

The Global Burden of Alcohol Misuse: New Epidemiological Data

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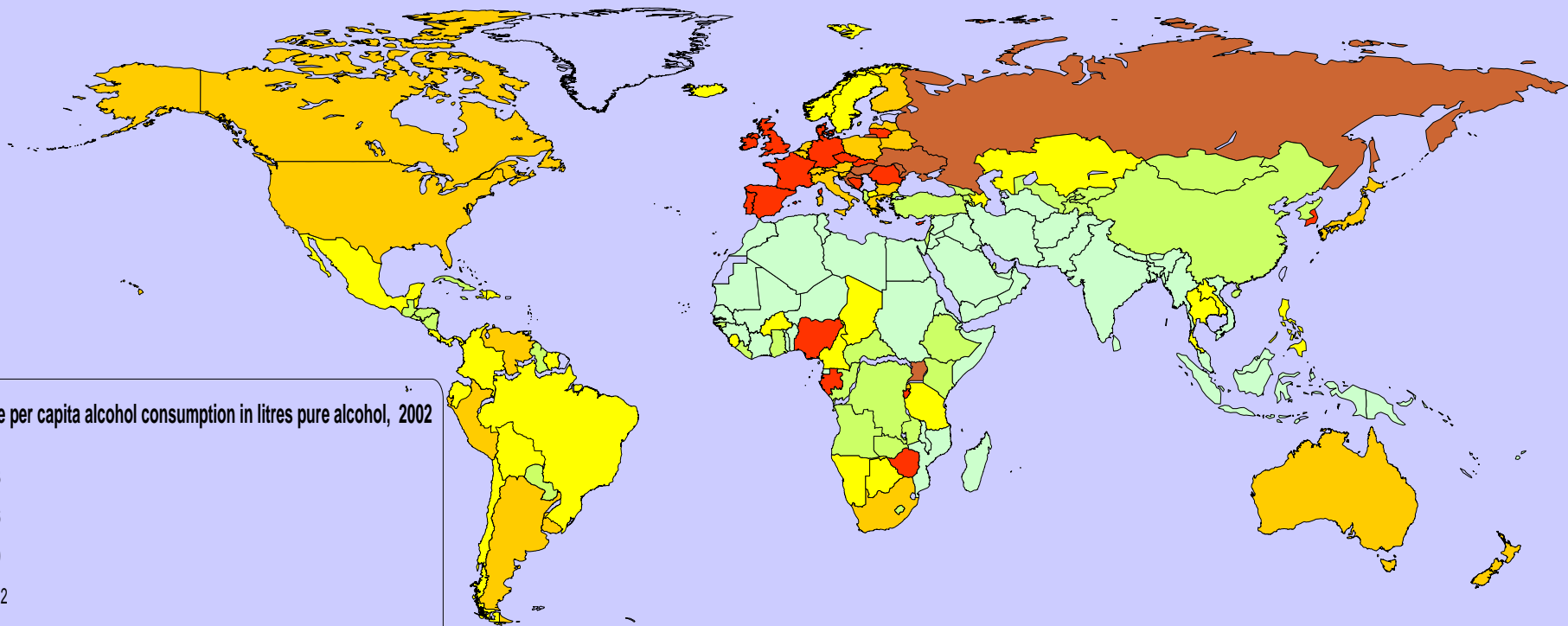
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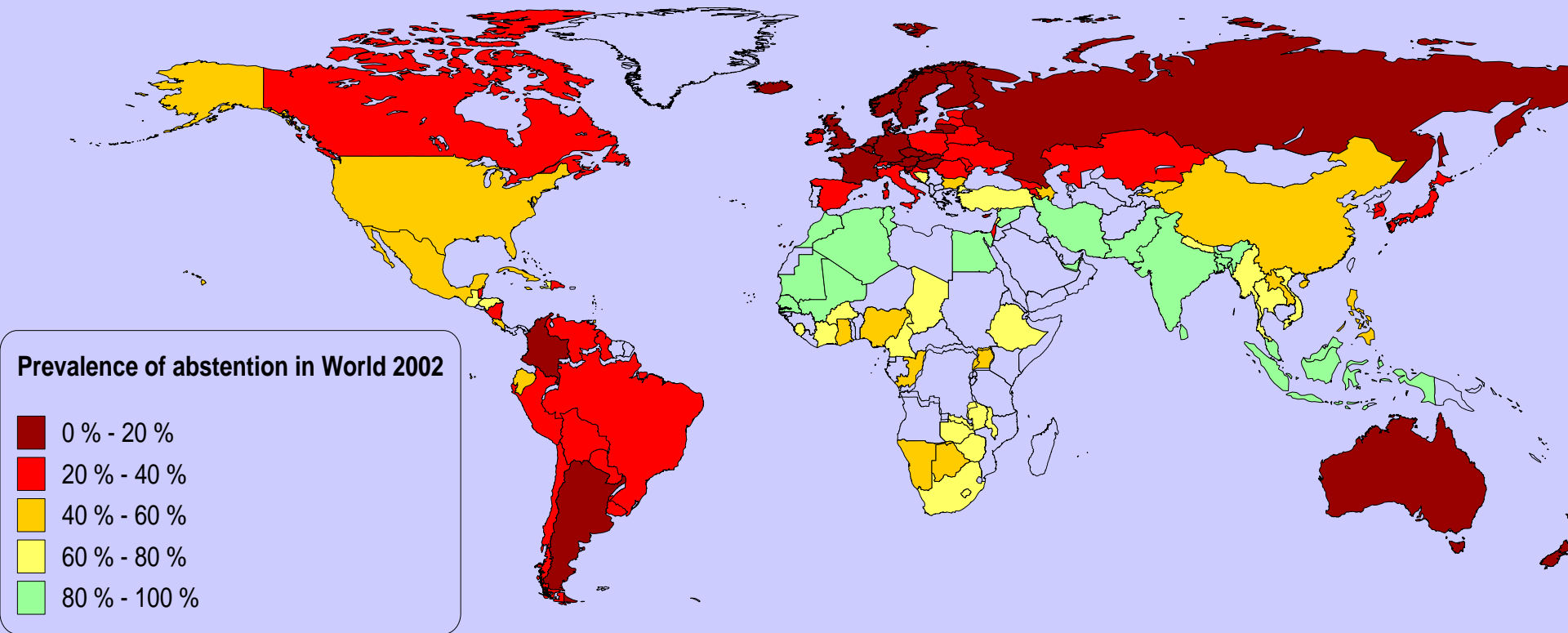
Adult per capita consumption in litre pure alcohol 2002 (average 2001-2003)



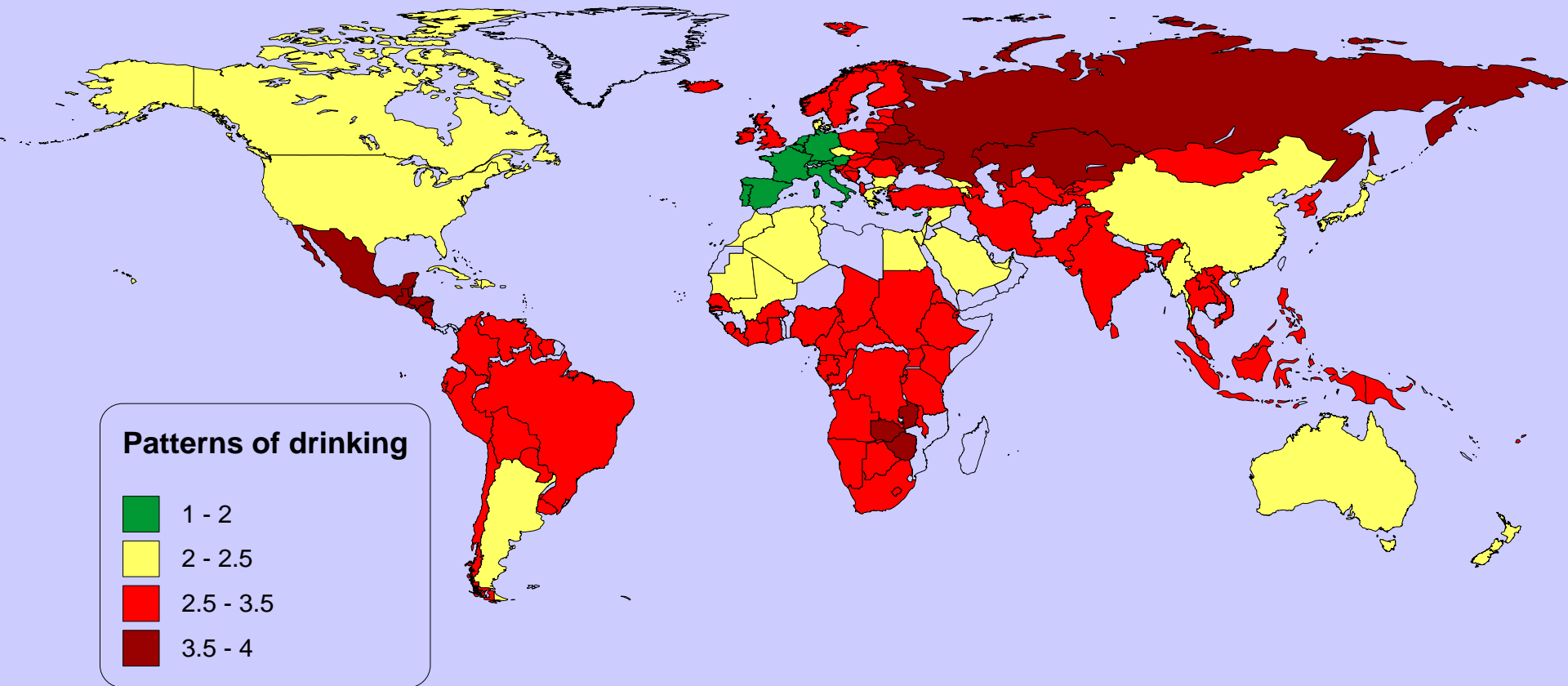
Average per capita alcohol consumption in litres pure alcohol, 2002

- 0 - 3
- 3 - 6
- 6 - 9
- 9 - 12
- 12 - 15
- 15 - 25

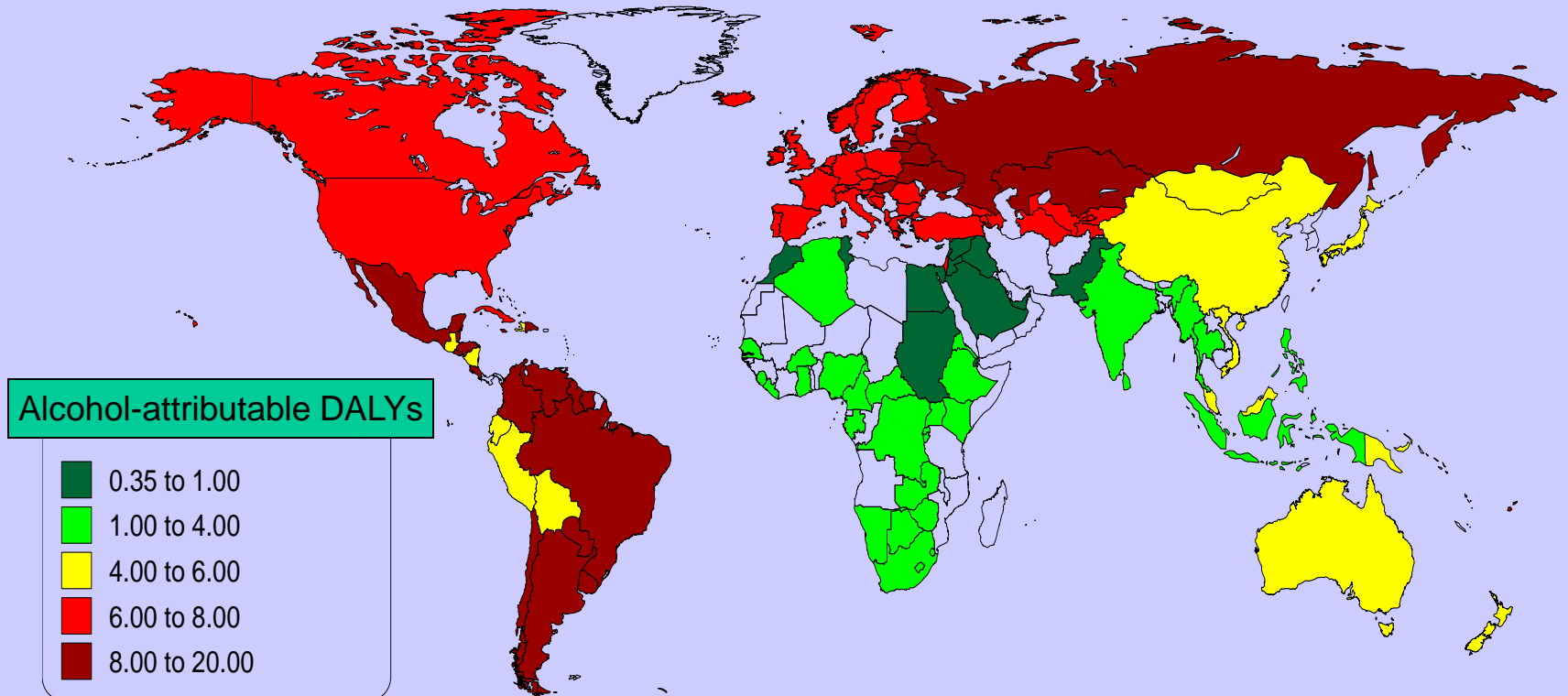
Prevalence of abstinence in World 2002



Patterns of drinking 2002



Alcohol-attributable global burden of disease 2002

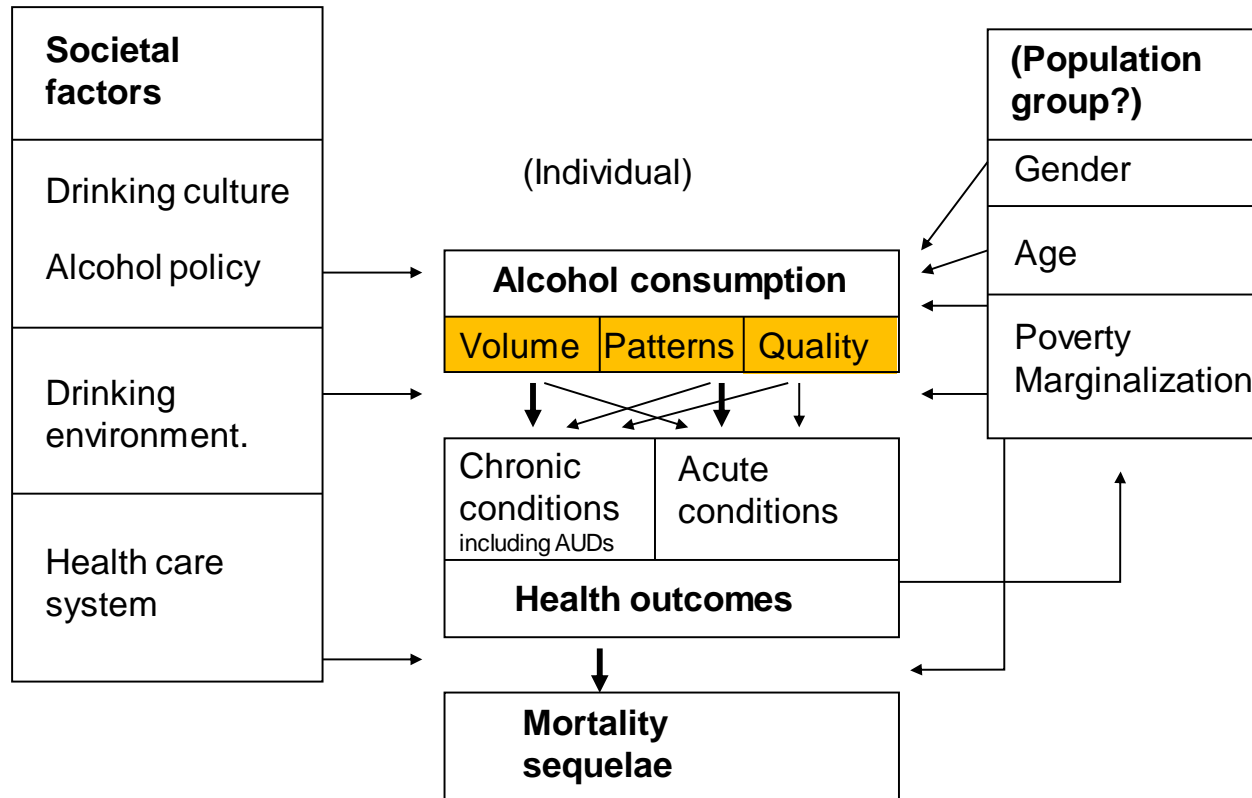


All numbers are based on net burden!

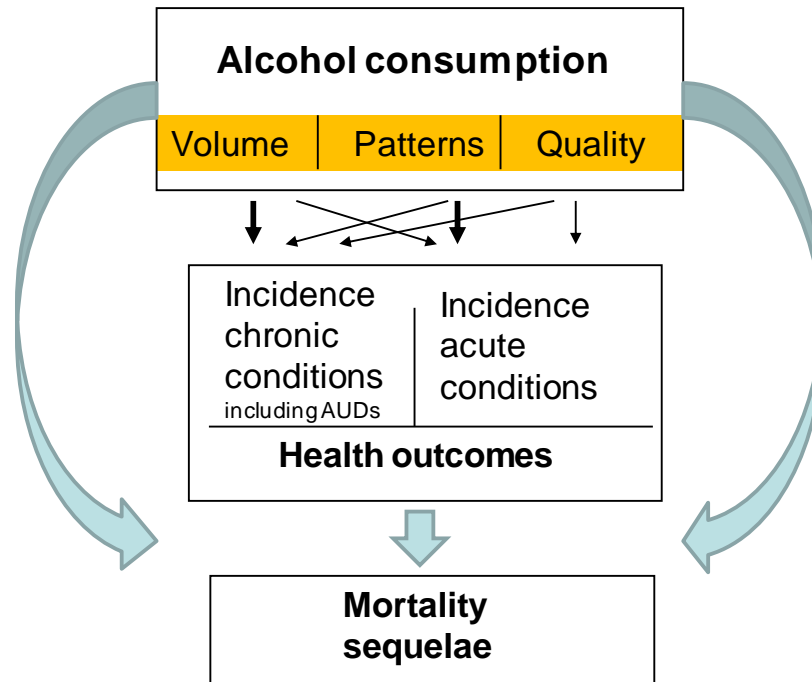
What is new?

- Just updating 2000 to 2002 or 2004, where only aficionados see slight differences, does not make a difference!
- But a lot is new in alcohol epidemiology
- It will result in marked changes in the next CRA iteration

Currently used model for alcohol CRA 2005



Currently used model for alcohol CRA 2005



What is new in the model?

- First step to explicitly include poverty and SES in burden calculations
- Attempts to scientifically look into unrecorded consumption and potential burden
- Separation of effects of alcohol on mortality and morbidity separately (last estimates were often overestimates, as we used mortality estimates mainly derived from mortality for both)

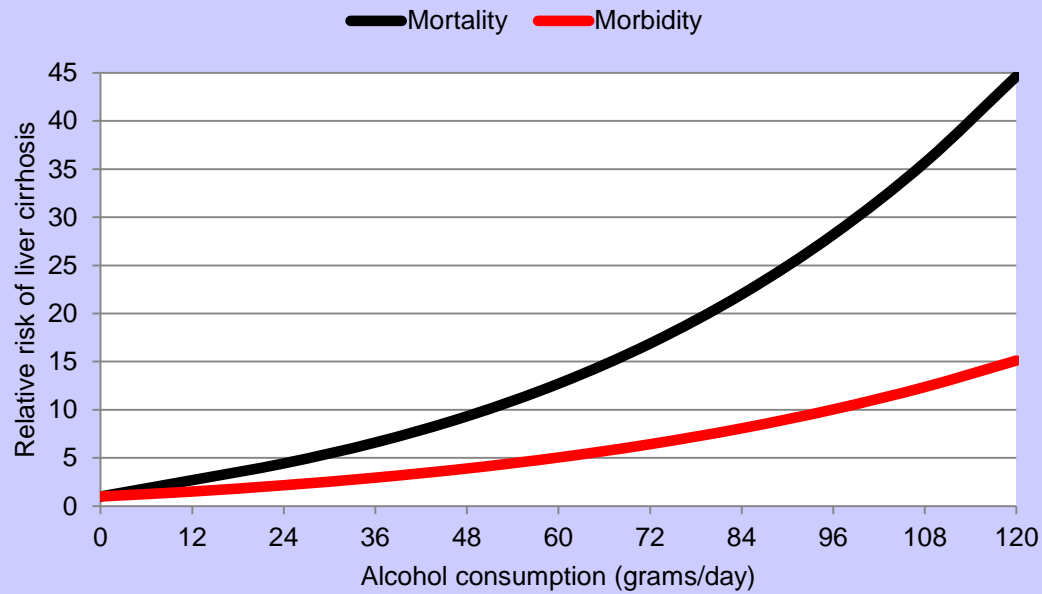
Also: development in epidemiology of alcohol-attributable diseases

Some exemplary changes

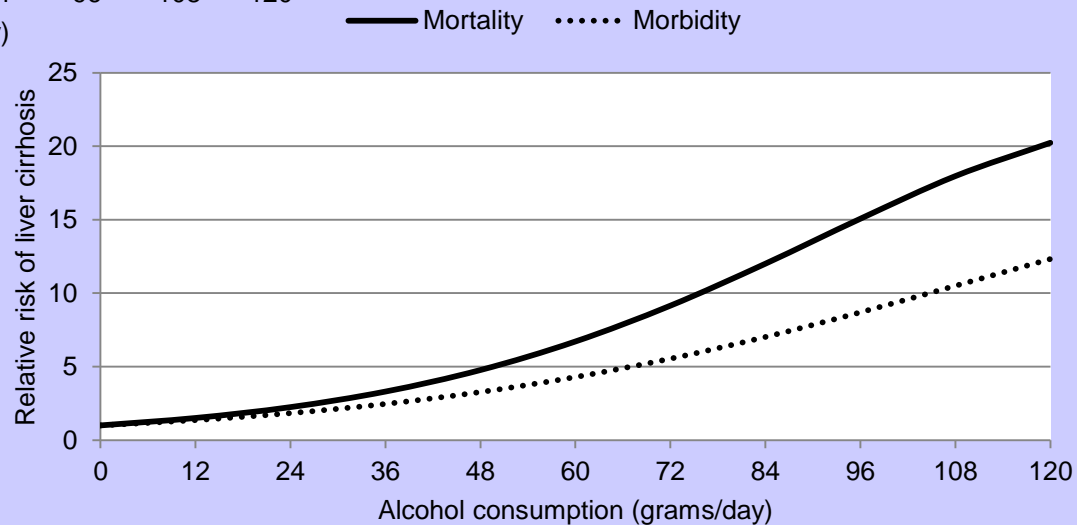
- Series of meta-analyses to look into alcohol-attributable morbidity vs. mortality separately

=> Main findings: mortality is linked to a higher degree to alcohol both for chronic disease and for injury.

Example of liver cirrhosis



male



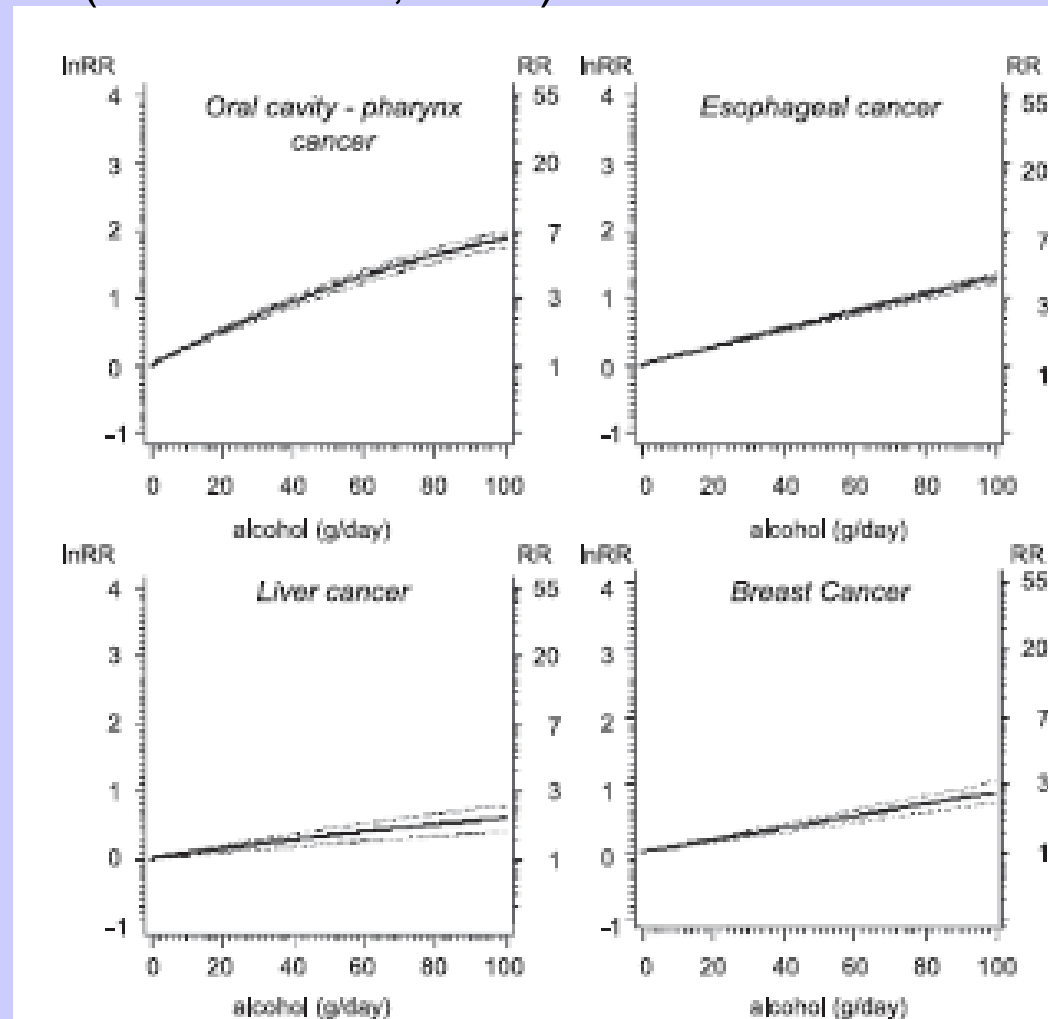
Data from Irving
et al., 2008

Cancers related to average volume and kind of relative risk

Cancer:

- Lip & oropharyngeal cancer, Esophageal cancer, Liver cancer, Laryngeal cancer, Colorectal cancer
- Female breast cancer
- After consensus meeting at IARC, colorectal cancer was added as in part caused by alcohol!

Typical risk curves for cancer
(Corrao et al., 2004)





Alcohol & Infectious Diseases Technical
Meeting
15 – 18 July 2008

Vineyard Hotel
Cape Town, South Africa



In
collaboration
with






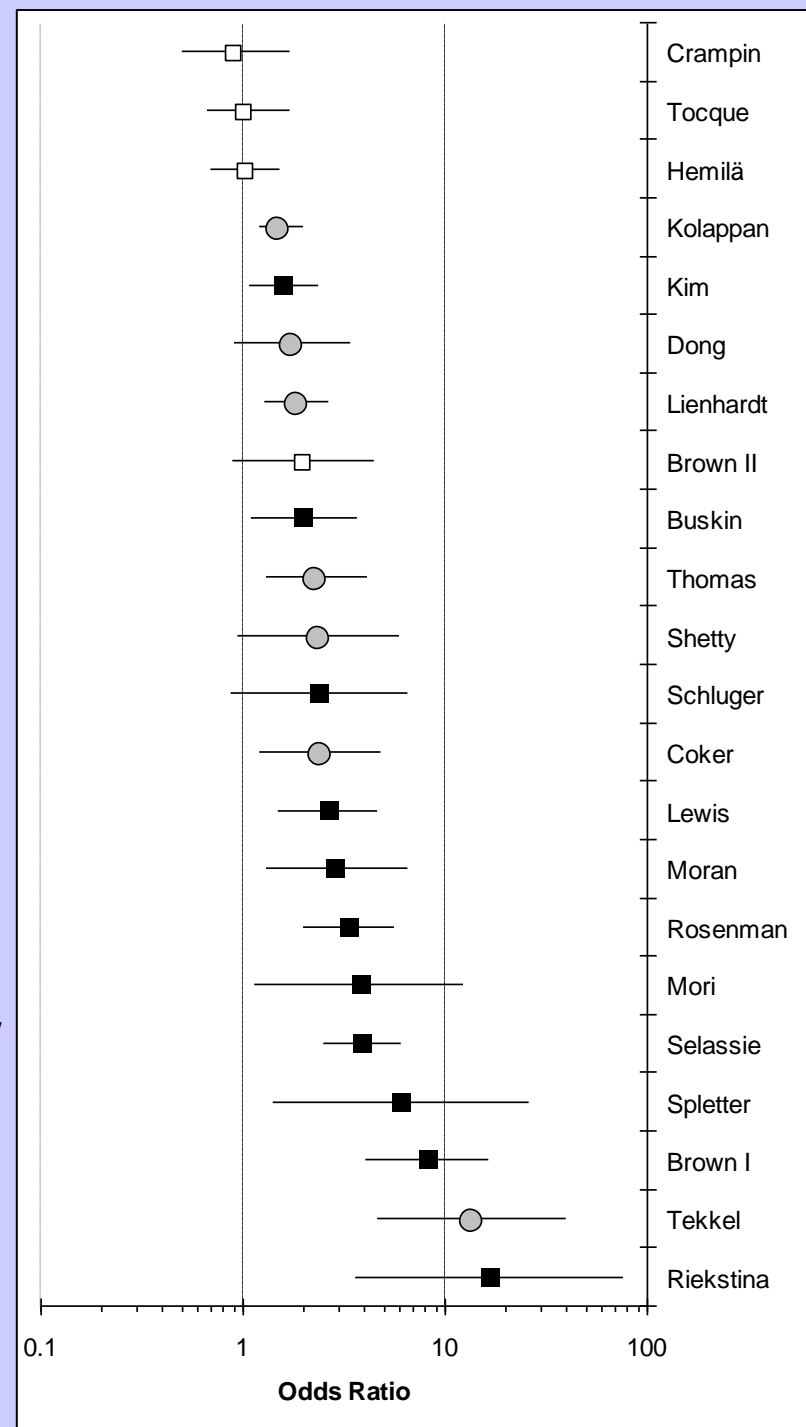
World Health
Organization



Meta-analysis on alcohol and TB

Lönnroth et al., 2008

-  Low exposure: cut-off for intake set at <40 g alcohol / day
-  High exposure: cut off for intake set at ≥ 40 g/day, or diagnosed alcohol disorder (dependence, abuse, or "heavy drinking")
-  Exposure not clearly defined

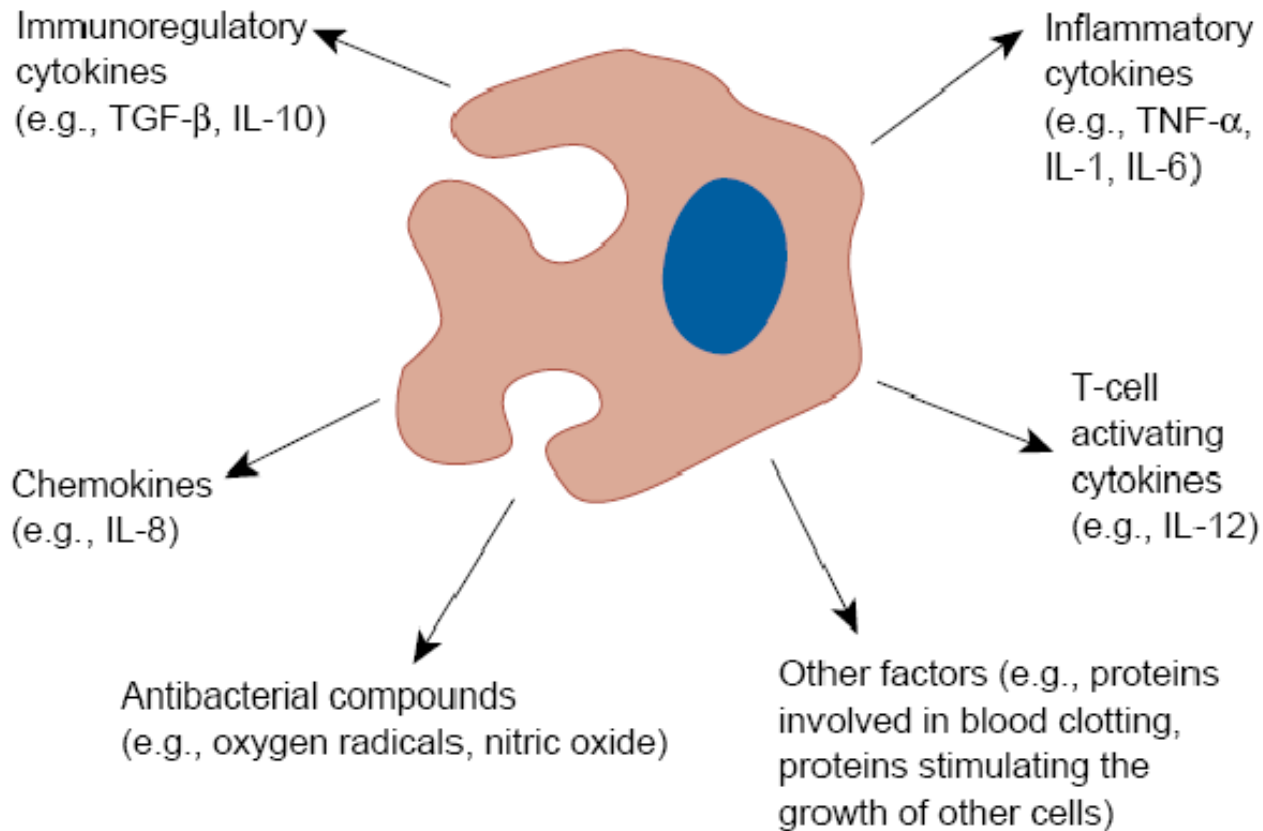


Pooled estimates for high-exposure/alcoholism studies

Study category	No of studies	Random effect assumption (95% CI)
Pulmonary TB cases only	2	3.67 (2.58-5.22)
All types of TB	6	2.87 (1.47-5.58)
Controlled for HIV status	7	3.26 (2.26–4.70)
Controlled age, sex, SES, smoking	5	3.49 (2.06-5.90)
Controlled HIV, age, sex, SES, smoking	4	4.08 (2.49–6.68)
Controlled infection, age, sex, SES	4	4.21 (2.73-6.48)
Excluding three smallest studies	8	2.94 (1.89-4.59)

Overall high consistency on alcohol and TB

- Overall, the results were consistent. We found some more articles in Russian and other Slavic languages confirming the results of the meta-analysis.
 - Funnel plot indicated some potential for publication bias
 - But effect size remained stable when considering only the consistent studies
 - Only studies with low consumption had different results
- => Overall consistent association between alcohol consumption and TB, relatively large effect size and statistical significance despite limited number of studies.



Monocyte/macrophage-derived substances potentially affected by alcohol. Monocytes and macrophages produce numerous substances that initiate and regulate inflammatory reactions; attract other immune cells (i.e., chemokines); stimulate T cells; help in the elimination of pathogens, such as bacteria; and perform other functions throughout the body. Alcohol may interfere with the production and secretion of all these substances, thereby impairing the body's immune response.

IL = interleukin; TGF- β = transforming growth factor beta; TNF- α = tumor necrosis factor alpha.

- **Impaired macrophage response**
- **altered cytokine levels**
- **disturbed cell-mediated and humoral immunity balance**

Multiple effects:

- **Effects of alcohol consumption per se**
- **liver damage often caused by alcohol consumption**
- **malnutrition often associated with alcohol dependence**
- **HIV infections**

SOCIAL PATHWAYS FOR ACQUIRING INFECTION, ACTIVE TB AND FOR TREATMENT FAILURE

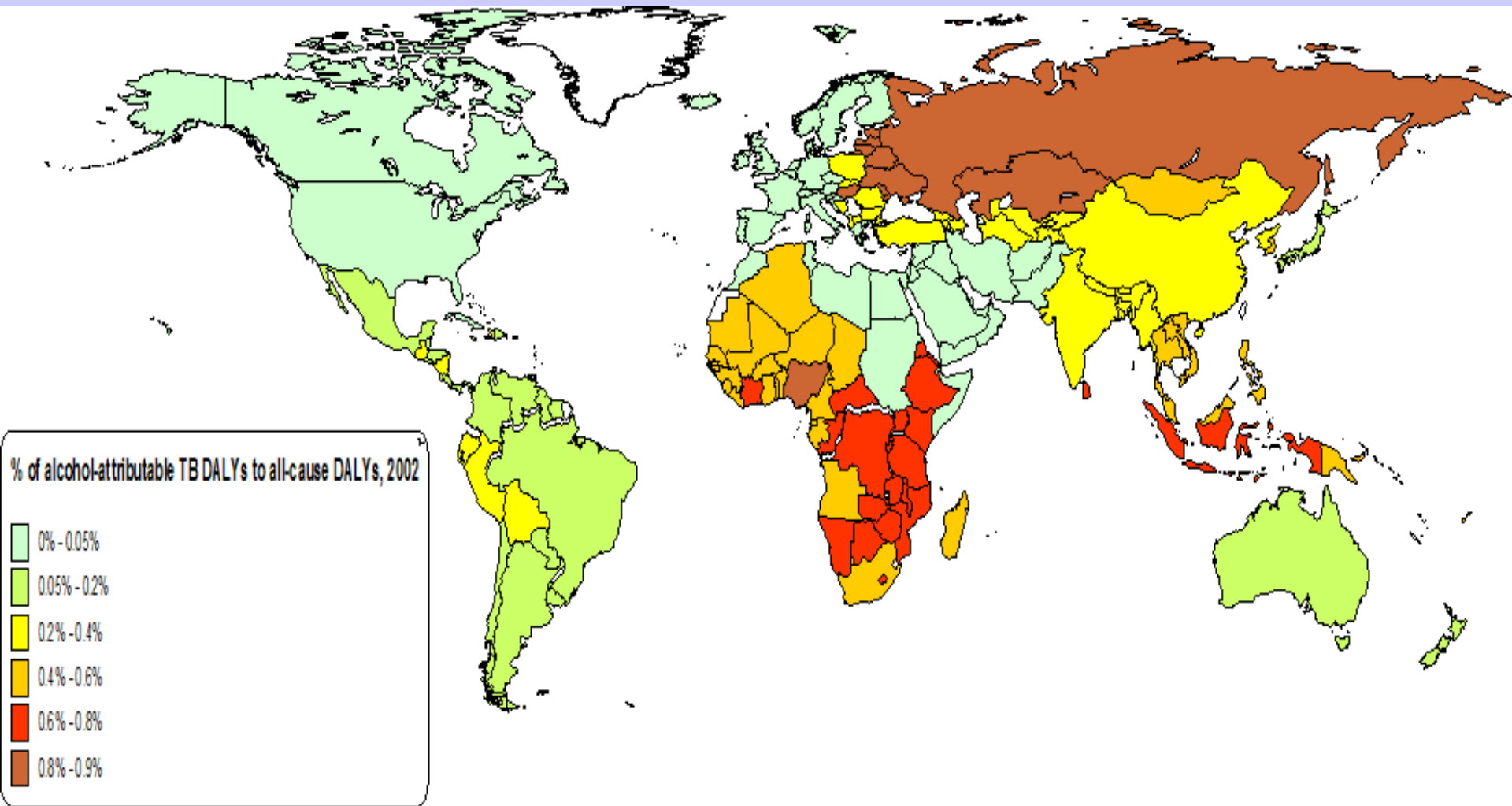
- **OUTBREAKS IN HIGH-RISK LIVING CONDITIONS (HOMELESSNESS, CROWDING, POVERTY, PRISONS)**
- **LIMITED HELP SEEKING (OFTEN TOO LATE) BY PEOPLE WITH ALCOHOL DEPENDENCE**
- **OFTEN LIMITED COMPLIANCE WITH TREATMENT**
- **Indication that alcohol is linked to drug resistance (e.g., Fleming et al., 2006)**

**CAUSALITY OFTEN LINKED TO SOCIAL DRIFT
DOWNWARDS ASSOCIATED WITH ALCOHOL
DEPENDENCE**

Results on alcohol and infectious disease

- Technical meeting found sufficient evidence to conclude a causal role of alcohol on incidence of TB and on alcohol worsening the cause of TB
- Results summarized and submitted
- CRA will include TB and pneumonia as partially caused by alcohol
- Evidence on HIV incidence not sufficient!

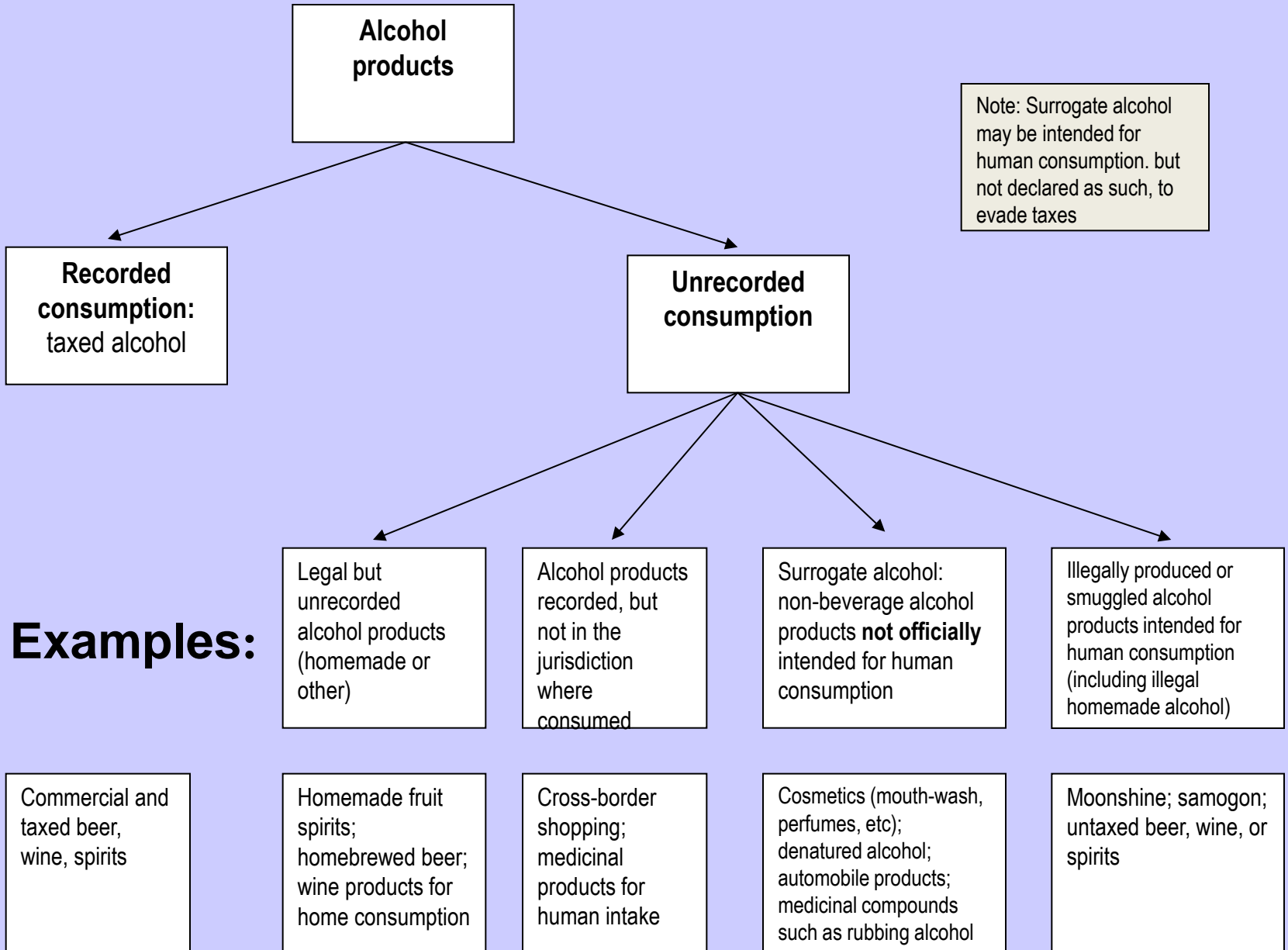
Alcohol-attributable TB deaths 2002 as proportion of all DALYs



Next steps

- ANOC2 will include the 2002 CRA
- It will include part of the new epi in boxes
- The CRA 2005 (to appear as part of the GBD 2010) will have the comprehensive picture on alcohol-attributable epidemiology
- In between we will update single disease categories and will have a comprehensive review (update of summary article in Addicton 2003)

Classification of alcohol products



What about unrecorded

- For public health we need not one number of unrecorded but different categories based on their potential public health impact
- Homebrew is not the same of surrogate alcohol! And different forms of surrogate do not have the same impact....
- Systematic collection of different forms

Example: Illegal cuxa production in Guatemala

