

# Alcohol consumption and attributable cancer in France: current consumption levels and sensitivity analyses

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# Conflict of interest

- This presentation has been done without support and independently from the event organizer.
- I have no conflict of interest to declare with the topic presented.
- I will be reimbursed hotel and travel costs.

# How is alcohol use distributed in France?

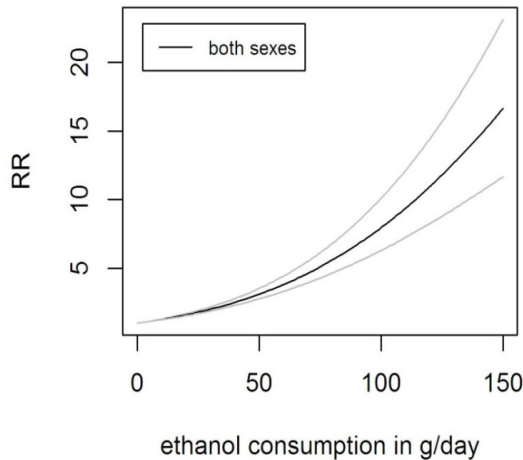
- Adult *per capita* consumption (in l pure ethanol) in 2015 (Source WHO Global Information System on Alcohol and Health):
  - Recorded: 11.92
  - Unrecorded: 1.47
  - Total: 13.39
- Proportion of current drinkers (WHO regional office for Europe (2016). Public health successes and missed opportunities Trends in alcohol consumption and attributable mortality in the WHO European Region, 1990–2014. WHO; Geneva, Switzerland):
  - Females: 62.8%
  - Males: 86.8%
- **Note:** all data refer to adult population aged 15 years or older

# Which cancers are causally related to alcohol consumption (IARC; highest degree of evidence)?

- Lip, oral cavity, and pharynx (except nasopharynx) cancer
- Oesophagus cancer
- Colon and rectum cancer
- Liver cancer
- Larynx cancer
- Female breast cancer

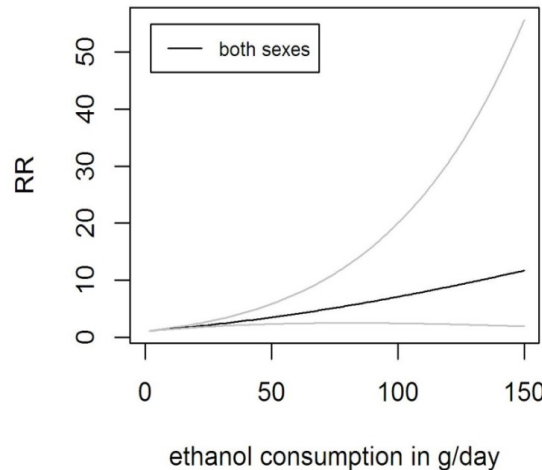
# Relationship between alcohol consumption and cancer 1

**Lip and oral cavity/pharynx cancer**



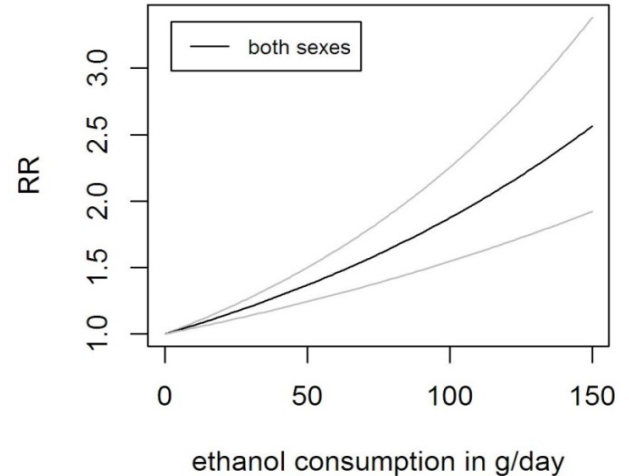
$$\ln(RR(x)) = 0.02474 \cdot x - 0.00004 \cdot x^2$$

**Esophagus cancer**



$$\ln(RR(x)) = 0.05593 \cdot x - 0.00789 \cdot x \log(x)$$

**Colon and rectum cancer**



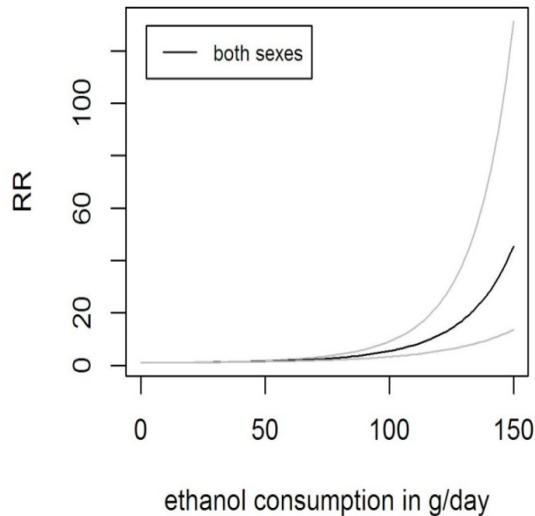
$$\ln(RR(x)) = 0.006279 \cdot x$$

BAGNARDI, V., ROTA, M., BOTTERI, E. et al. (2015) Alcohol consumption and site-specific cancer risk: a comprehensive dose-response meta-analysis, *British Journal of Cancer*, 112, 580-593.

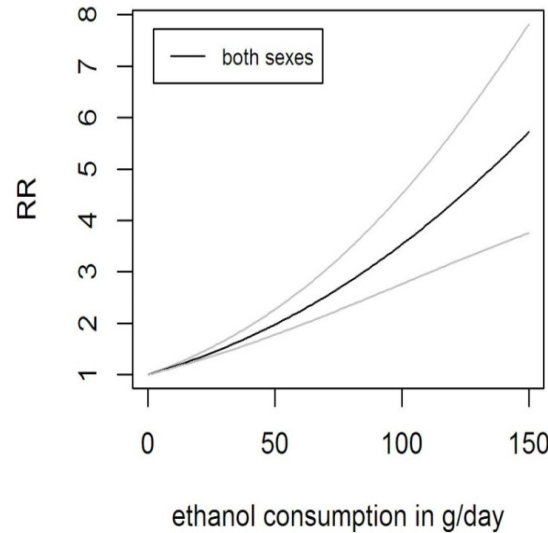
# Relationship between alcohol consumption and cancer 2

L

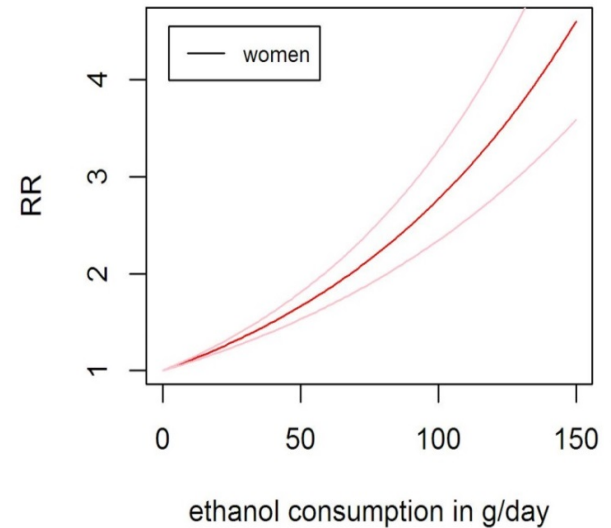
**Liver cancer**



**Larynx cancer**



**Female breast cancer**



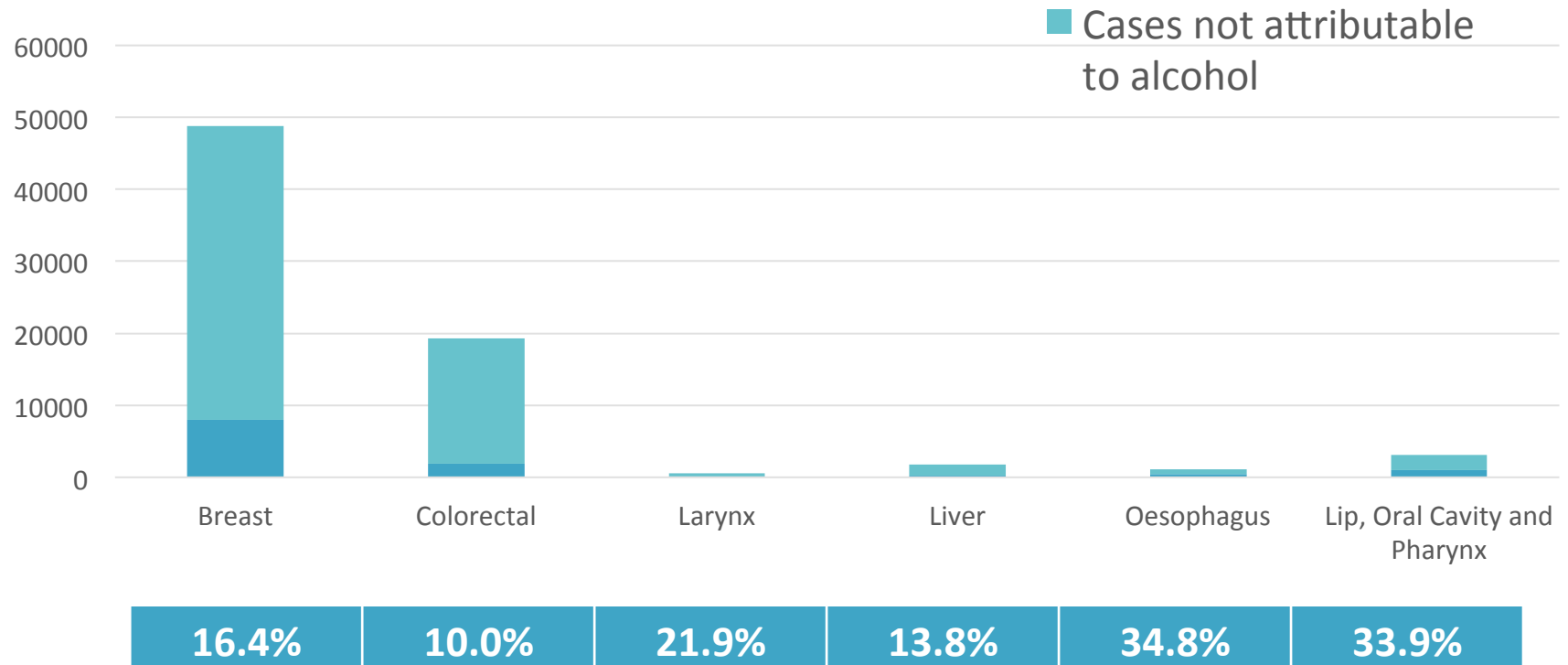
$$\ln(RR(x)) = 0.00017 \cdot x^2 - 0.00069 \cdot \sqrt{x}$$

$$\ln(RR(x)) = 0.01462 \cdot x - 0.00002 \cdot x^2$$

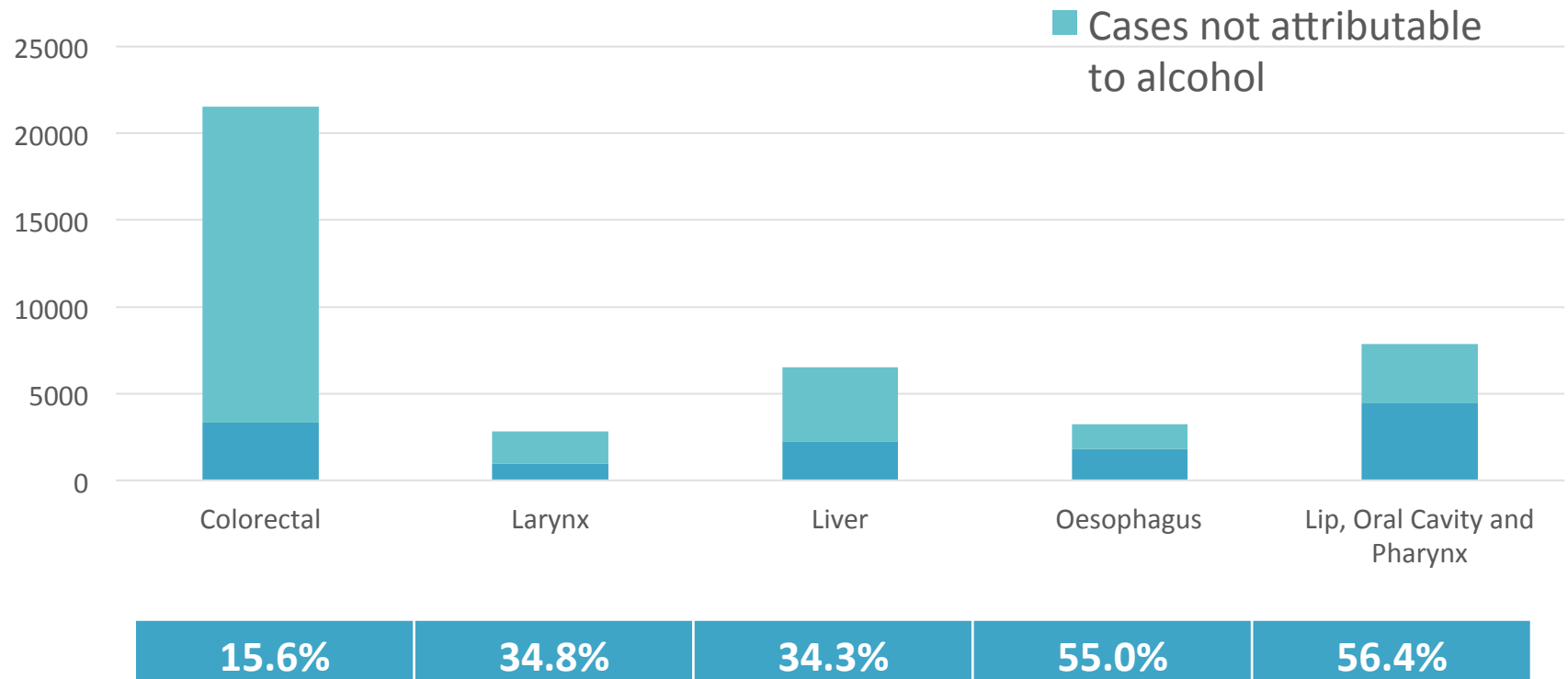
$$\ln(RR(x)) = 0.01018 \cdot x$$

BAGNARDI, V., ROTA, M., BOTTERI, E. et al. (2015) Alcohol consumption and site-specific cancer risk: a comprehensive dose-response meta-analysis, *British Journal of Cancer*, 112, 580-593.

# Incidence of different cancer types - women

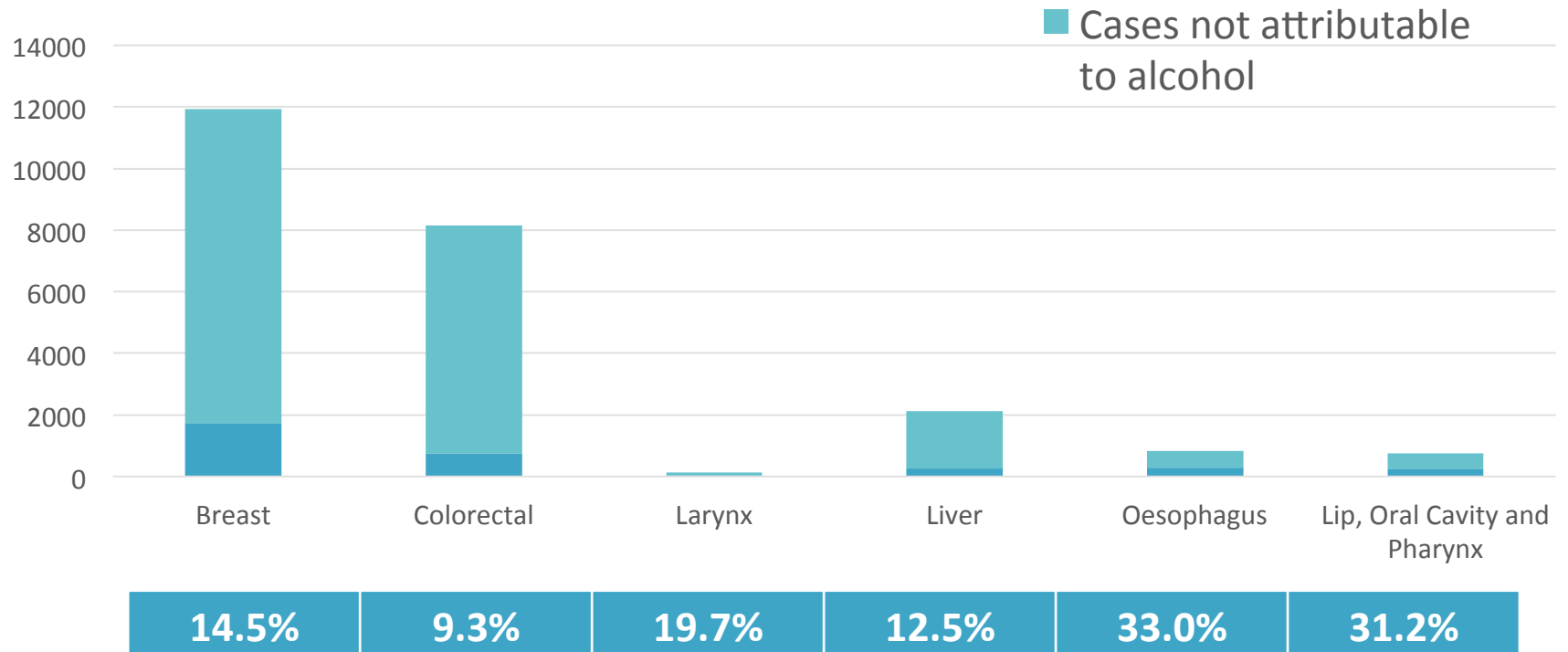


# Incidence of different cancer types - men

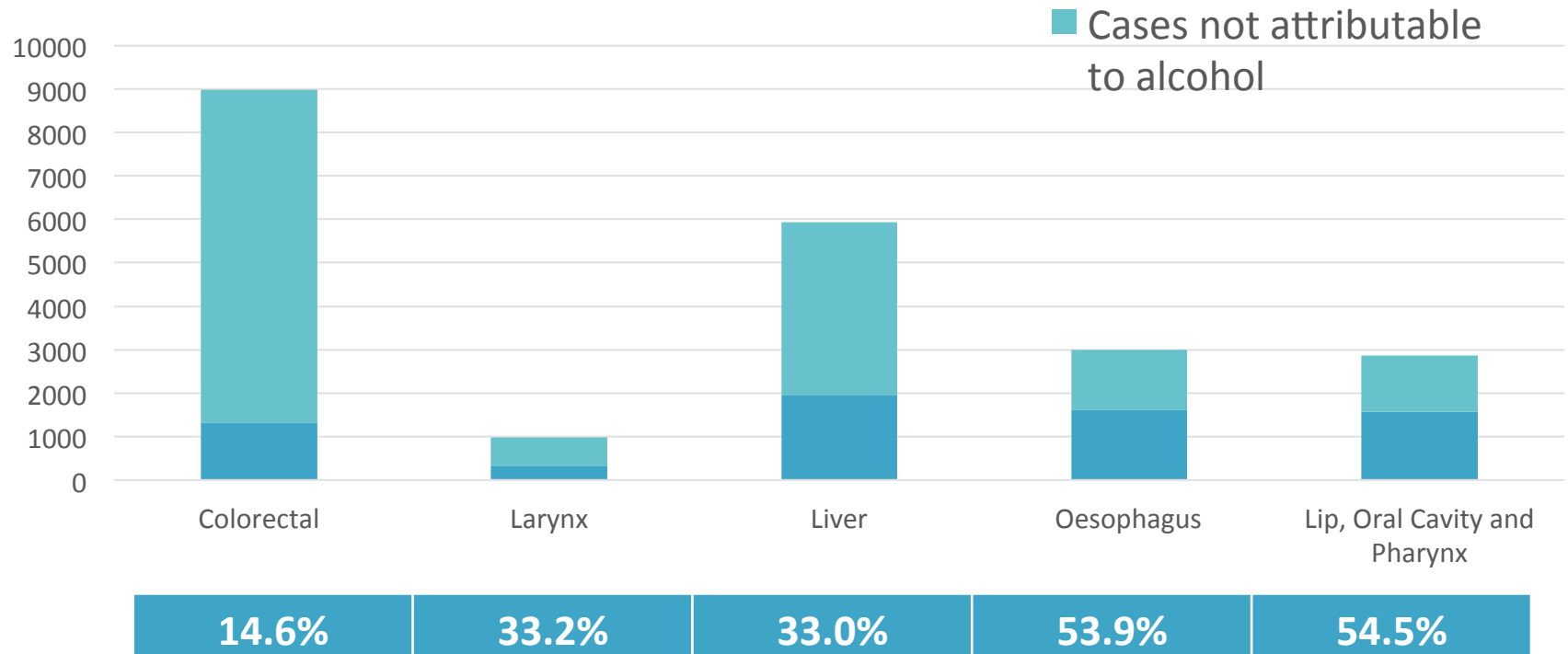




# Mortality of different cancer types - women

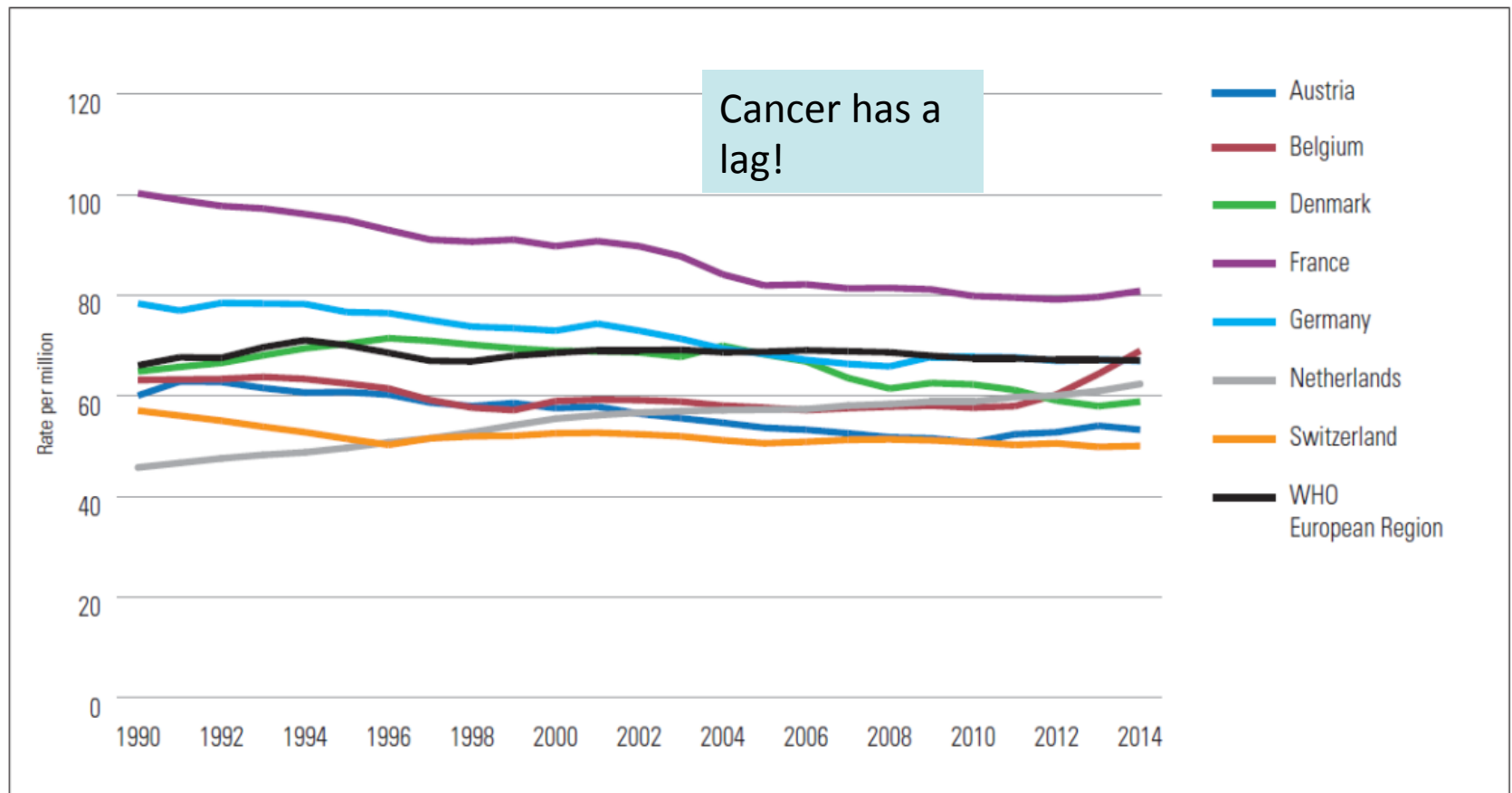


# Mortality of different cancer types - men



# Alcohol-attributable cancer in France vs. other countries in Europe (Shield et al., 2016)

**Fig. 28. Trends in age-standardized alcohol-attributable adult cancer mortality for Austria, Belgium, Denmark, France, Germany, the Netherlands and Switzerland, 1990–2014**



# What happens, if we lower consumption?

- What if all drinkers adhered to the **Lower Risk Drinking Guidelines**?

→ **Current** drinking distribution

→ **Alternative:** no more than **1** (scenario 1) or **2** (scenario 2) **standard drinks per day**

	Cancer incidence		Cancer mortality	
	Men	Women	Men	Women
Total cases of all cancers in 2012	193,859	154,177	89,971	64,353
Total cases of alcohol attributable cancers in 2012	41,967	74,614	21,756	23,927
Attributable to alcohol (2015) → current	12,794 (6.6%/30.5%)	11,735 (7.6%/15.7%)	6,774 (7.5%/31.1%)	3,295 (5.1%/13.8%)
Attributable to alcohol (2015) → scenario 1	3,930 (2.0%/9.4%)	6,015 (3.9%/8.1%)	2,032 (2.2%/9.3%)	1,831 (2.8%/7.7%)
Attributable to alcohol (2015) → scenario 2	5,903 (3.0%/14.1%)	7,688 (5%/10.3%)	3,006 (3.3%/13.8%)	2,282 (3.5%/9.5%)

# What happens, if we lower consumption?

- What if all drinkers adhered to the **Lower Risk Drinking Guidelines**?
  - **Current** drinking distribution
    - **24,529** new cancer cases (**incident cases**) due to alcohol
    - **10,069** cancer **deaths** due to alcohol
  - **Scenario 1**: no more than 1 standard drink (=10g) per day
    - prevents **14,584** (male: 8,864; female: 5,721) new cancer cases (**incident cases**)
    - prevents **6,203** (male: 4,742; female: 1,464) cancer **deaths**
  - **Scenario 2**: no more than 2 standard drinks (=20g) per day
    - prevents **10,937** (male: 6,890; female: 4,047) new cancer cases (**incident cases**)
    - prevents **4,780** (male: 3,767; female: 1,013) cancer **deaths**

# Conclusions

- Alcohol is causing a substantial proportion of cancer and cancer mortality in France
- Alcohol-attributable cancer rates have been going down with reduction of consumption over the past decades, but still are above the European average
- More than half of the alcohol-attributable cancer mortality could be reduced if average level of drinking is decreased to 2 drinks (proportionally more in men than in women)
- From a public health point of view, alcohol-attributable breast cancer is the most important single cancer type