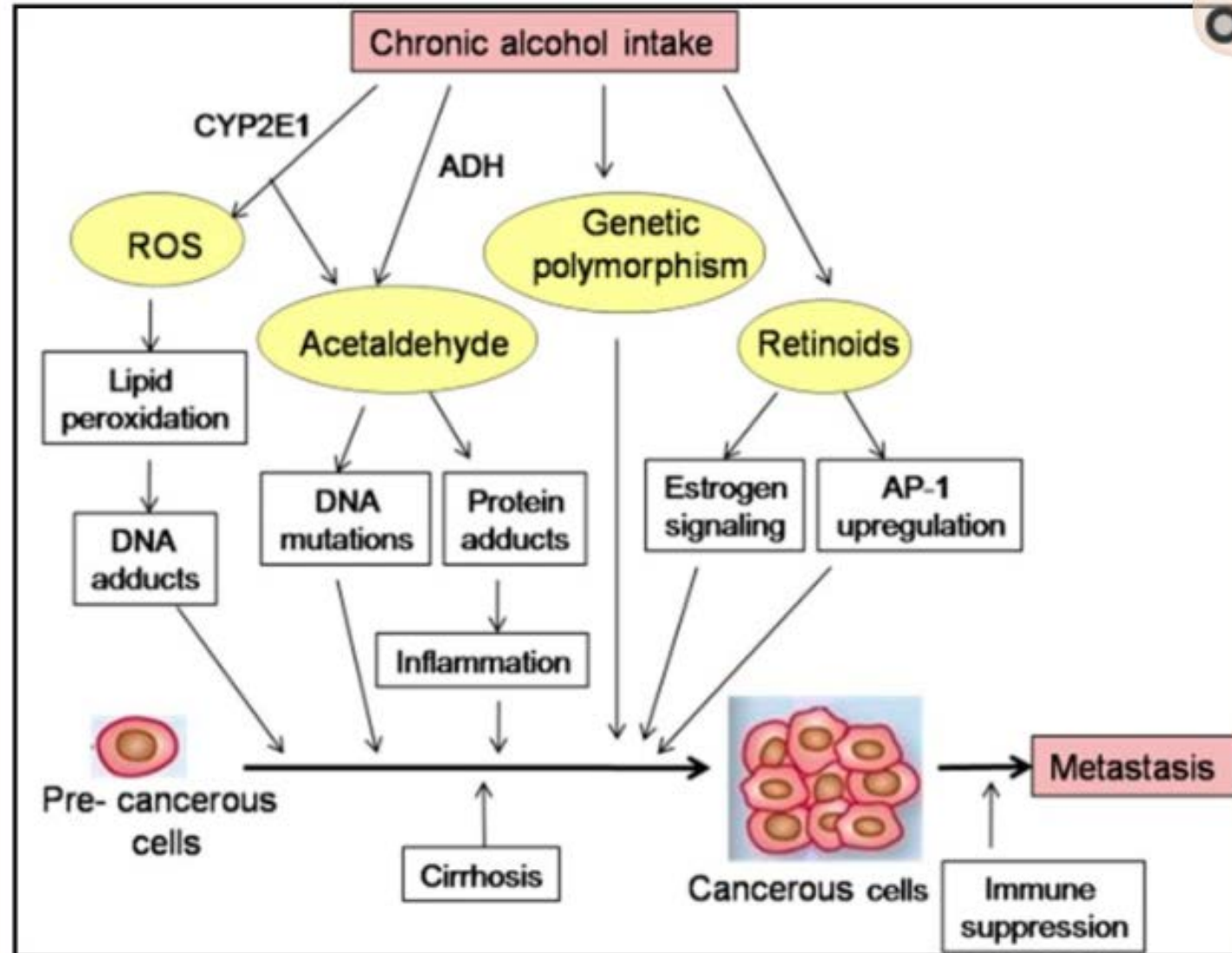
- Epidemiological evidence for association between alcohol use and cancer
- Rationale for American Society of Clinical Oncology (ASCO) position statement on alcohol and cancer
- Policy recommendations for alcohol control

# Public Health Impact of Alcohol Use

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- 3.3 million deaths occur annually globally due to harmful use of alcohol (7.7 million deaths due to smoking)
- 5.5% of all newly diagnosed cancers globally are related to alcohol use (40% related to smoking)
- 3.5% of all cancer deaths in the US related to alcohol use (28% related to smoking)
- 12-14% of individuals who drink have alcohol dependence (most individuals who drink heavily do not have alcohol dependence or alcoholism)

# Alcohol Metabolism and Role in Carcinogenesis



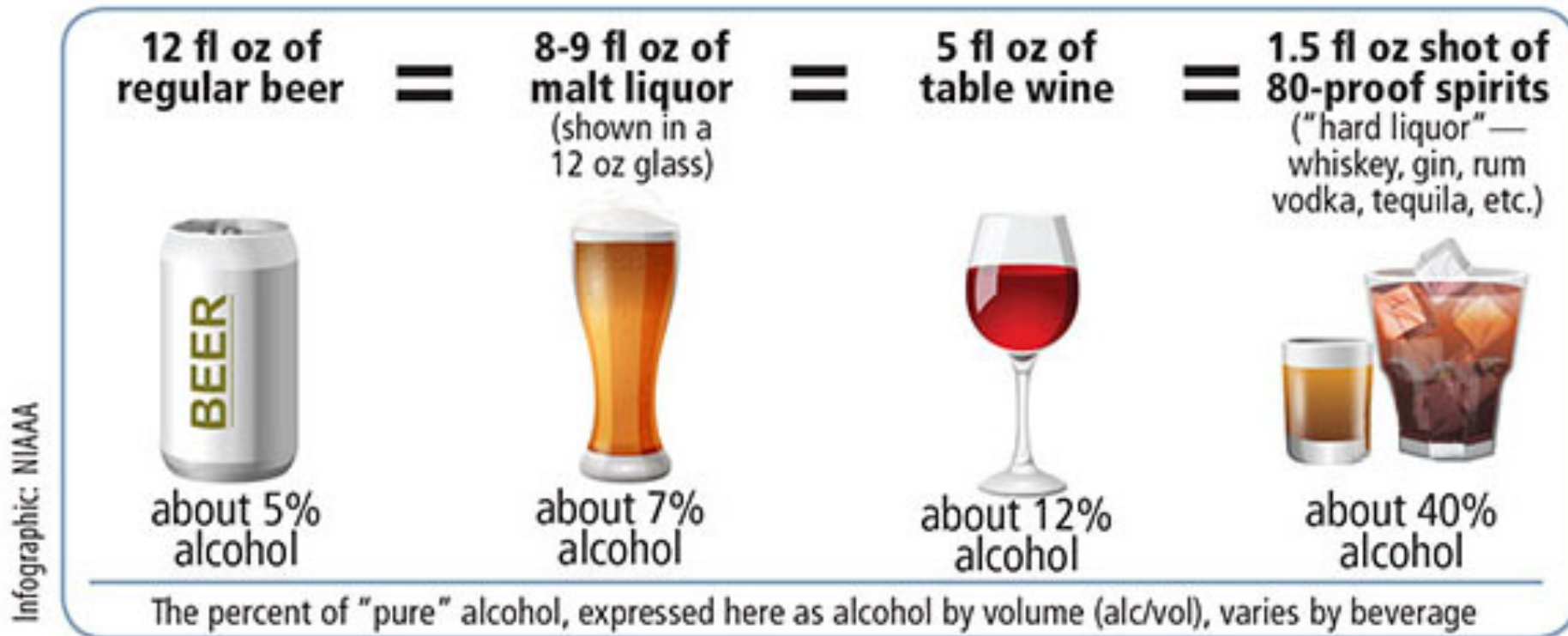
# Epidemiological Evidence for Association Between Alcohol Use And Cancer

Type of Cancer	Nondrinker RR	Light Drinker RR (95% CI)	Moderate Drinker RR (95% RR)	Heavy Drinker RR (95% RR)
Oral cavity and pharynx	1.0	1.13 (1.0 to 1.26)	1.83 (1.62 to 2.07)	5.13 (4.31 to 6.10)
Esophageal Squamous Cell	1.0	1.26 (1.06 to 1.50)	2.23 (1.87 to 2.65)	4.95 (3.86 to 6.34)
Larynx	1.0	0.87 (0.68 to 1.11)	1.44 (1.25 to 1.66)	2.65 (2.19 to 3.19)
Liver	1.0	1.00 (0.85 to 1.18)	1.08 (0.97 to 1.20)	2.07 (1.866 to 2.58)
Female Breast	1.0	1.04 (1.01 to 1.07)	1.23 (1.19 to 1.28)	1.61 (1.33 to 1.94)
Colorectum	1.0	0.99 (0.95 to 1.04)	1.17 (1.11 to 1.24)	1.44 (1.25 to 1.65)

# Alcohol Use and National Guidelines

The American Heart Association, American Cancer Society, US Department of Health and Human Services

- Limit alcohol consumption to no more than 2 drinks a day for men (14 per week) and no more than 1 drink a day for women (7 per week) – moderate drinking



**Definition of standard drink- 14 grams of pure alcohol**

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ASCO SPECIAL ARTICLE

## Alcohol and Cancer: A Statement of the American Society of Clinical Oncology

*Noelle K. LoConte, Abenaa M. Brewster, Judith S. Kaur, Janette K. Merrill, and Anthony J. Alberg*

### Rationale for (ASCO) Position Statement on Alcohol and Cancer

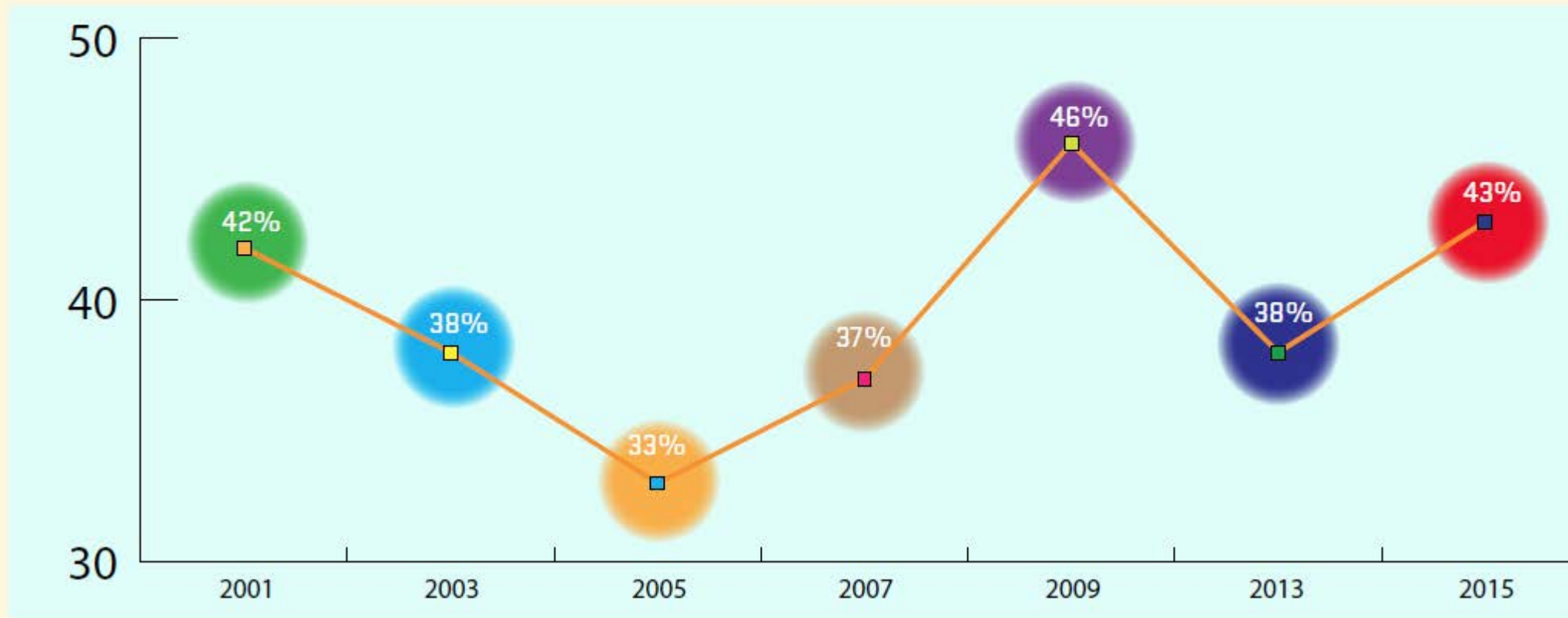
- Promote public education about the risks of alcohol and certain types of cancers
- Educate oncology providers on associations between alcohol use and cancer risk and treatment complications
- Identify areas of research needed on effect of alcohol use on cancer treatment and survivorship
- Support policy efforts for alcohol control



# Trend in Awareness that Alcohol Increases Cancer Risk

## AICR 2015 Cancer Risk Awareness Survey Report

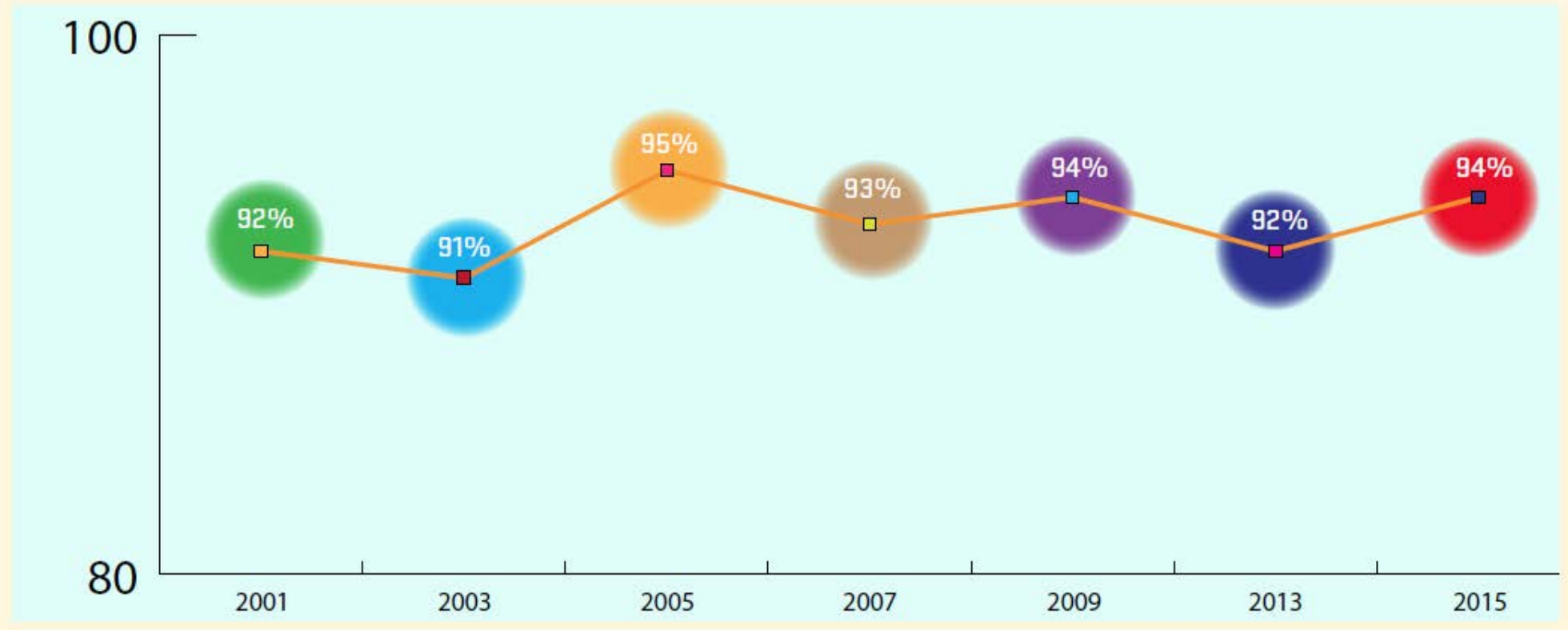
### Alcohol



# Trend in Awareness that Tobacco Increases Cancer Risk

## AICR 2015 Cancer Risk Awareness Survey Report

### Tobacco

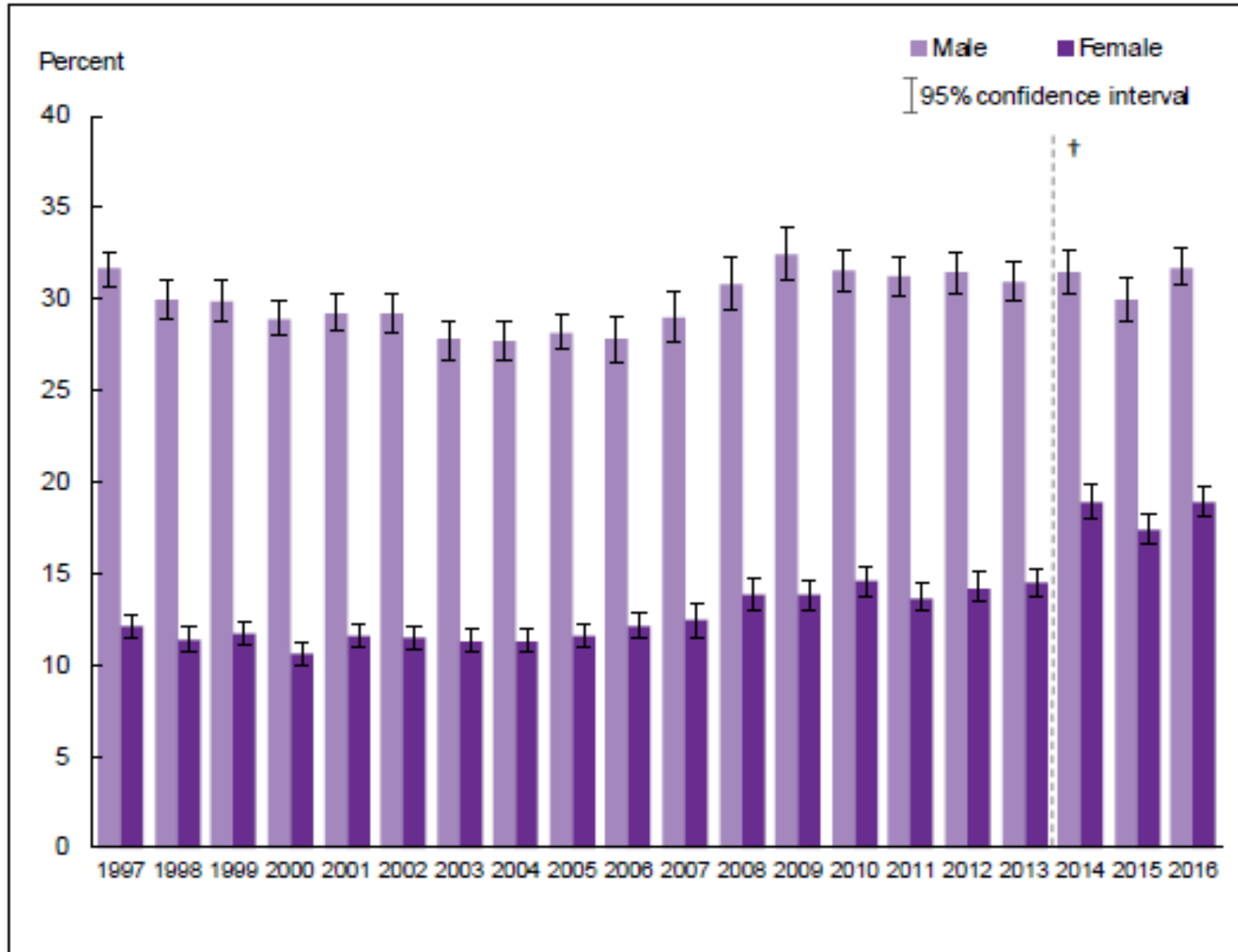


# Alcohol and Cancer –Alcohol Use Behavior

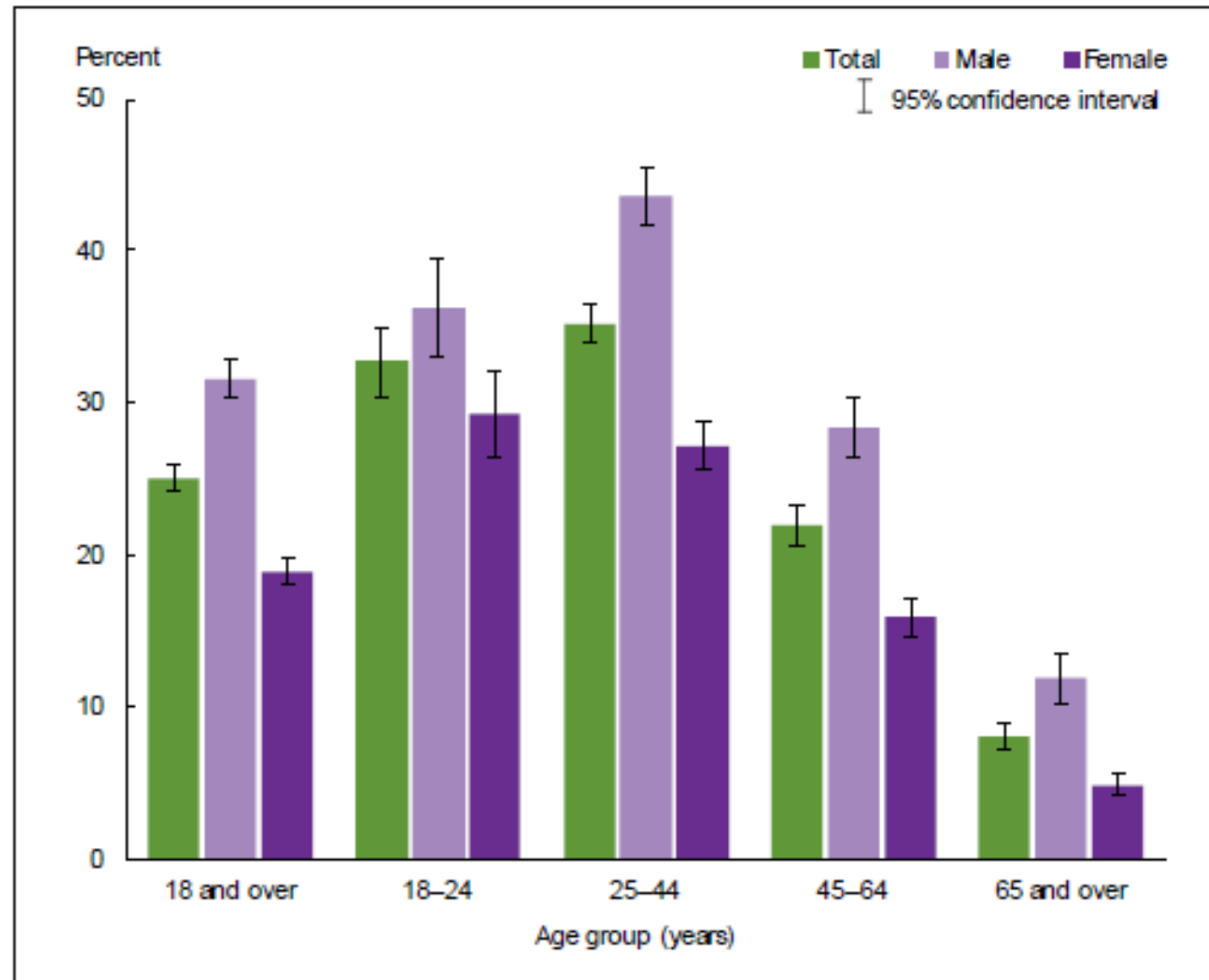


- Alcohol serving size has increased over the past 25 years
- Wine strength has increased by 13% since 1990
- 13% of US population engages in binge drinking (which is defined as 3 or more drinks per day for women and 4 or more drinks per day among men)

# Percentage of adults aged 18 or older who had at least one heavy drinking day in past year (1997-2016)

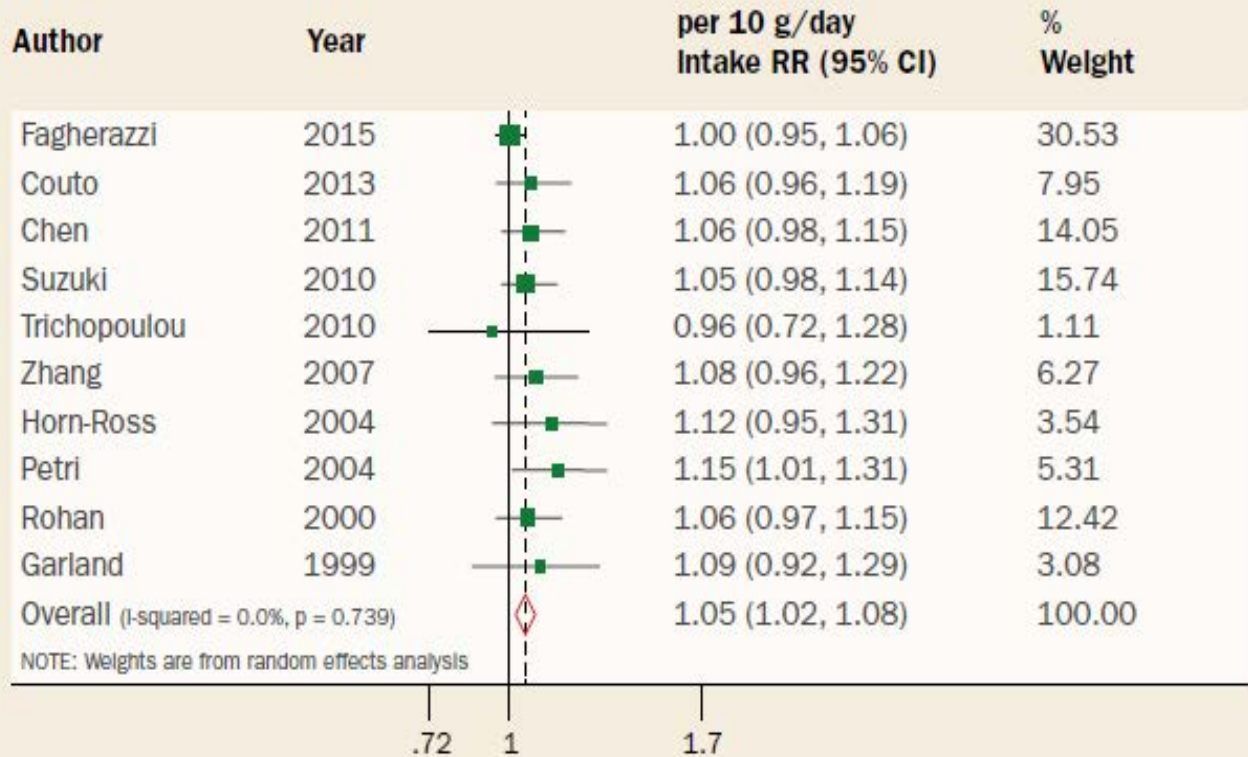


# Percentage of adults aged 18 or older who had at least one heavy drinking day in past year by age and sex



# Alcohol Use and Premenopausal Breast Cancer Meta-Analysis of 10 Studies (n=4,227)

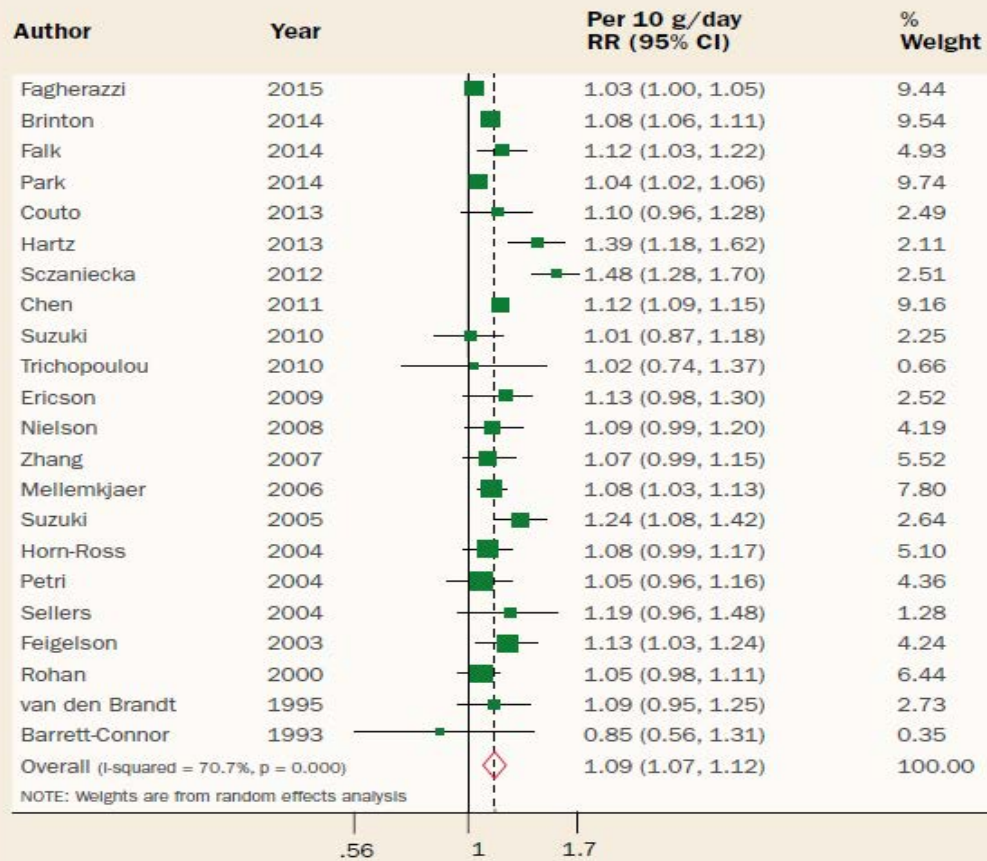
**Figure 1: Dose-response meta-analysis of alcohol (as ethanol) and premenopausal breast cancer, per 10 grams per day**



**5% increase in risk with one serving of alcohol per day**

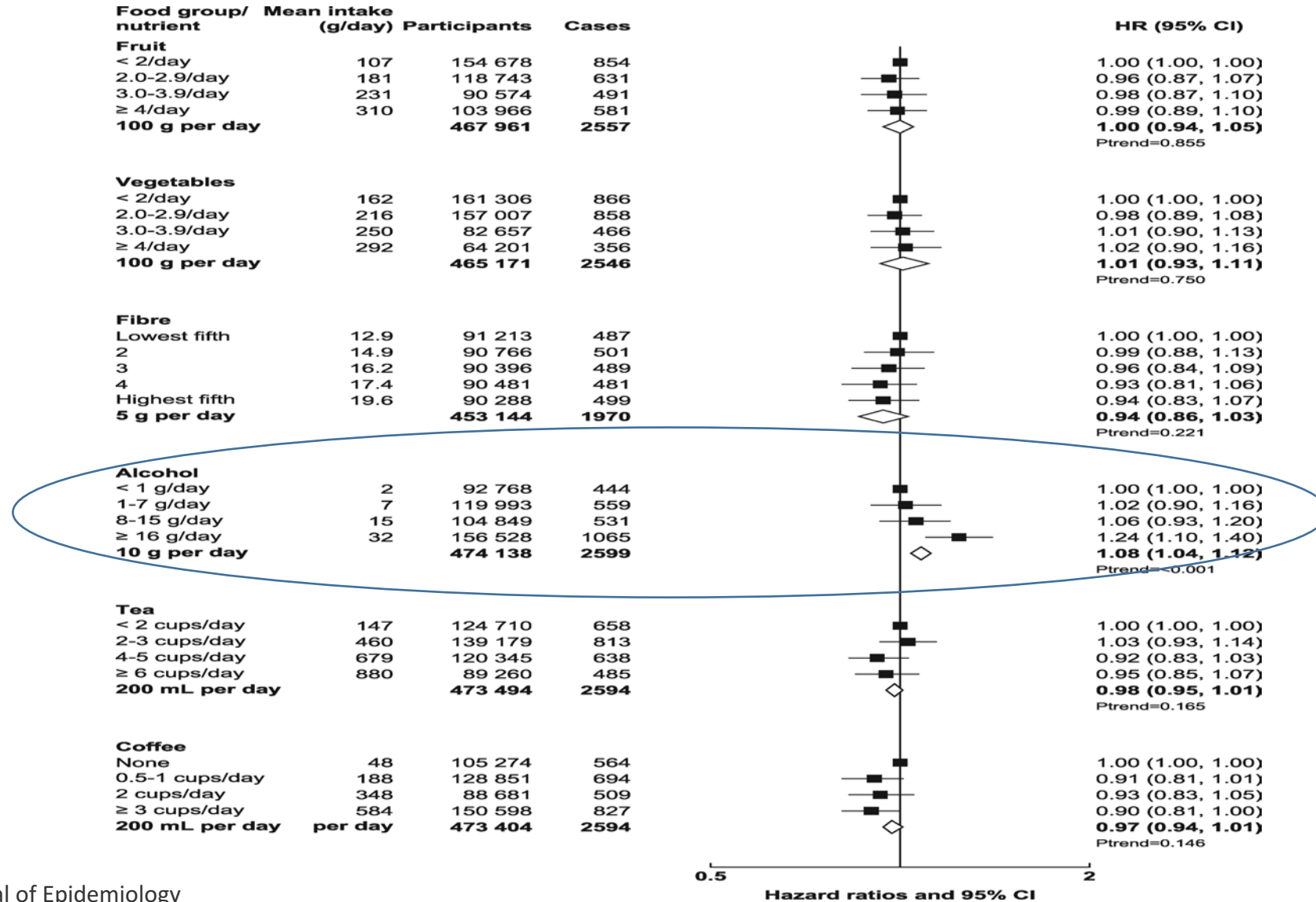
# Alcohol Use and Postmenopausal Breast Cancer Meta-Analysis of 22 Studies (n=35,221)

**Figure 2: Dose-response meta-analysis of alcohol (as ethanol) and postmenopausal breast cancer, per 10 grams per day**



**10% increase in risk with one serving of alcohol per day**

# Alcohol Use and Colorectum Cancer UK Biobank (n=175,402)





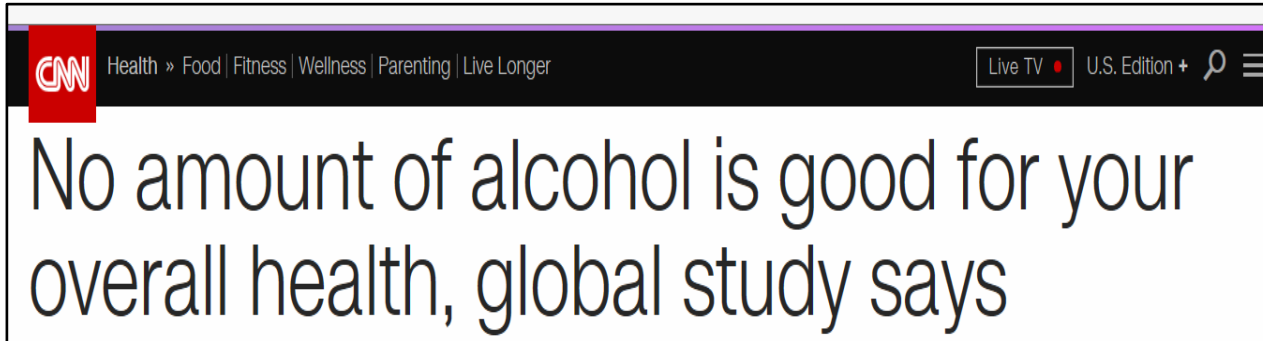
# Alcohol and National Guidelines

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American Institute for Cancer Research (AICR), International Agency for Research on Cancer (IARC) state that no level of alcohol is completely safe



# Media Attention - Alcohol Use and Health Outcomes



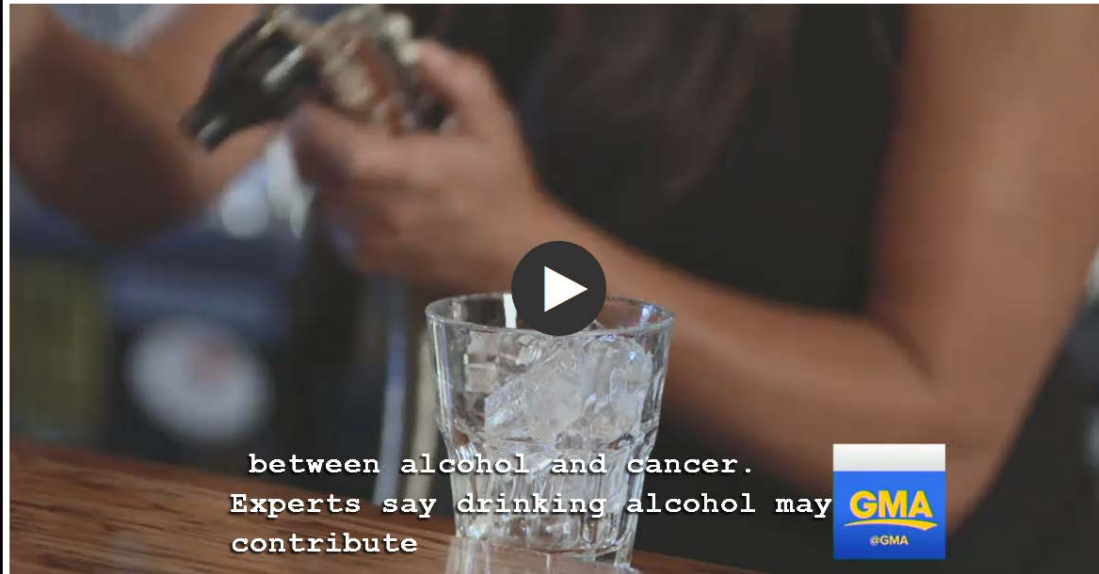
CNN Health » Food | Fitness | Wellness | Parenting | Live Longer Live TV U.S. Edition

## No amount of alcohol is good for your overall health, global study says

### Even moderate alcohol consumption may increase risk of certain cancers, experts warn

By CATHERINE THORBECKE Nov 7, 2017, 10:36 PM ET

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Mon, Apr 22, 2019 **Newsweek**

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**HEALTH**

## HOW MUCH ALCOHOL IS SAFE? A BEER A DAY LINKED WITH INCREASED RISK OF DEATH

BY KASHMIRA GANDER ON 10/3/18 AT 11:45 AM EDT



**HOW CUTTING OUT ALCOHOL AFFECTS YOUR BODY**



Cancer on **NBC NEWS.com**

## Will you stop drinking alcohol?

## Alcohol and Cancer – Other Myths

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- Drinking decreases the risk of cardiovascular disease
  - A drink a day does not keep the cardiologist away
- Light drinking can stimulate appetite and beneficial for cancer patients
  - Randomized study showed no improvement in appetite or weight in cancer patients assigned to white wine vs nutritional supplement
- Drinking is safer than smoking
  - One bottle of wine per week is equivalent to 5 cigarettes per week (men) and 10 cigarettes per week (women) for similar increase in absolute cancer risk

# Alcohol and Link with Cardiovascular Disease

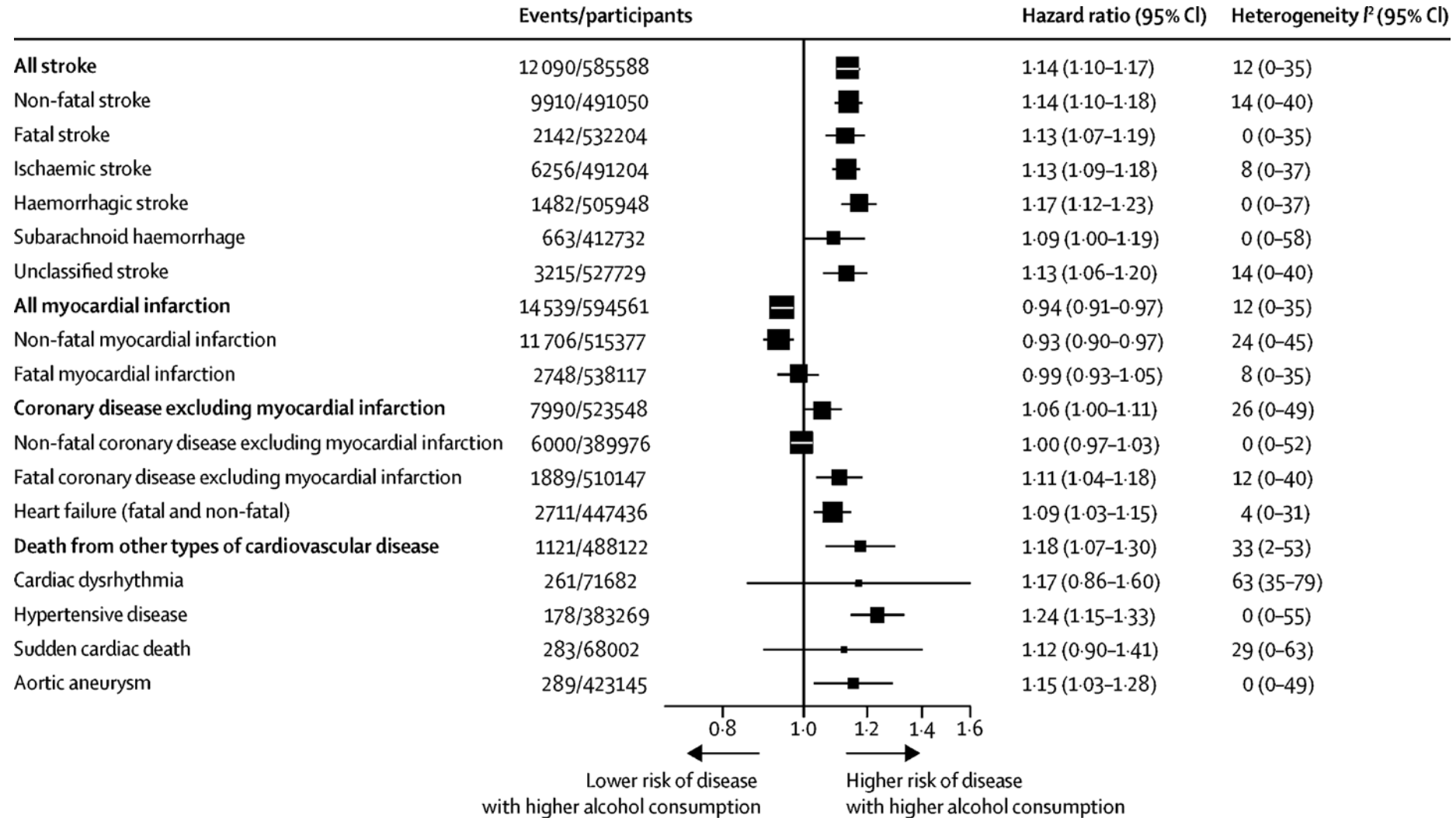
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## Individual level data from 83 prospective studies (1964-2010)

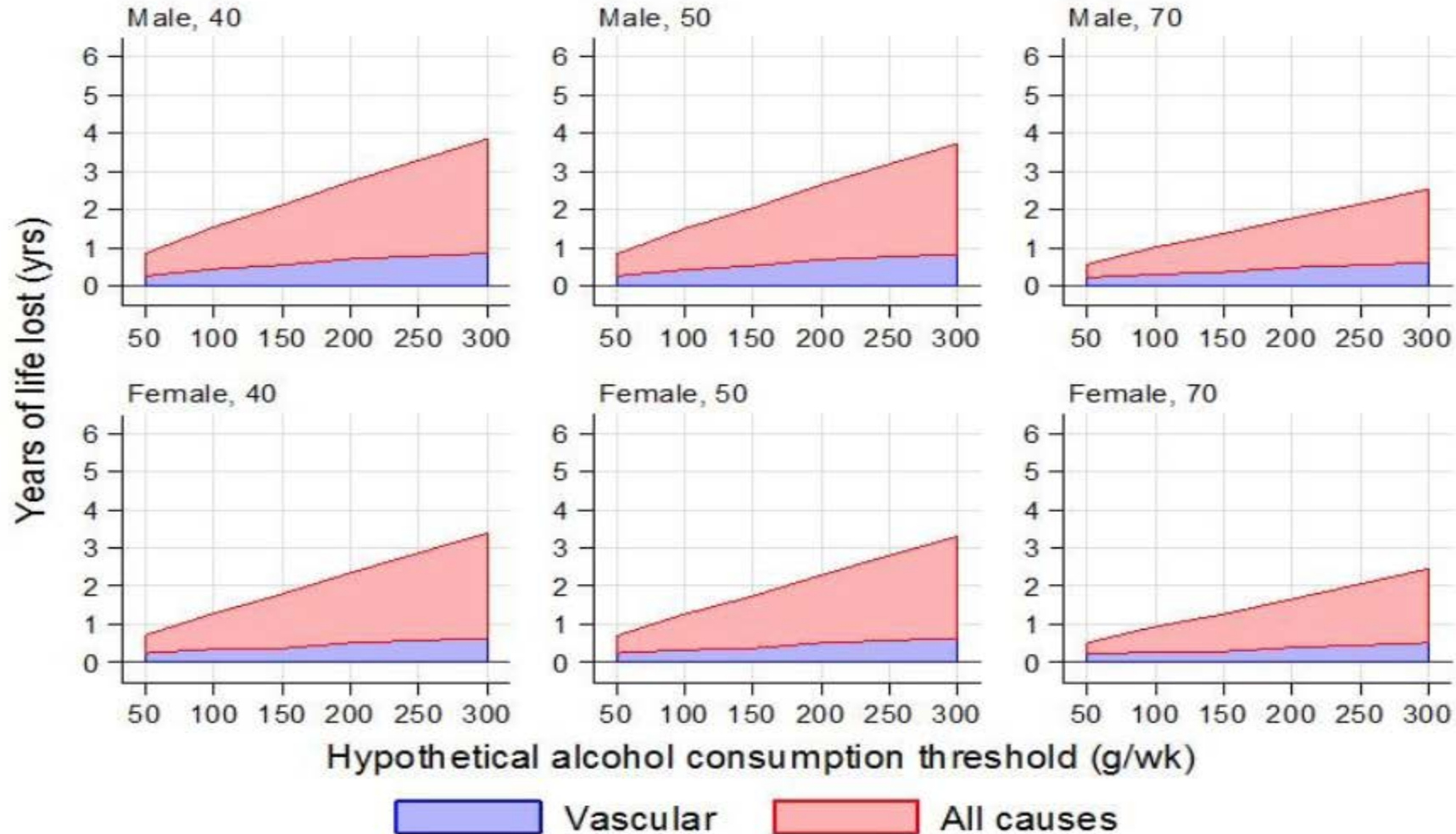
- 786,787 participants (19% non-drinkers)
- Mean age 57 years, 44% participants were women and 21% were current smokers
- 50% reported drinking > 100 grams of alcohol per week ( ~10 drinks per week)
- 8.4% reported drinking > 350 grams of alcohol per week
- 39, 018 incident cardiovascular events

# Alcohol and Link with Cardiovascular Disease

## Alcohol Use (100 grams per week ~ 10 drinks per week)



# Years of Life Lost for Individuals Drinking Above a Range of Alcohol Consumption Thresholds



# Alcohol and Cardiovascular Disease - Conclusions

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- Lowest threshold for all-cause mortality is 100 grams per week (less than 196 grams [2 drinks per day] upper limit recommended in US guidelines)
- No clear thresholds for risk of CV events (other than MI)
- Data support adoptions of lower limits of alcohol consumption

# Alcohol Use and US Policy Recommendations

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- Advocate for legislation aimed at minimizing alcohol promotion, advertising and other marketing strategies by the alcohol industry aimed at adolescents
- Ban on marketing for products such as alcopops, gelatin-based alcohol products, that have special appeal to youths under the age of 21.
- Regulate alcohol outlet density for consumption on premises (e.g., bars or restaurants) or off premises (e.g. liquor stores or other retail settings)
- Increase alcohol taxes and prices
- Include alcohol control strategies in comprehensive cancer control plans



# Alcohol Use and Cancer - Conclusions

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- Alcohol significantly contributes to cancer incidence and outcomes and overall mortality
- Concrete casual association with at least 7 cancers (aerodigestive, liver, breast and colon and strong evidence of dose-response for alcohol and breast cancer (light alcohol use)
- Increased knowledge of alcohol use as a cancer risk factor may lead to change in drinking behavior and increase in provider counseling of patients about alcohol use
- Research is needed on mechanistic effects of alcohol and interventions to assist patients in reductions of abstention from alcohol use