

Alcohol, Chronic Disease & Public Health Responses: *Evidence, Interventions & Challenges*

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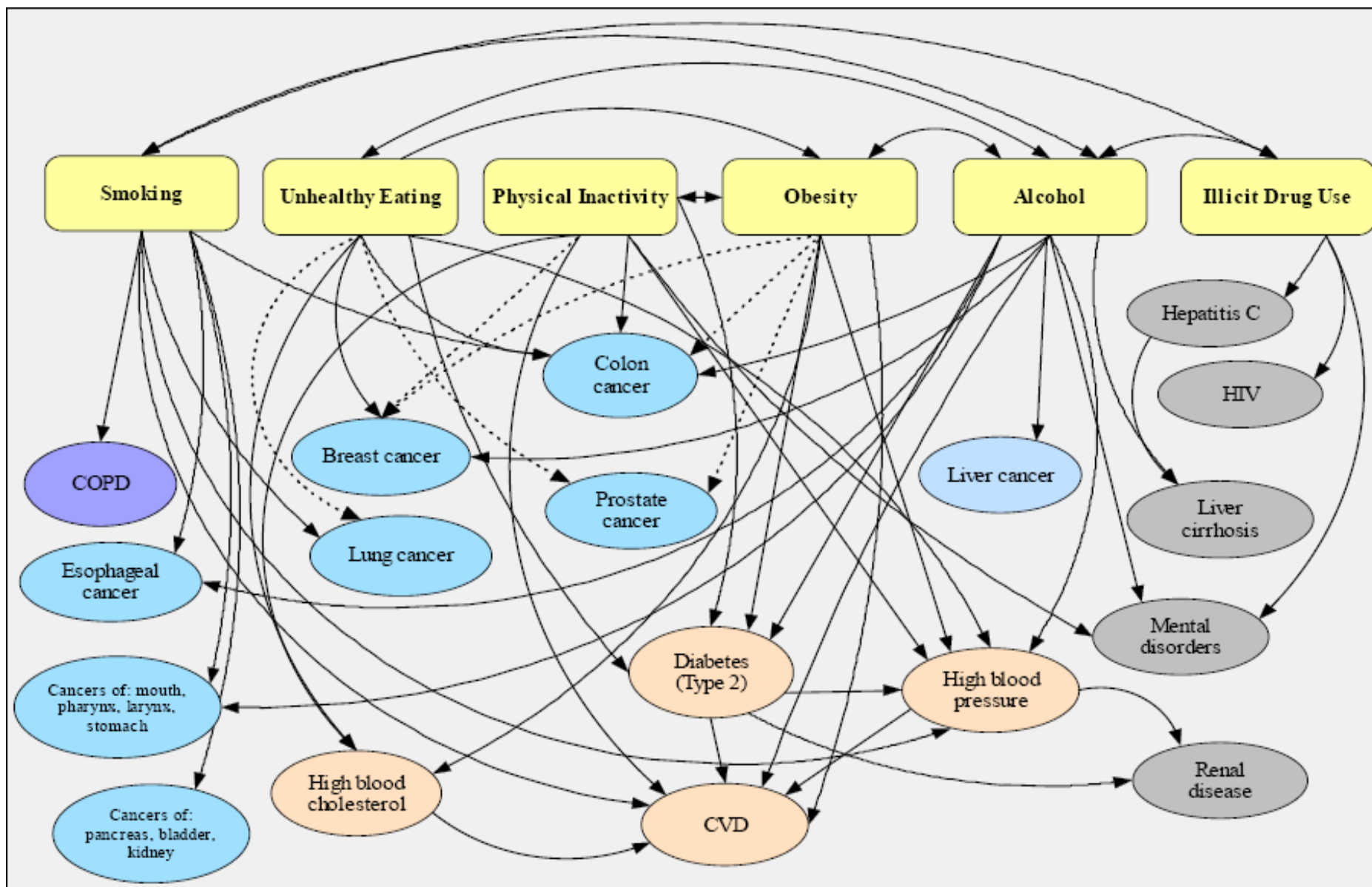
*Toronto, Ontario
November 17, 2008*



Overview

- Chronic disease
- Alcohol & chronic disease
- Alcohol consumption & management in Ontario
- Evidence-based prevention and policy options
- Challenges and opportunities

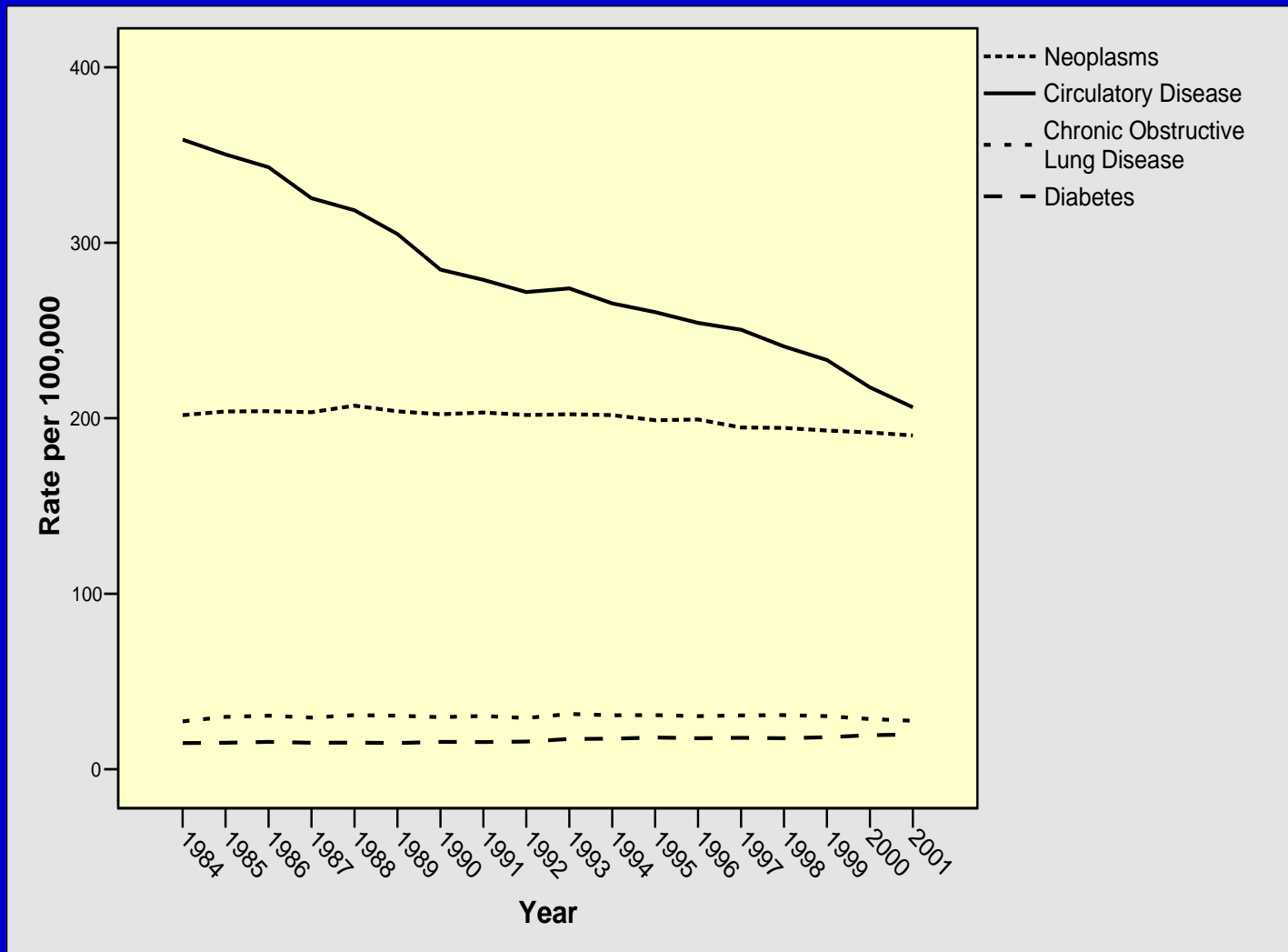
Figure 30: Selected Proximal Behavioural Risk Factors for Selected Chronic Diseases – The Strength of the Evidence



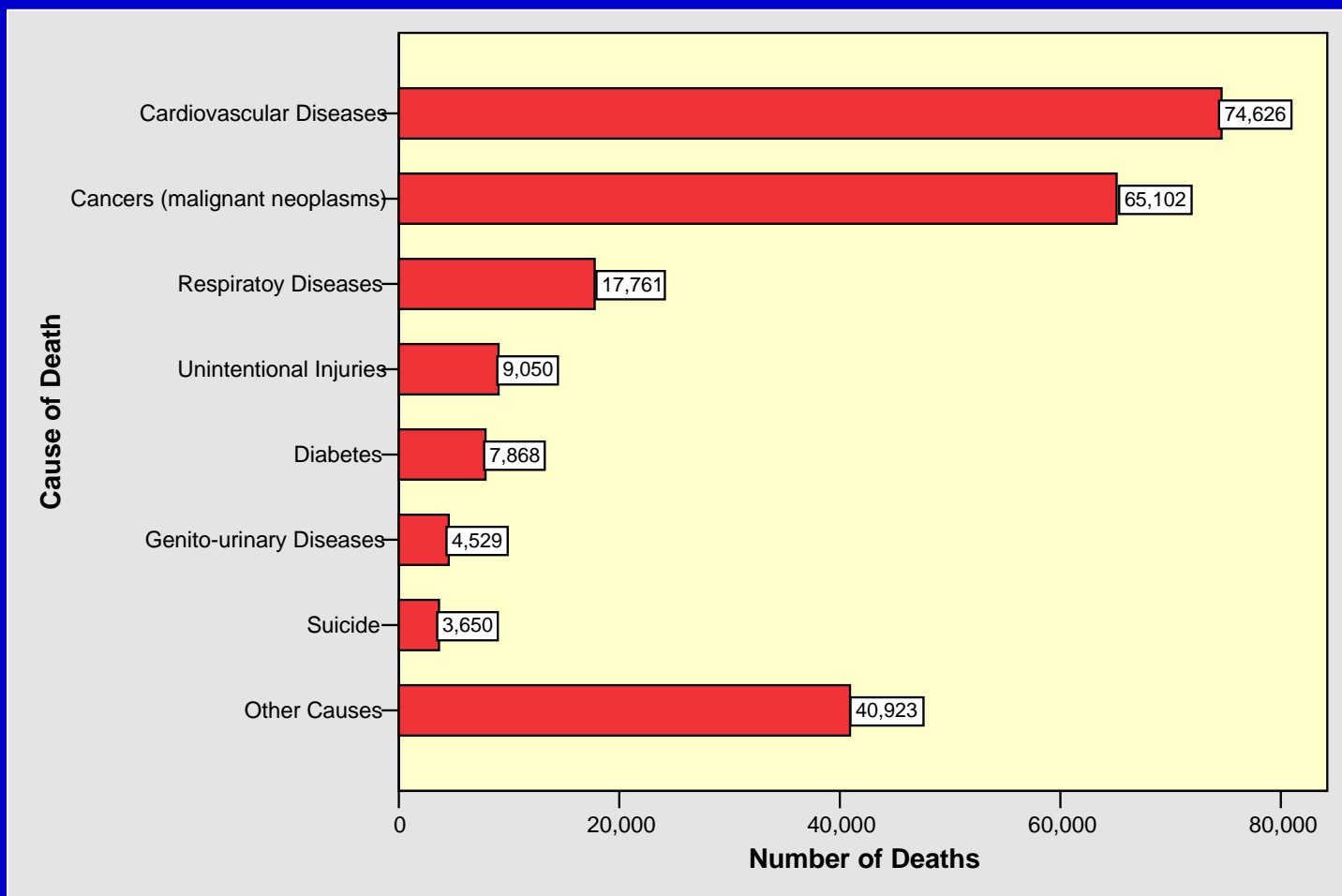
Note: Alcohol has also a protective effect for CVDs among women and men 45 years and older, depending on the pattern of drinking; the link to diabetes also depends on volume and patterns of drinking.

Source: E. Haydon, M. Roerecke, N. Giesbrecht, J. Rehm & M. Kobus-Mattews. 2005

Age-Standardized Mortality Rate (Canada 1991) For Selected Causes, Both Sexes, 1984-2001



Number of Deaths by Selected Causes, Canada, 2002



Note: Coded according to the International Classification of Diseases version 10 (ICD-10).

Source: Statistics Canada, Mortality Files.

Five major chronic diseases of concern in Canada

- Cancer
- Cardiovascular disease
- Respiratory disease
- Diabetes
- Mental Illness (Depression)

Potential Years of Life Lost (PYLL,) Number and Rate per 100,000 Population, by Sex, Canada, 2001

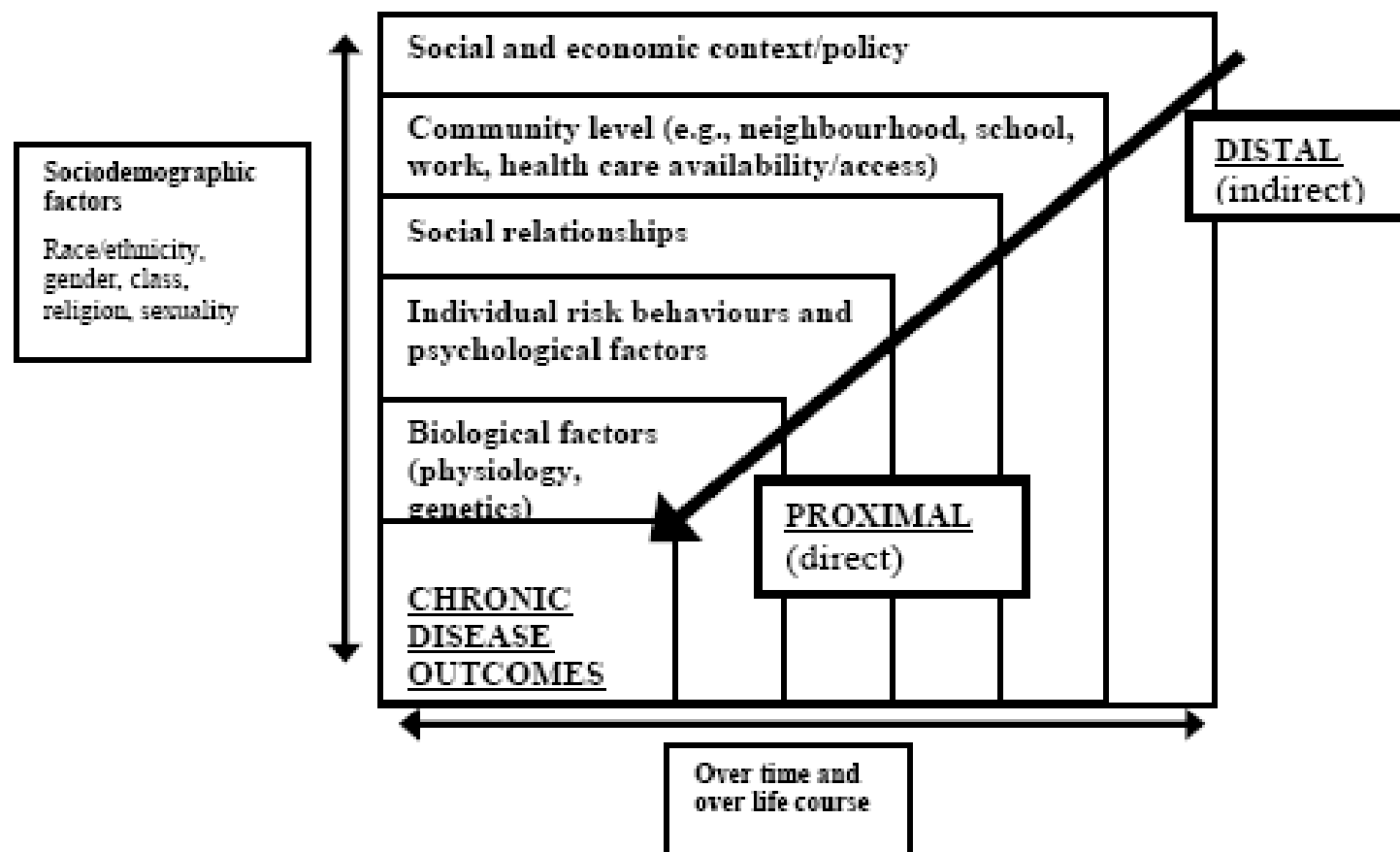
Condition	PYLL					
	Total		Men		Women	
	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000	Number
All malignant neoplasms (cancers)	1,574	460,535	1,604	235,871	1543	224,664
Lung cancer	403	118,061	453	66,588	353	51,473
Circulatory diseases	853	249,773	1195	175,668	508	74,104
Respiratory diseases (excluding infectious and parasitic diseases)	162	47,408	185	27,248	138	20,161
Unintentional injuries	639	187,216	942	138,562	334	48,654
Suicides and self-inflicted injuries	393	115,130	610	89,683	174	25,447
Total, all causes of death	5,101	1,492,644	6,328	930,201	3,862	562,443

Source: Statistics Canada, Canadian Vital Statistics, Death Database, and Demography Division (population estimates)

Sociobehavioural risks and determinants of chronic disease

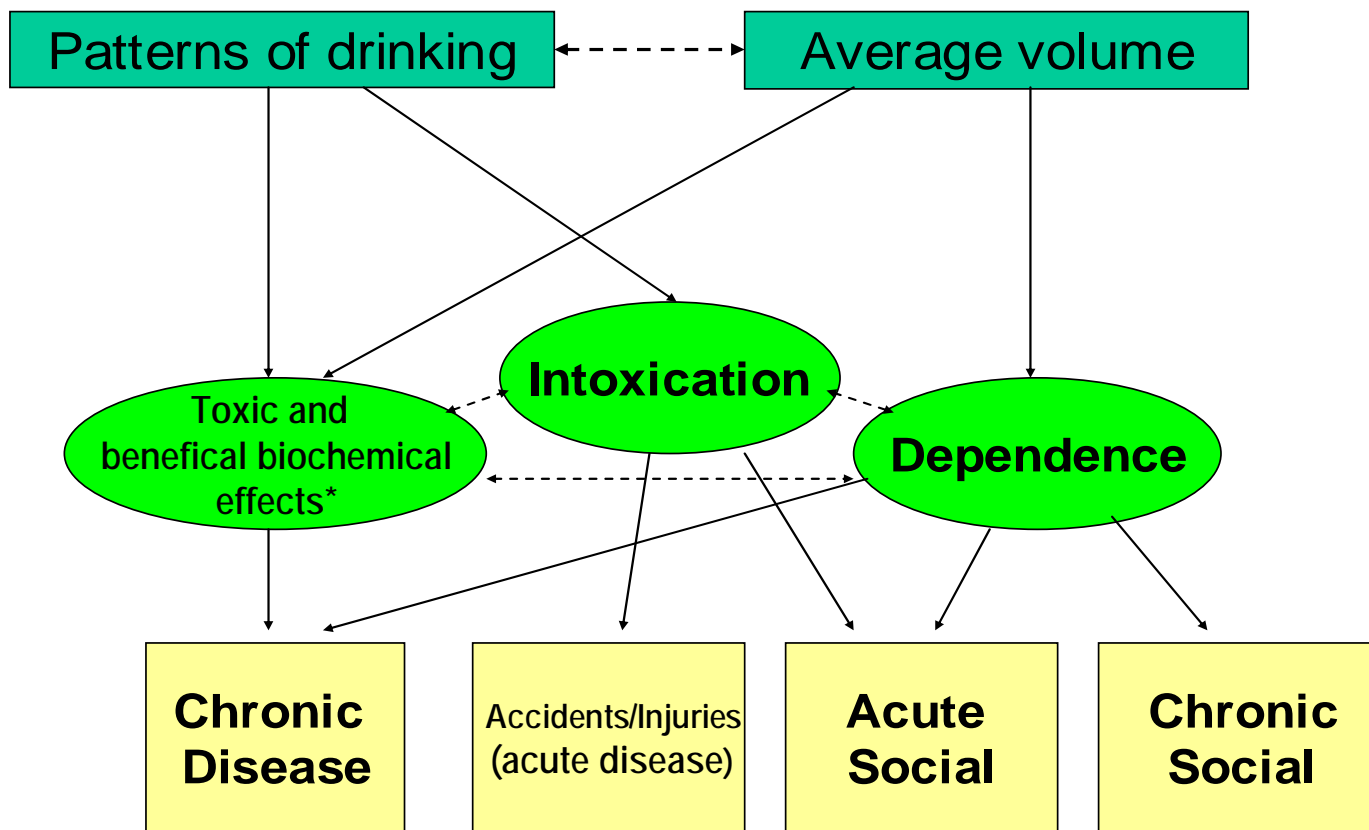
- Chronic disease can no longer be explained as only one of individual responsibility or engagement in “wrong” health behaviours
- Chronic disease as within a web of causation
- Continuum of risk
 - Geoffrey Rose: sick individuals and sick populations
 - Distal factors have a bigger role to play

Multi-dimensional risk model



Adapted from: Smedley & Syme (2000) and World Health Organization (2002)

Causal model of alcohol consumption, intermediate mechanisms, and long-term consequences



Source: T. Babor et al. 2003

* Independent of intoxication or dependence

Major alcohol-related health conditions contributing to morbidity and mortality

(Alcohol has been linked with over 60 diseases or conditions)

Cancers: head and neck cancers as well as cancers of the gastrointestinal tract, liver cancer, and female breast cancer.

Neuropsychiatric conditions: alcohol-dependence syndrom, alcohol abuse, depression, anxiety disorder, organic brain disease.

Cardiovascular conditions: ischaemic heart disease, cerebrovascular disease.

Source: T. Babor et al. (2003, p. 64) and E. Gutjahr et al. (2001)

Major alcohol-related health conditions contributing to morbidity and mortality

Gastrointestinal conditions: alcoholic liver cirrhosis, cholelithiasis, pancreatitis.

Maternal and perinatal conditions: low birth weight, intrauterine growth retardation, fetal alcohol effects.

Acute toxic effects: alcohol poisoning.

Accidents: road and other transport injuries, fall, drowning and burning injuries, occupational and machine injuries.

Self-inflicted injuries: suicide.

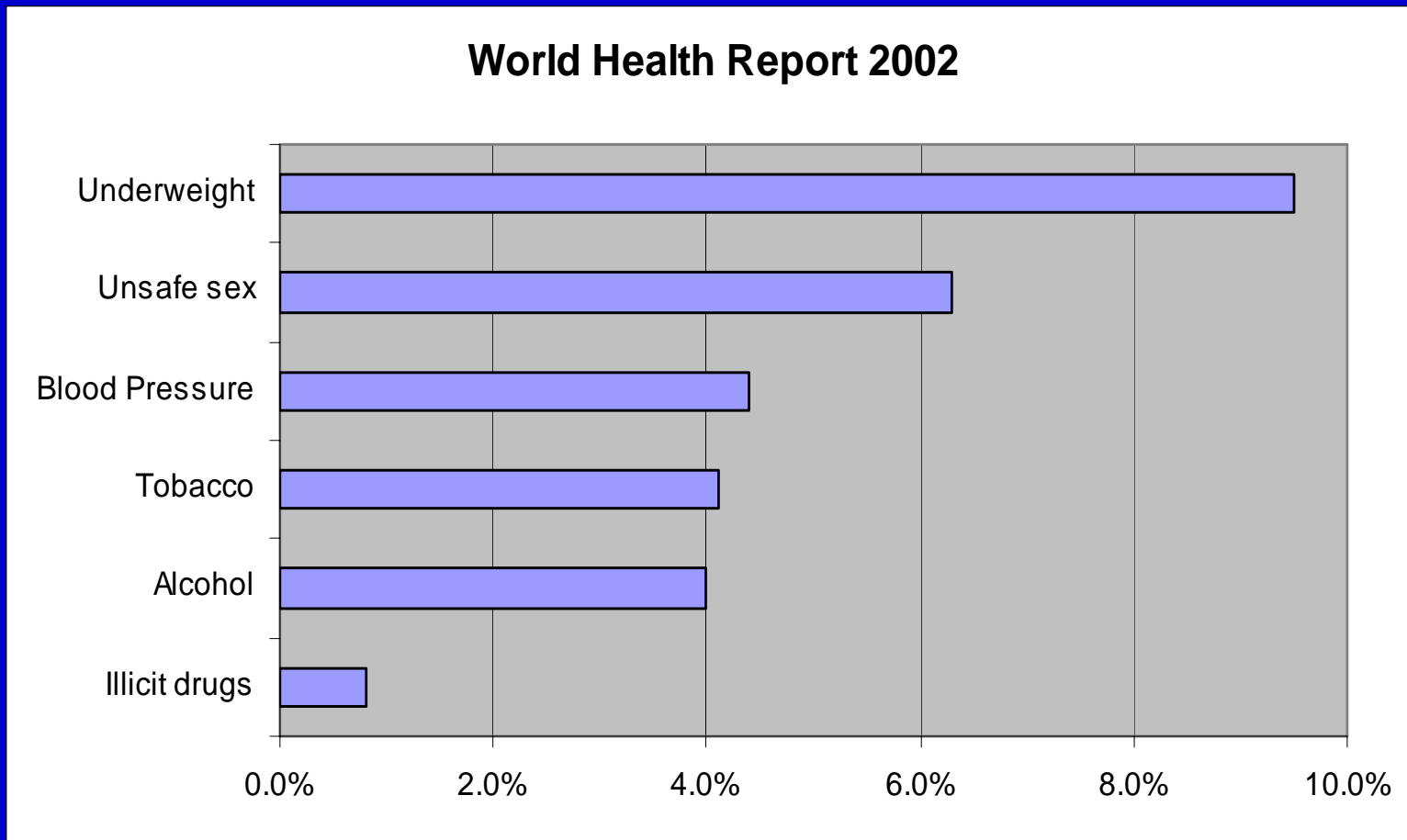
Violent deaths: assault injuries.

Source: T. Babor et al. (2003, p. 64) and E. Gutjahr et al. (2001)

Leading risk factors for disease in emerging and established economies (% total DALYS) [from WHR 2002]

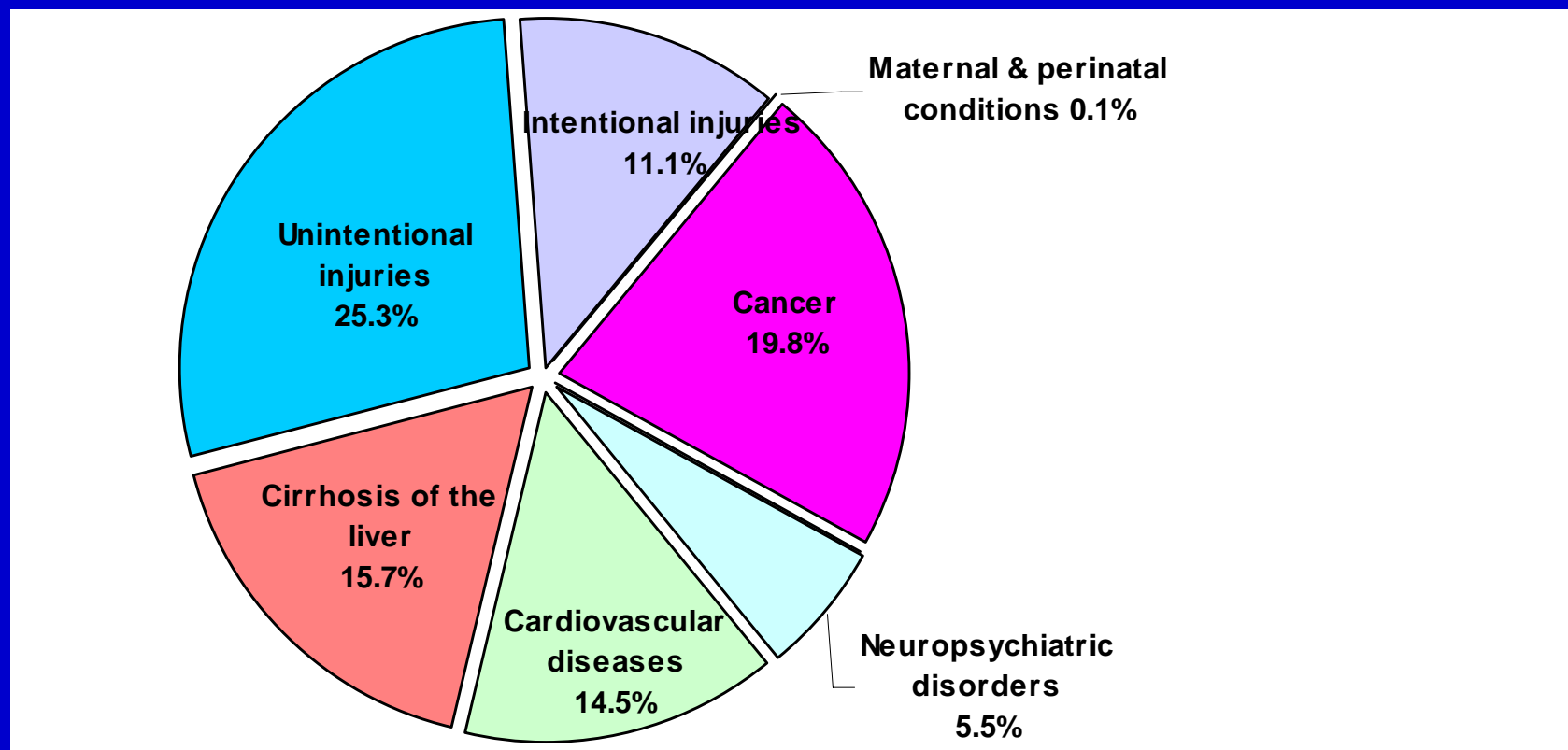
Developing countries				Developed countries	
High mortality		Low mortality			
Underweight	14.9%	Alcohol	6.2 %	Tobacco	12.2 %
Unsafe sex	10.2 %	Blood pressure	5.0 %	Blood pressure	10.9 %
Unsafe water & sanitation	5.5 %	Tobacco	4.0 %	Alcohol	9.2 %
Indoor smoke (solid fuels)	3.6 %	Underweight	3.1 %	Cholesterol	7.6 %
Zinc deficiency	3.2 %	Body mass index	2.7 %	Body mass index	7.4 %
Iron deficiency	3.1 %	Cholesterol	2.1 %	Low fruit & vegetable intake	3.9 %
Vitamin A deficiency	3.0 %	Low fruit & vegetable intake	1.9 %	Physical inactivity	3.3 %
Blood pressure	2.5 %	Indoor smoke from solid fuels	1.9 %	Illicit drugs	1.8 %
Tobacco	2.0 %	Iron deficiency	1.8 %	Unsafe sex	0.8 %
Cholesterol	1.9 %	Unsafe water & sanitation	1.8 %	Iron deficiency	0.7 %

WHO STUDY



Percent of Disability-Adjusted-Life Years of 26 risk factors considered, world-wide, 2002

Proportion of net deaths due to different disease categories attributable to alcohol consumption in the World in 2002



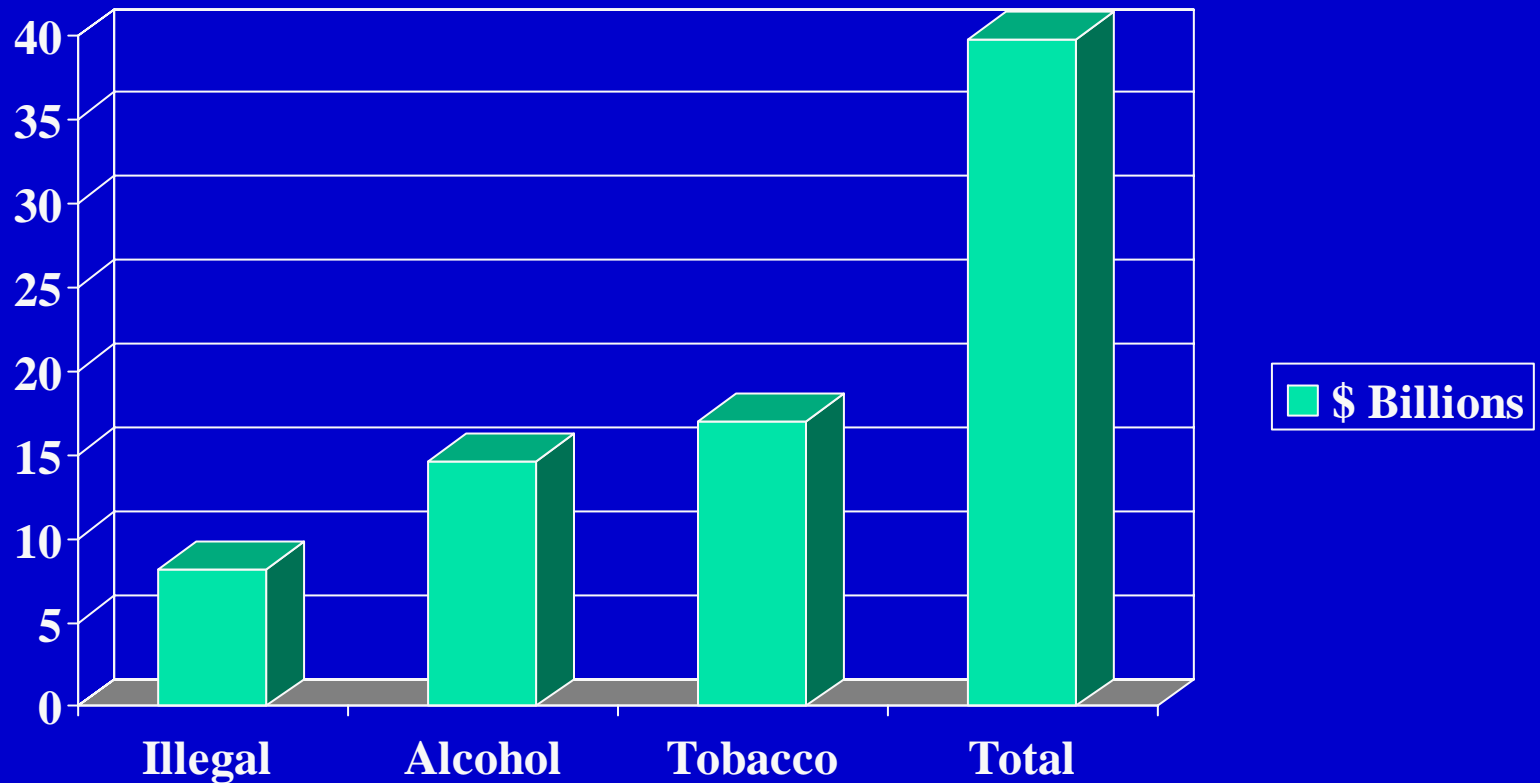
Source: J. Rehm, J. Patra, D. Baliunas, S. Popova, M. Roereceke, B. Taylor, 2006

Damage from Alcohol

- On a global basis, alcohol is estimated to account for 4% of total disability-adjusted life years (DALYs)
 - Almost equal to tobacco
 - In developed countries alcohol is just below tobacco and blood pressure
 - It is higher than cholesterol, body mass index, low fruit and vegetable intake, physical inactivity and illicit drugs
- Globally, of alcohol-related deaths about 44% from chronic conditions and rest from trauma or acute conditions. In Canada, the trauma % is higher than chronic.
- The damage from alcohol is extensive and expected to increase – if responses do not become more effective

Costs attributable to substance abuse in Canada, 2002

Total: \$39.8 billion; Alcohol: \$14.6 billion



Source: CCSA J. Rehm, D. Baliunas, S. Brochu et al. 2006

Standard Drink of Alcohol in Canada

- *Beer 341 mL or 12 oz of 5% strength*
- *Distilled Spirits 43 mL or 1.5 oz of 40% strength*
- *Wine: 142 mL or 5 oz of 12% strength*

All contain about 13.6 grams of ethanol

Squamous-cell carcinoma of oral cavity, pharynx, larynx, and oesophagus

- Causal relation has been noted since the mid-1950s
- Linear correlation with both duration and amount of consumption
- Synergism between alcohol intake and smoking reported in the 1970s
- Carcinogenic effect of alcohol independent of smoking first report in 1961 and replicated since then
- Subsequent studies have shown a fairly consistent dose-response relationship between alcohol consumption and risk of cancer in the upper aerodigestive tract for non-smokers
- No consistent results from analysis by type of alcoholic drink

Source: P. Boffetta, M. Hashibe. 2006. *Lancet Oncology*, v. 7.

Table 4. Estimated effects of alcohol and tobacco^a on aerodigestive cancer risks

Tobacco consumption (cig/day)	Cancer types	Alcohol consumption (drinks/day)		
		0	>0–4	4+ ^b
0	Oropharynx	1 ^d	1.5	7.2
	Pharynx	1	1.7	12.6
	Larynx	1	1.4	4.5
	Esophagus ^c	1	1.4	4.2
>0–30	Oropharynx	1.3	2.0	9.7
	Pharynx	1.3	2.3	16.7
	Larynx	1.8	2.4	7.9
	Esophagus	1.4	1.8	5.6
30+ ^b	Oropharynx	2.9	4.5	21.2
	Pharynx	2.8	4.8	35.6
	Larynx	7.7	10.6	34.6
	Esophagus	3.1	4.1	12.7

^a Category midpoints were used for the estimation of OR.

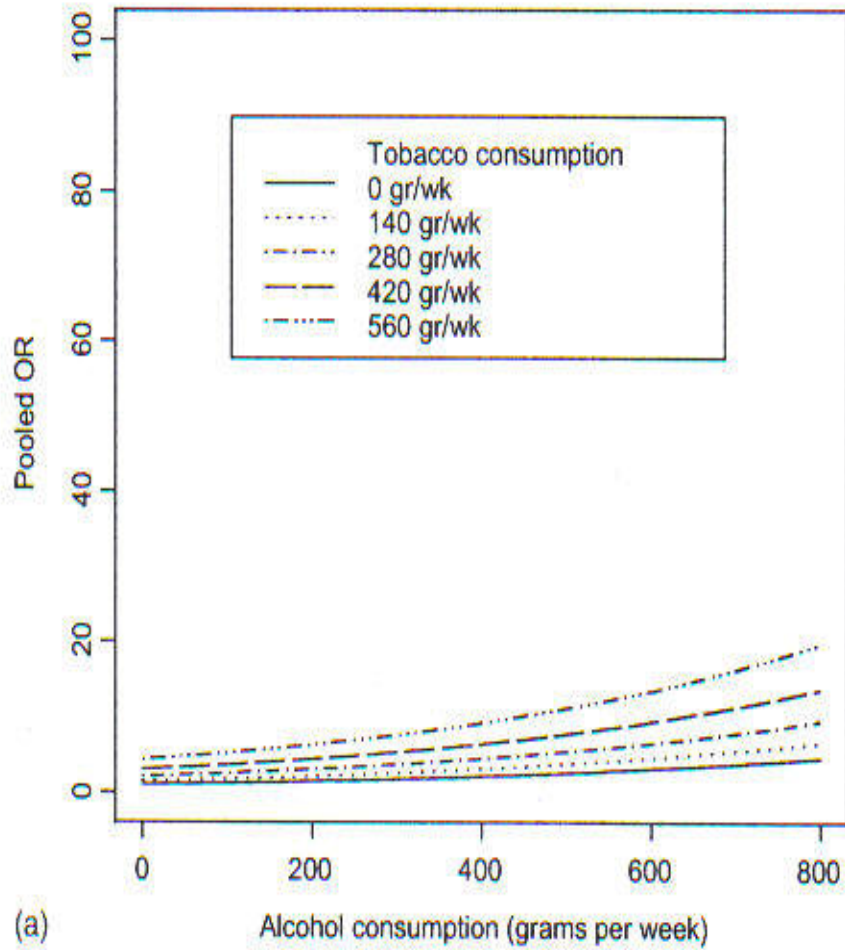
^b Midpoints for the upper categories: 55 cigarettes per day and 9.5 drinks per day.

^c SCC and mixed cell type.

^d Reference category.

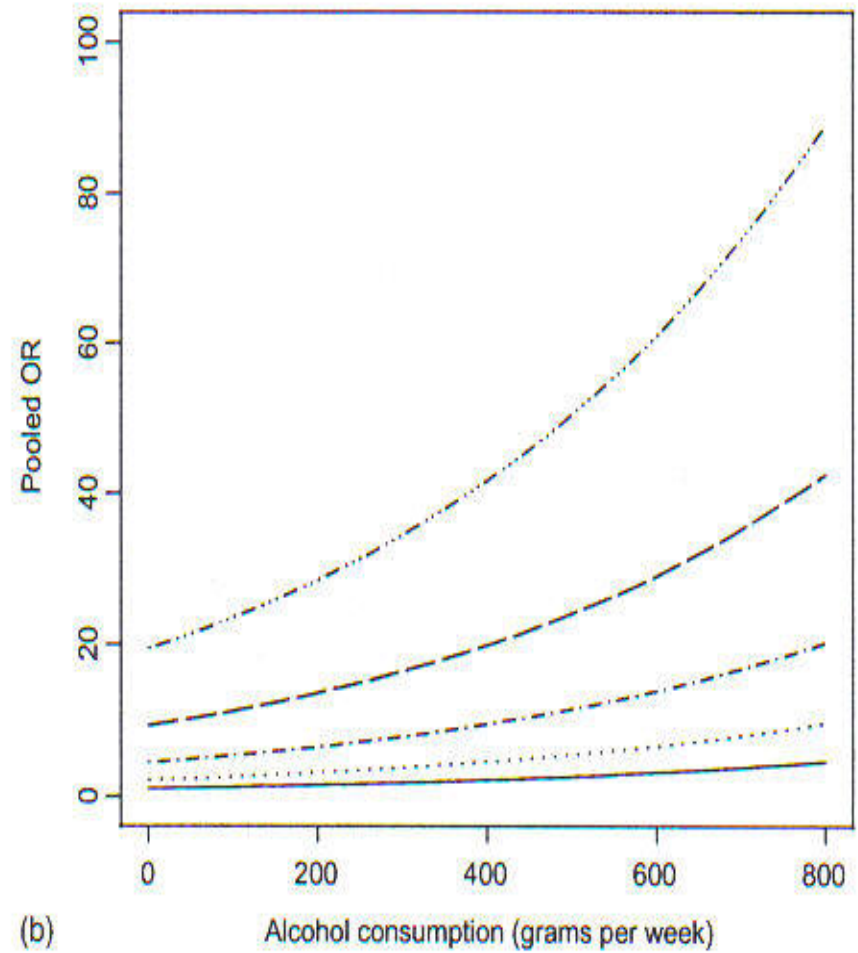
Source: A. Zeka et al. 2003. *Cancer Causes and Control*, v. 14

Esophageal cancer



(a)

Laryngeal cancer



(b)

Source: A. Zeka et al. 2003. *Cancer Causes and Control*, v. 14

Adenocarcinoma of the oesophagus

- Some studies report an increase in risk with alcohol consumption -- 1.5 to 4.0 times of adenocarcinoma of the oesophagus and gastric cardia
- However, these tend to be small, and larger studies have reported no association and no dose-response relations

Cancer of the Upper Digestive Tract

“Many studies of different design and in different populations around the world have consistently shown that regular alcohol consumption is associated with an increased risk for cancers of the oral cavity, pharynx, larynx, and the esophagus. Daily consumption of around 50 g of ethanol increases the risk of these cancers two to three times, compared with the risk in non-drinkers. In addition, for these cancer types the effects of drinking and smoking seem to multiplicative.”

Source: IARC Monographs Volume 96, 6-13 February 2007. Report of Working Group

Liver cancer

“A larger number of cohort and case-control studies provide strong evidence that the consumption of alcohol is an independent risk factor for primary liver cancer. Cirrhosis and other liver diseases often occur before the cancer becomes manifest and patients with these disorders generally reduce their alcohol intake. Therefore, the effect of alcohol consumption on the risk for liver cancer is difficult to quantify.”

Source: IARC Monographs Volume 96, 6-13 February 2007. Report of Working Group

Alcohol and Breast Cancer

- A meta-analysis has shown a strong positive dose-response relationship; that is, risk increases with increase in average consumption
- 10 gm ethanol per day found to increase risk by 9%, while 30-90 grams showed 41% increase in risk compared with abstainers
- For every 12 grams/day there is a 7-10% increased risk of breast cancer in women

Source: Bagnardi et al. 2001; Ellison et al. 2001;
Ridolfo et al. 2001; Smith-Warner et al., 1998

Breast Cancer

“More than 100 epidemiological studies that assessed the association between alcohol consumption and breast cancer in women consistently found an increased risk with increasing alcohol intake. A pooled analysis of 53 studies on more than 58,000 women with breast cancer showed that daily consumption of about 50 g of alcohol is associated with a relative risk of about 1.5 (95% confidence interval 1.3-1.6), compared with that in non-drinkers. Even for regular consumption of about 18 g of alcohol per day, the increase in relative risk is statistically significant.”

Source: IARC Monographs Volume 96, 6-13 February 2007. Report of Working Group

The degree of risk of alcohol consumption for Breast cancer

- Women who drink on average 3 or more alcoholic drinks a day increase their risk of breast cancer by about 50%
- Women who drink 1-2 alcoholic drinks a day increase their risk of breast cancer by about 10%

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto.

Example: Pooling project on breast cancer

- 322,647 women followed for up to 11 years in 6 studies in Canada, the Netherlands, Sweden and the United States.
- All completed a food frequency questionnaire, including information on alcohol consumption
- 4335 women developed breast cancer

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto.

Pooling project: risk of breast cancer per amount of alcohol consumed

Grams alcohol/day	Relative risk
None	1.0
>0-<1.5	1.07 (1.0-1.2)
1.5-<5.0	0.99 (0.9-1.1)
5.0-<15.0	1.06 (1.0-1.2)
15.0-<30.0	1.16 (1.0-1.4)
30.0-<60.0	1.41 (1.2-1.7)
≥ 60.0	1.31 (0.9-2.0)

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto.

Colorectal cancer

“The association between alcohol consumption and colorectal cancer has been investigated in more than 50 prospective and case-control studies. Pooled results from eight cohort studies and data from recent meta-analyses provide evidence of an increased relative risk of about 1.4 for colorectal cancer with regular consumption of about 50 g of alcohol per day, compared with non-drinkers. This association seems to be similar for colon cancer and for rectal cancer.”

Source: IARC Monographs Volume 96, 6-13 February 2007. Report of Working Group

The degree of risk of alcohol consumption for Colon and Rectum cancer

- Women and men who drink on average 3 or more alcoholic drinks a day increase their risk of colon and rectum cancer by about 40%

Source: A.B. Miller, *The Carcinogenicity of Alcohol Consumption*, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto

Example: European Prospective Investigation of Cancer (Ferrari et al, 2007)

478,732 participants (70% women) from 10 countries, completed detailed dietary questionnaire (including data on alcoholic beverage consumption) and were followed for >6 years

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto

Effect of lifetime alcohol consumption on colorectal cancer risk

Grams alcohol/day	Relative risk
None	1.0
>0-4.9	1.0 (0.7-1.3)
5.0-<15.0	1.05 (0.9-1.2)
15.0-<30.0	1.07 (0.9-1.3)
30.0-<60.0	1.23 (1.0-1.6)
≥ 60.0	1.98 (1.5-2.7)

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto

Effect of lifetime alcohol consumption on colorectal cancer risk

This translates into an average 9% increase in risk for every drink consumed/day

The risk is higher for cancer of the rectum and distal colon (left sided) than for proximal (right sided) colon cancer

Source: A.B. Miller, The Carcinogenicity of Alcohol Consumption, at a forum on *Alcohol, Cancer and Public Policy*, October 31, 2007, Toronto

Alcohol & Cancer -- Linear & Dose-related

- Relationship between pattern of drinking and alcohol is linear and dose-related
- Average consumption of 25g/day associated with the following cancers: pharynx, esophagus, larynx, colon, rectum, stomach, liver, oral cavity and breast cancer in women
- Strongest relationships evident for cancers of the oral cavity, pharynx, esophagus & larynx

Source: English et al., 1995; Single et al. 1999; Bagnardi et al. 2001; etc.

Alcohol and Cancer: Review

The authors state: “causal link has been established between alcohol consumption and cancers of the oral cavity, pharynx, oesophagus, liver, colon, rectum, and, in women, breast. For other cancers a causal association is suspected.” -- such as cancers of the pancreas and lung

Source: P. Boffetta, M. Hashibe. 2006. *Lancet Oncology*, v. 7.
Authors affiliated with the International Agency for Research on Cancer

Alcohol and Cancer: Review (2)

“The importance of alcohol as a carcinogen is often under-estimated: consumption is rising in many countries as a result of both increasing numbers of alcohol drinkers and intake of alcohol, especially for women and in regions of rapid economic growth such as east Asia.”

“Alcohol is probably the main factor responsible for increased risk of head and neck cancer reported in various countries, particularly in central and eastern Europe”

Overall Evaluation

“Overall, the Working Group confirmed that alcoholic beverages are *carcinogenic to humans* (Group 1) and concluded that the occurrence of malignant tumours of the oral cavity, pharynx, larynx, esophagus, liver, colorectum, and female breast is causally related to alcohol consumption. For renal cell cancer and non-Hodgkin lymphoma the Working Group concluded that there is *evidence suggesting lack of carcinogenicity*.

Because the positive associations were generally noted with different types of alcoholic beverage, and in view of the carcinogenicity of ethanol in animals, the Working Group also classified ethanol in alcoholic beverages as *carcinogenic in humans* (Group 1).

The Working Group further agreed that the substantial mechanistic evidence in human deficient in aldehyde dehydrogenase indicates that acetaldehyde derived from the metabolism in ethanol in alcoholic beverages contributes to causing malignant esophageal tumours.”

Recommendation No. Alcohol Drinks

Limit Alcohol Drinks

Public Health Goal

- Proportion of the population that drink more than the recommended limit be reduced by one-third every 10 years

Personal Recommendation

- If alcoholic drinks are consumed, then limit consumption to no more than two drinks a day for men and one drink a day for women

Source: Sir Michael Marmot's slide presentation, based on: *Food, Nutrition and Physical Activity, and the Prevention of Cancer: A Global Perspective*. World Cancer Research Fund & American Institute for Cancer Research, 2007

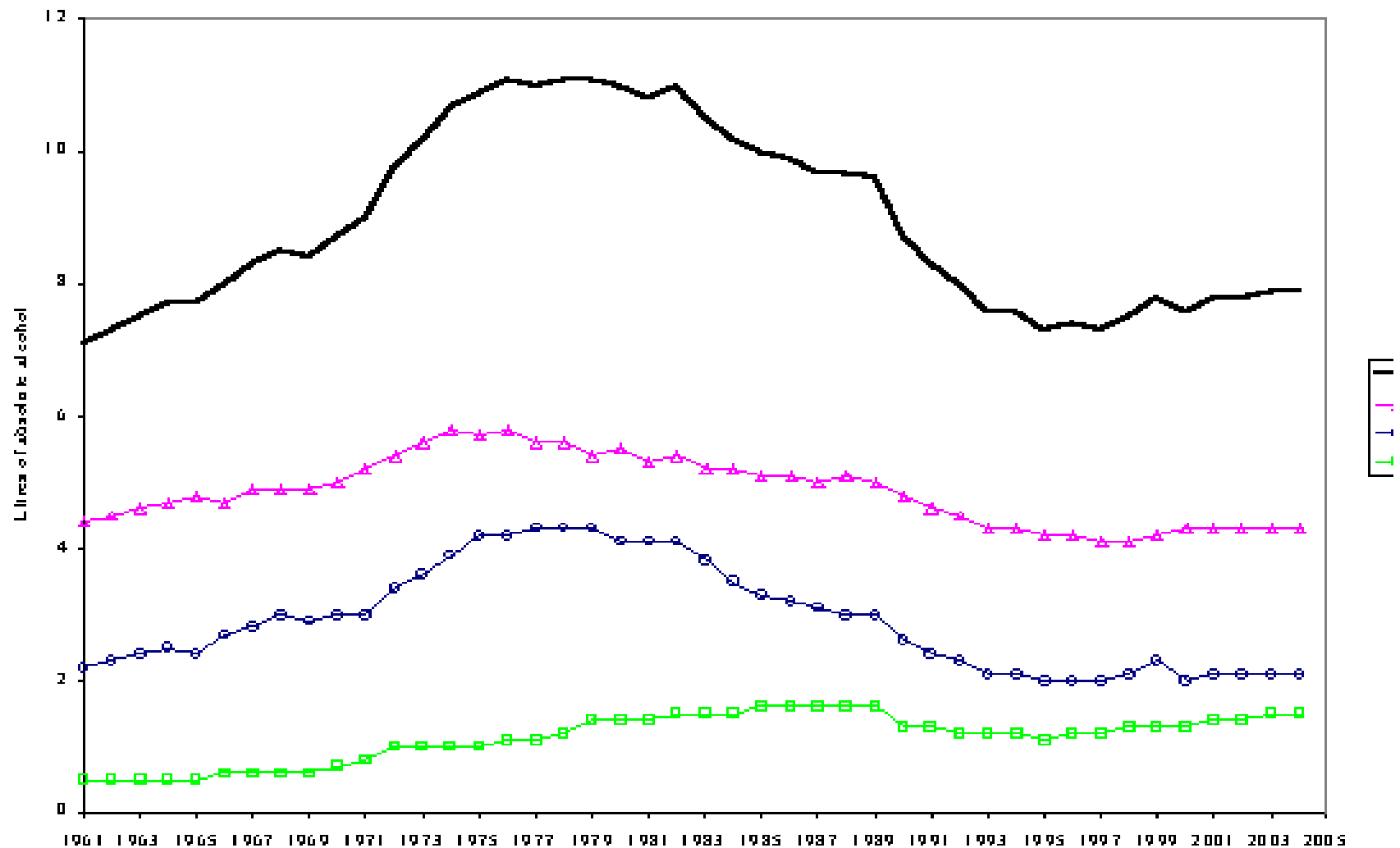
Overview of patterns of alcohol use, Canada, 2004

N of 13,909 respondents aged 15 and older

Prevalence – current users	79.3%*
Abstainer – never in life	7.3%*
Former drinker – not in the past year	13.7%*
Light infrequent – past yr	38.7%
Light frequent – past yr	27.7%
Heavy infrequent – past yr	5.6%
Heavy frequent – past yr	7.1%
Monthly heavy drinking	20.2%
Exceeded drinking guidelines	17.8%
Exceeded drinking guidelines among past year drinkers	22.6%
AUDIT hazardous drinking	13.6%
Reported harm to themselves – past year	8.8%
Reported harm to themselves - lifetime	24.2%
Reported harm in past yr due to drinking by others	32.7%

Sources: CCSA, 2004; Adlaf, Begin & Sawka, 2005; Demers & Poulin, 2005

Figure 2 – Per capita alcohol consumption, in litres of absolute alcohol, Canada, aged 15+ (1961-2004)



Key: Top line is total consumption, 2nd is beer, 3rd is spirits, 4th is wine

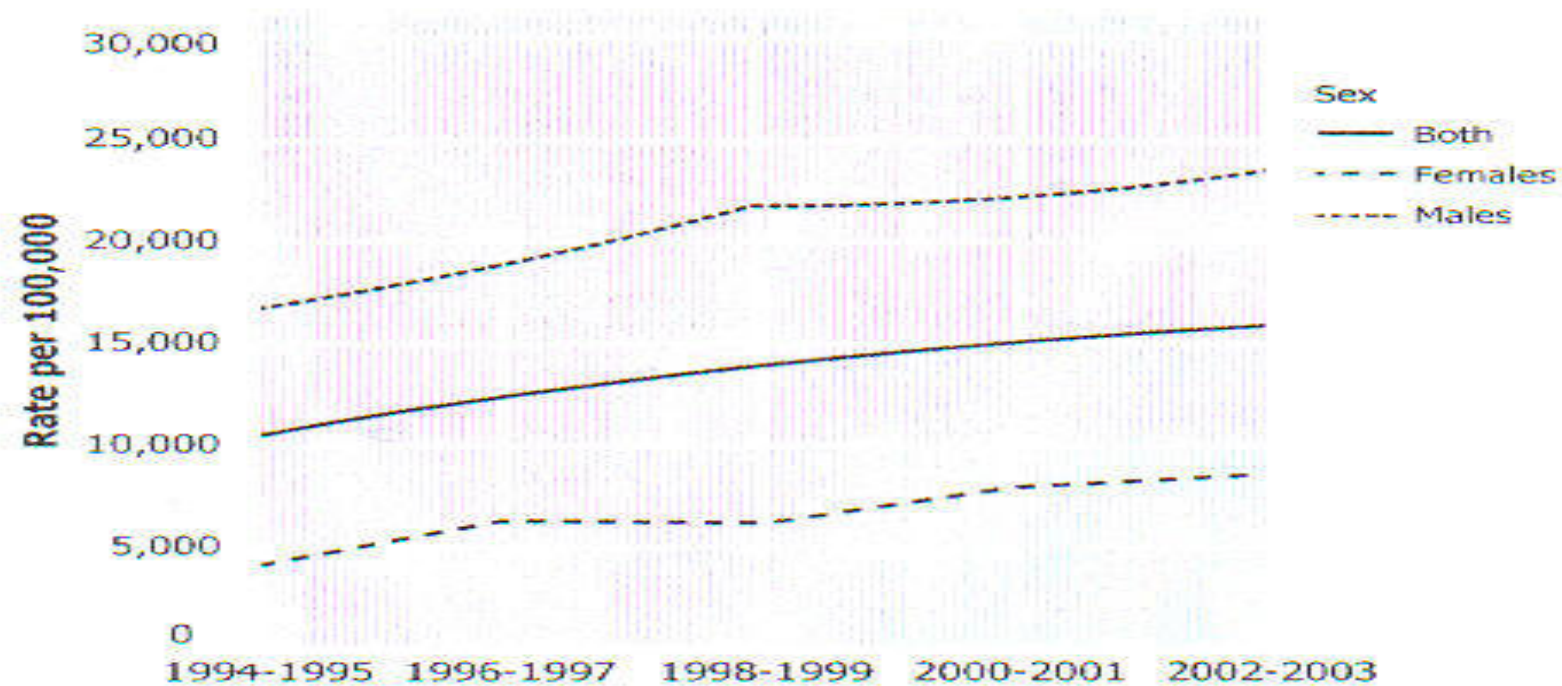
Source: Statistics Canada (2004). *The control and sale of alcoholic beverages in Canada.*

Canada: Long-term trends showing associations between alcohol consumption & damage

- Canadian Nordic Study examined trends in Canada between 1950s and up to 2000
- Positive associations found between consumption and:
 - Alcohol specific mortality (M. Ramstedt, 2003)
 - Liver cirrhosis mortality (M. Ramstedt, 2004)
 - Fatal accidents (O-J. Skog, 2003)
 - Suicides (M. Ramstedt, 2005)
 - Homicides (I. Rossow, 2004)
 - Total mortality (T. Norström, 2004)

In other words an increase in consumption is associated with an increase in damage & harm

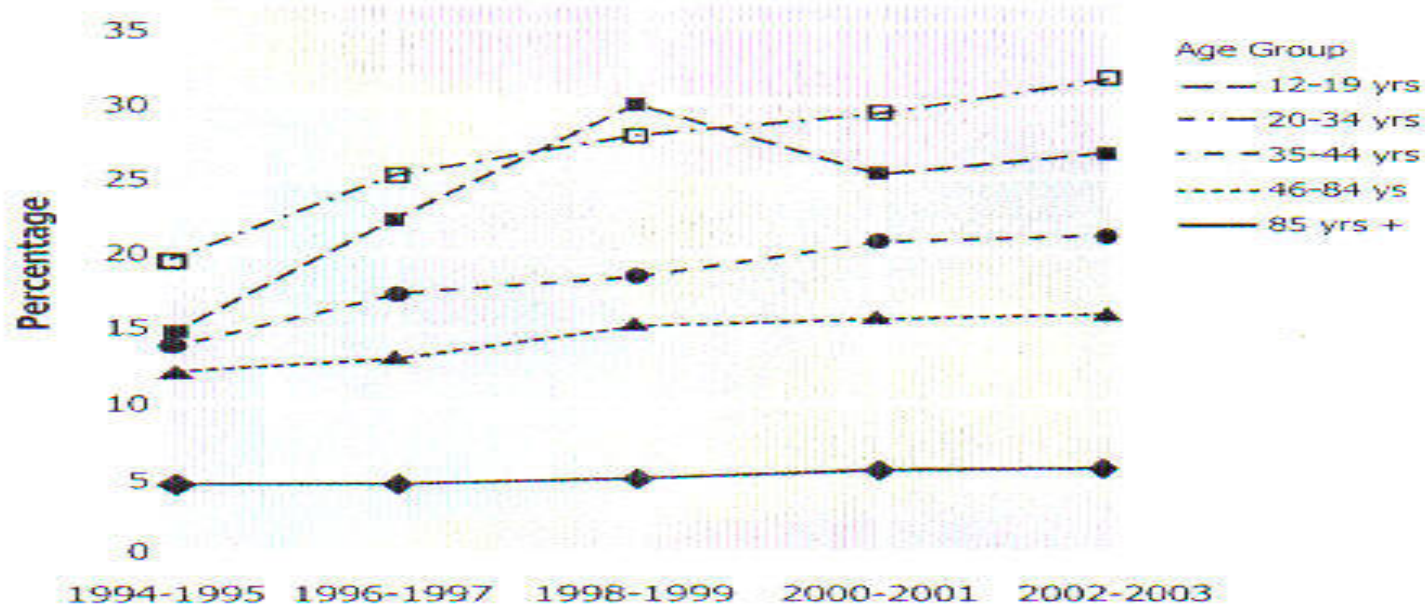
Figure 2: Age-standardized prevalence (Canada 1991) of heavy drinkers (5+ drinks on one occasion 12 or more times in the past year) 15 years and older, by sex, Canada, 1994-2003



Note: This figure presents the data in a different way than published on the website of Statistics Canada as it displays the rates of heavy drinkers among the total population, not among current drinkers.

Source: Haydon, et al (2005), based on data from Statistics Canada, National Population Health Survey and Canadian Community Health Survey

Figure 3: Percentage of heavy drinkers (5+ drinks at one occasion, 12 or more times in the past year) among current drinkers, Canada, 1994-2003



Source: Haydon, et al. (2005), based on data from Statistics Canada, National Population Health Survey and Canadian Community Health Survey

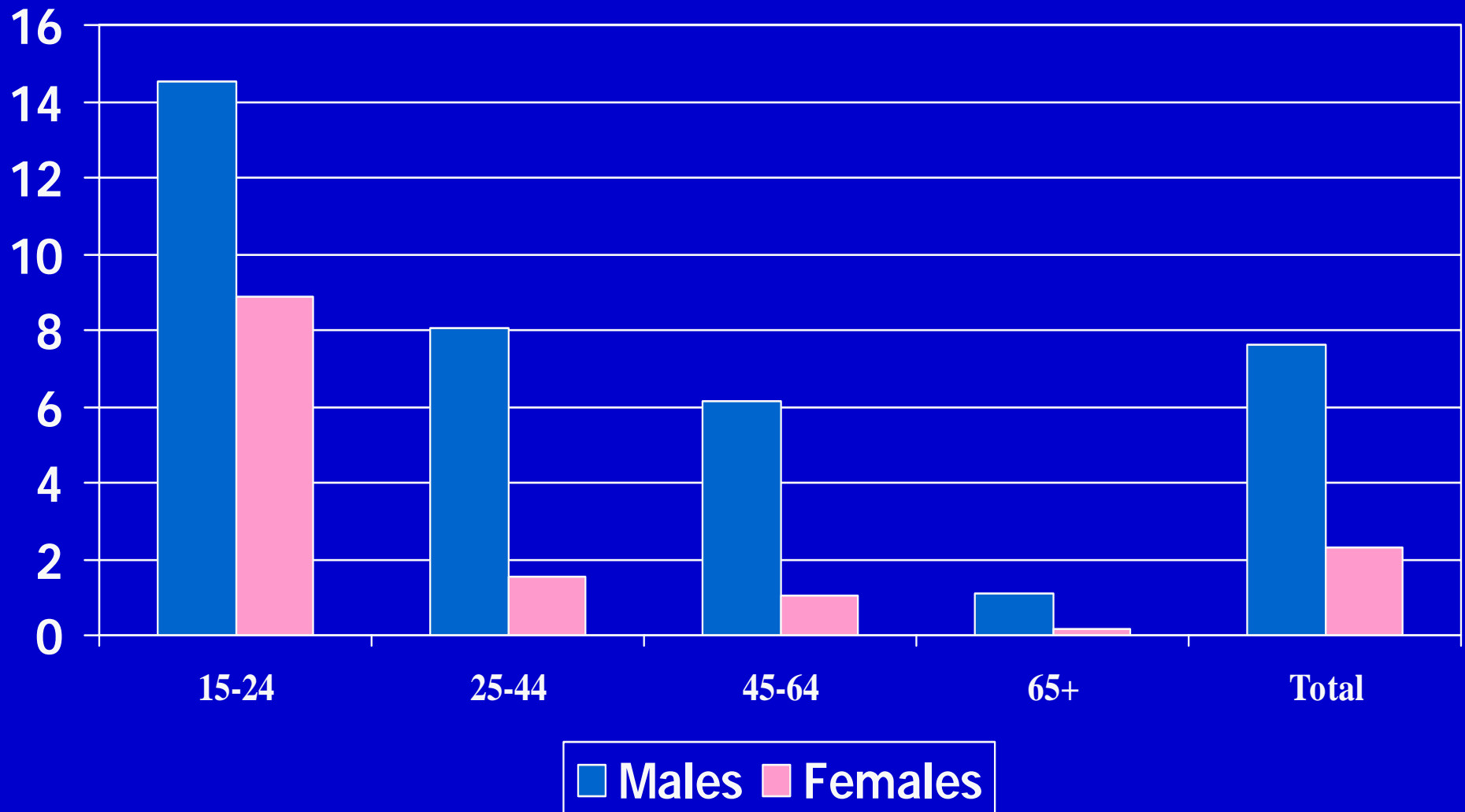
² The percentages refer to proportion of current drinkers, whereas Figure 2 provides information on heavy drinkers as percentage of the total population.

³ Defined as having 5 or more drinks on one occasion, 12 or more times in the past year.

Consumed 5+ drinks on an Occasion Weekly % of respondents, Canada 2004

N: men = 5,592, women = 7,949

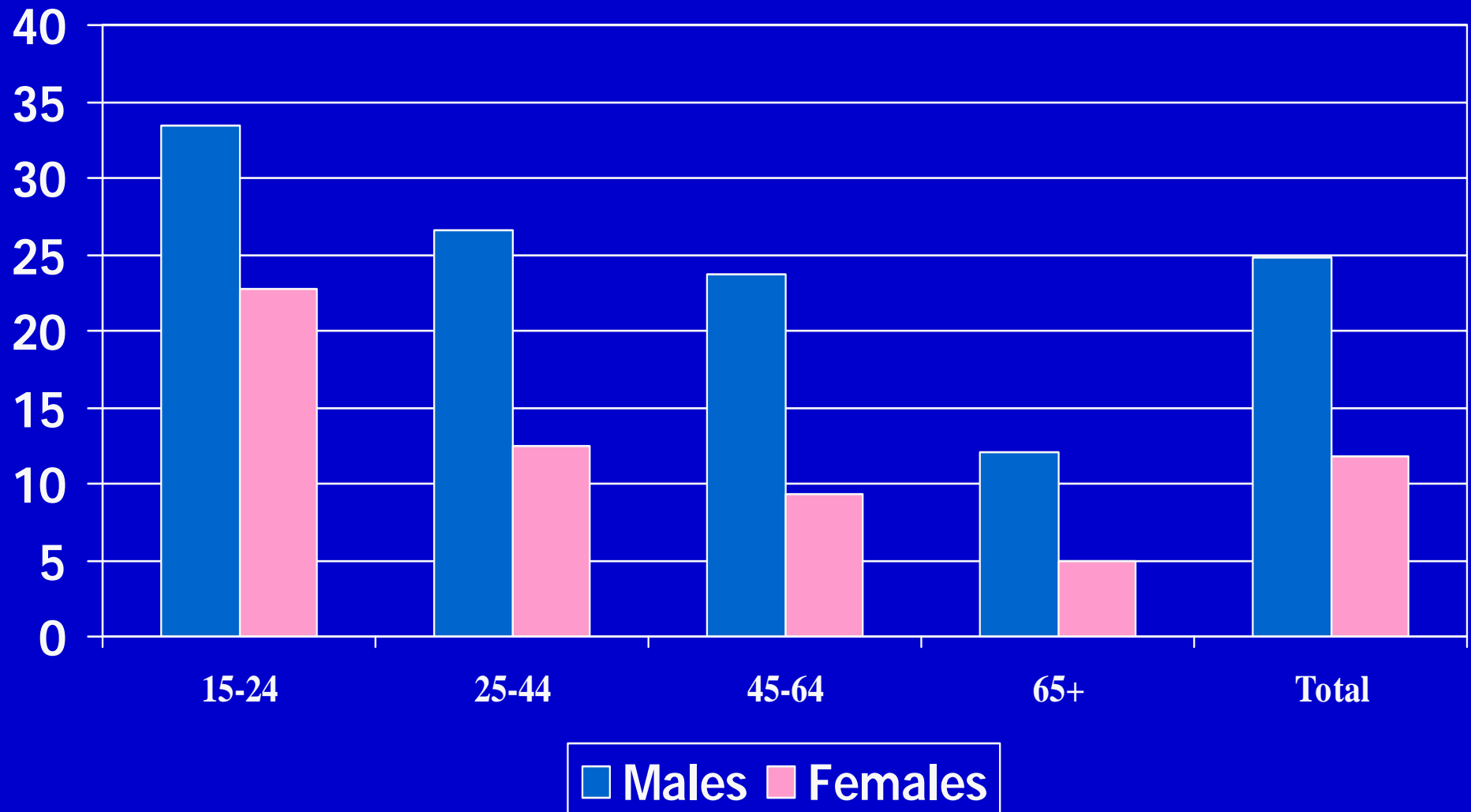
(Source: CAS & Giesbrecht, Rehm, Adlaf, Patra, Ialomiteanu & Flynn, 2007)

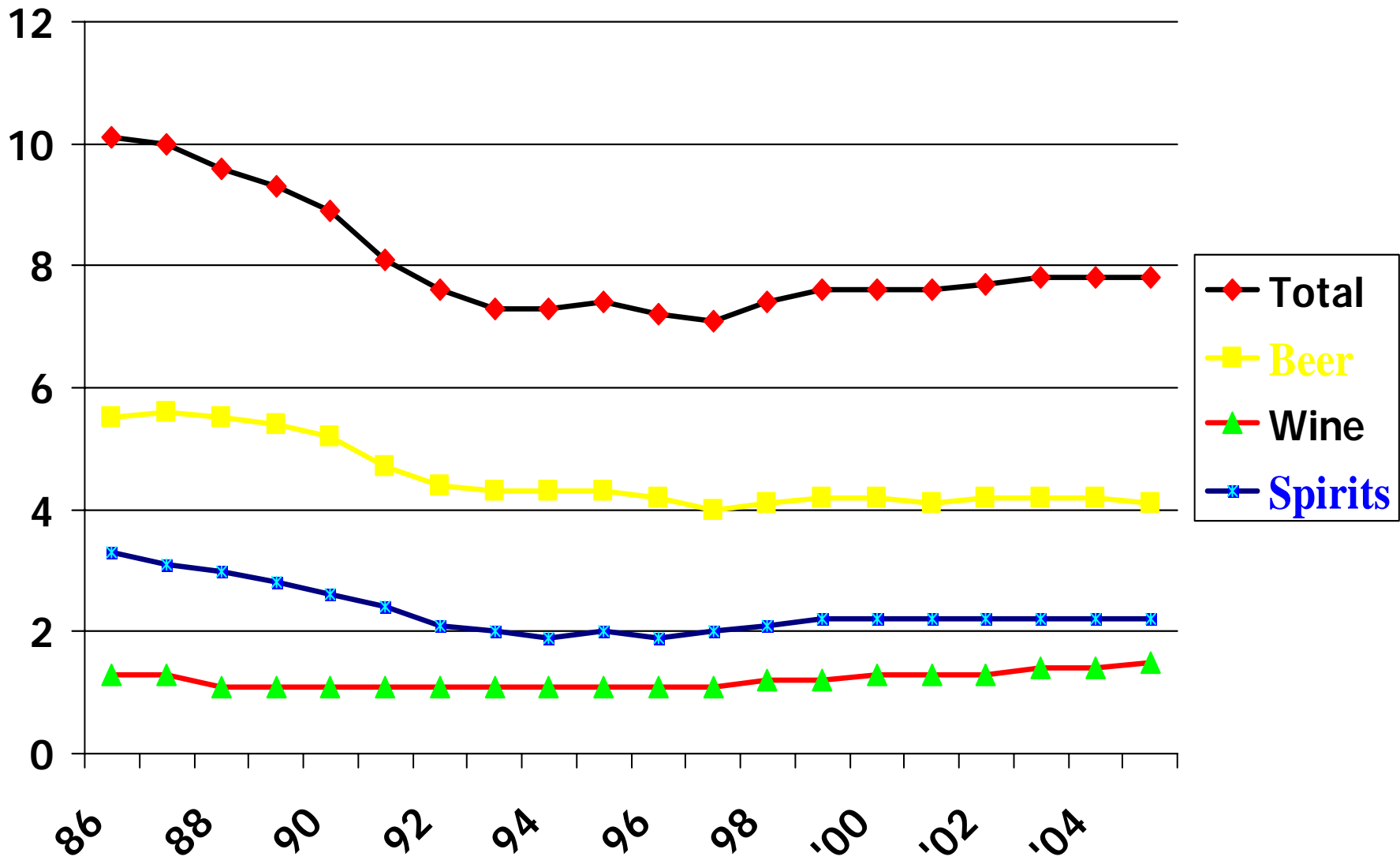


Exceeded Low Risk Drinking Guidelines in Past Yr *14/wk men, 9/wk women, max 2/day* % of respondents, Canada 2004

N: men = 5,522, women = 7,902

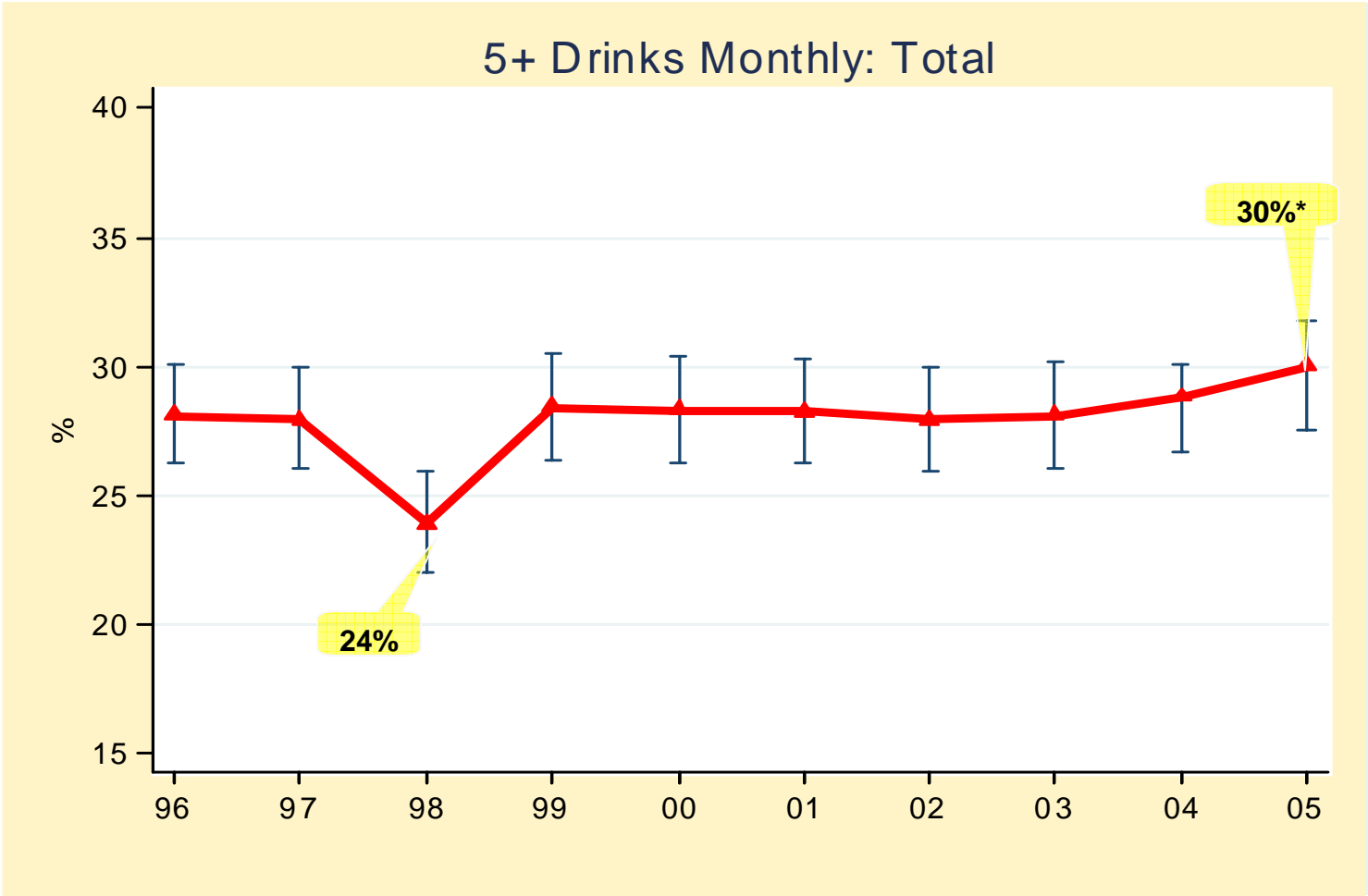
(Source: CAS & Giesbrecht, Rehm, Adlaf, Patra, Ialomiteanu & Flynn, 2007)



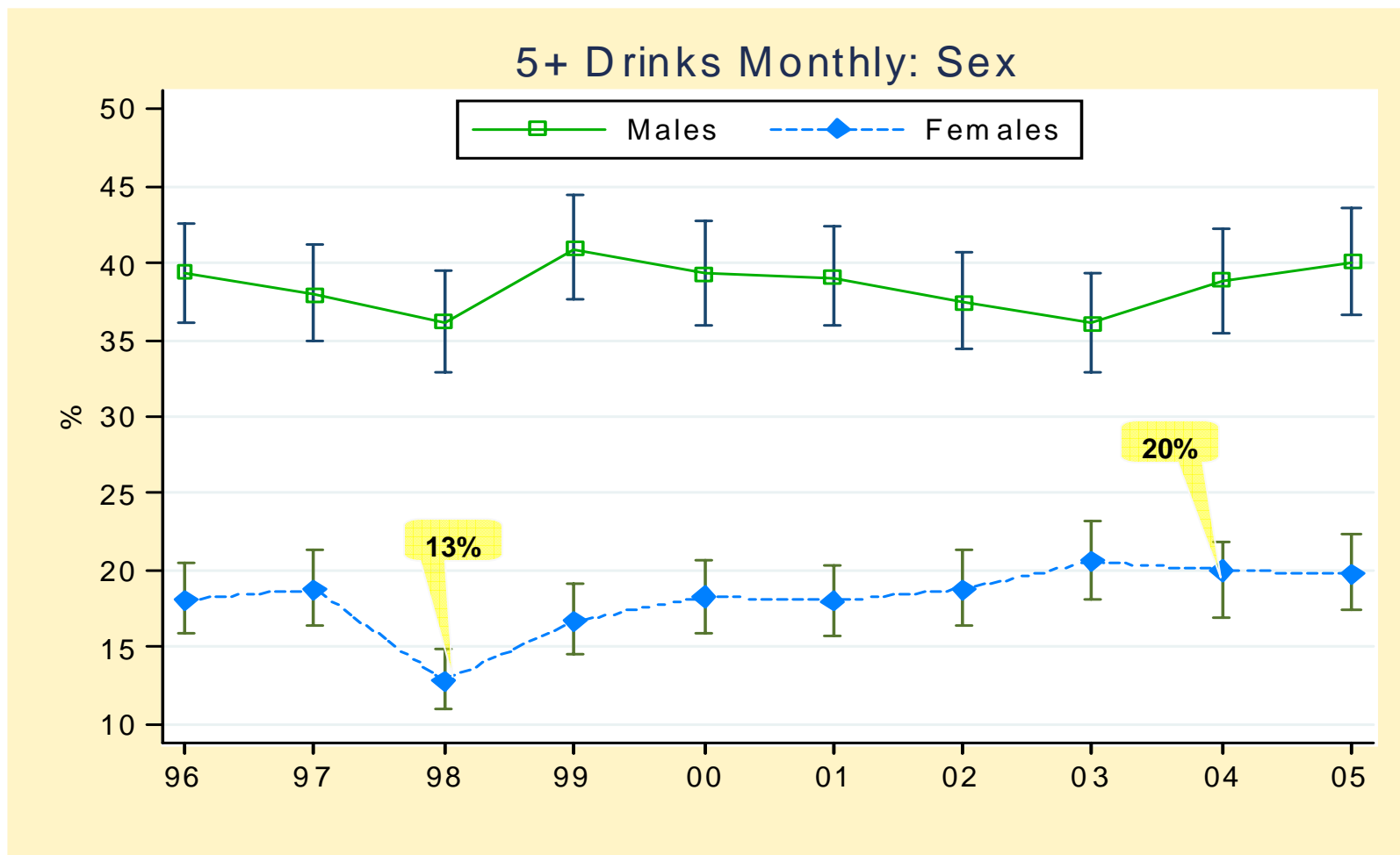


**Litres of Absolute Alcohol, per capita aged 15+.
Ontario, 1986-2005**

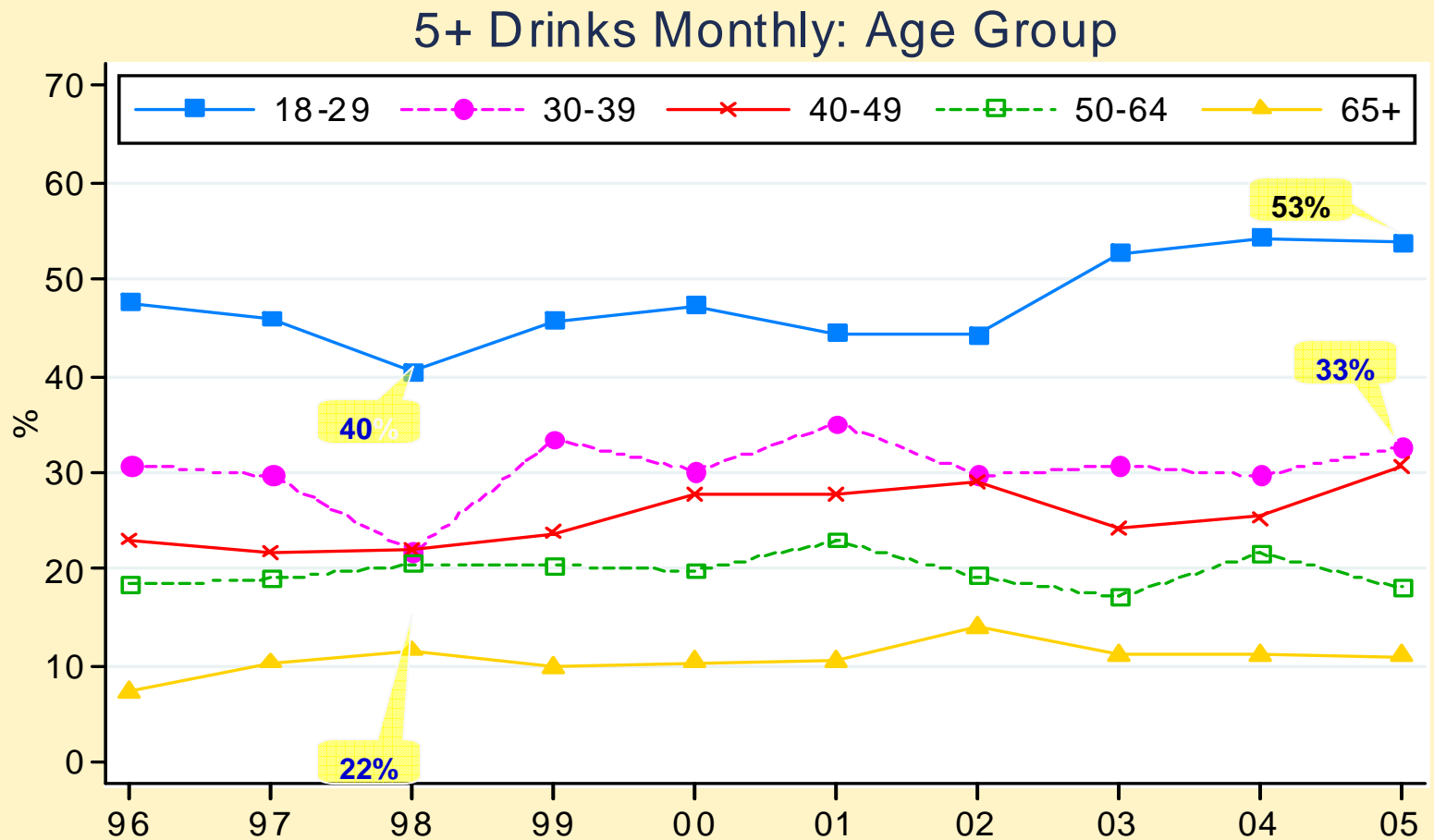
Monthly Heavy Drinking in the Past 12 Months, Ontario Adults, 1996-2005



Monthly Heavy Drinking in the Past 12 Months by Gender, Ontario Adults, 1996-2005

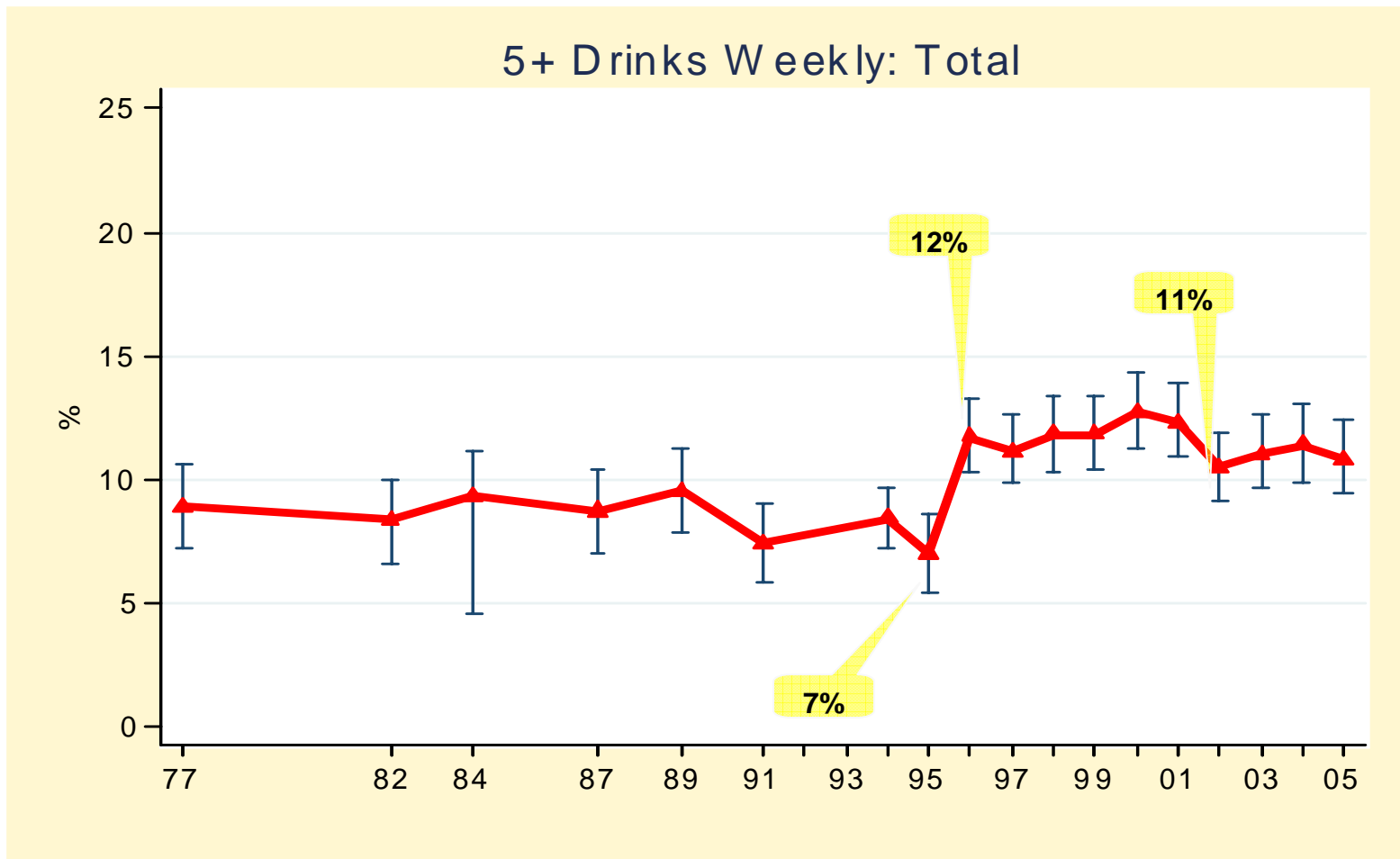


Monthly Heavy Drinking in the Past 12 Months by Age Groups, Ontario Adults, 1996-2005

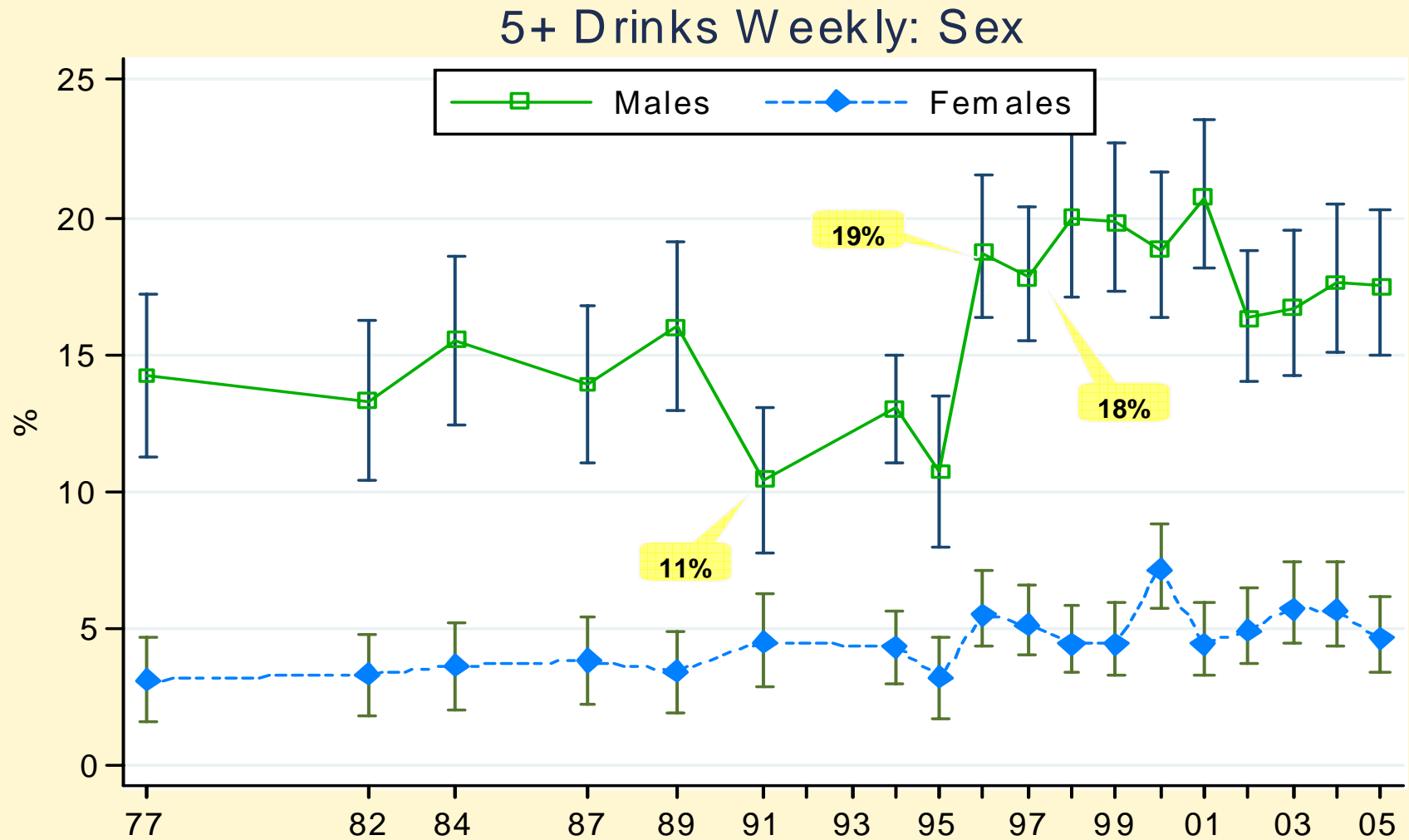


Note: Source: CAMH Monitor

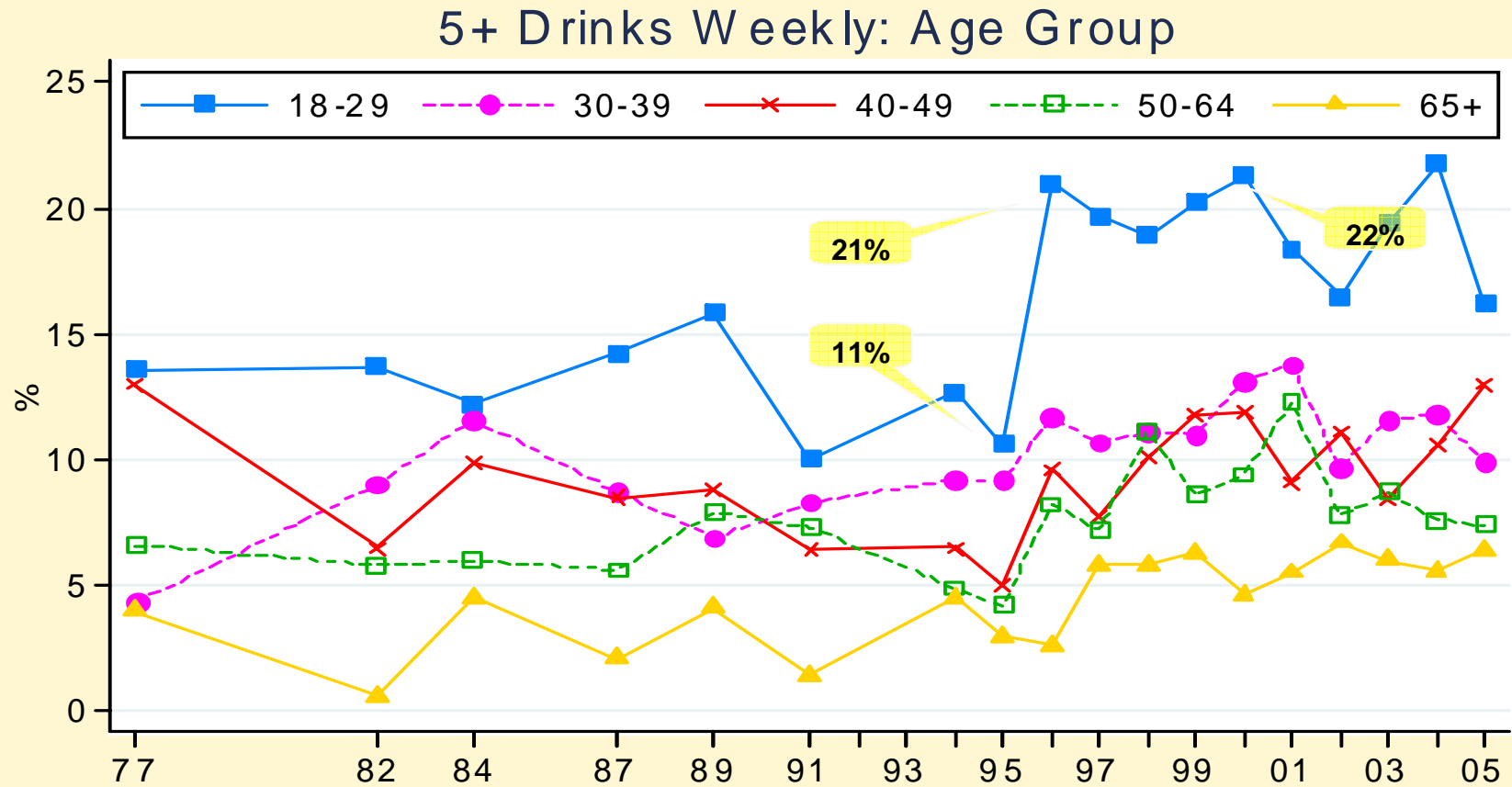
Weekly Heavy Drinking in the Past 12 Months, Ontario Adults, 1977-2005



Weekly Heavy Drinking in the Past 12 Months by Gender, Ontario Adults, 1977-2005

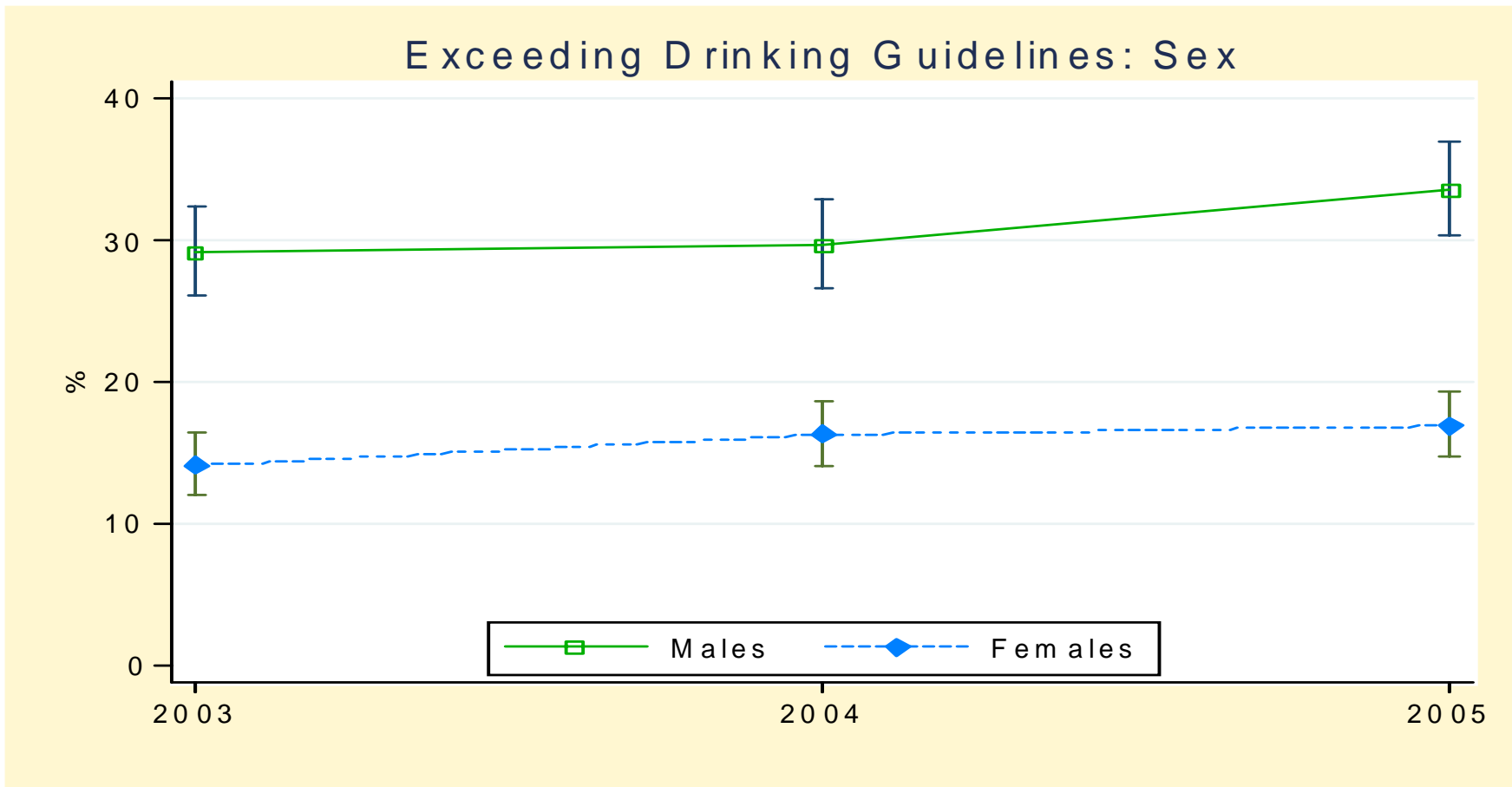


Weekly Heavy Drinking in the Past 12 Months by Age Groups, Ontario Adults, 1977-2005



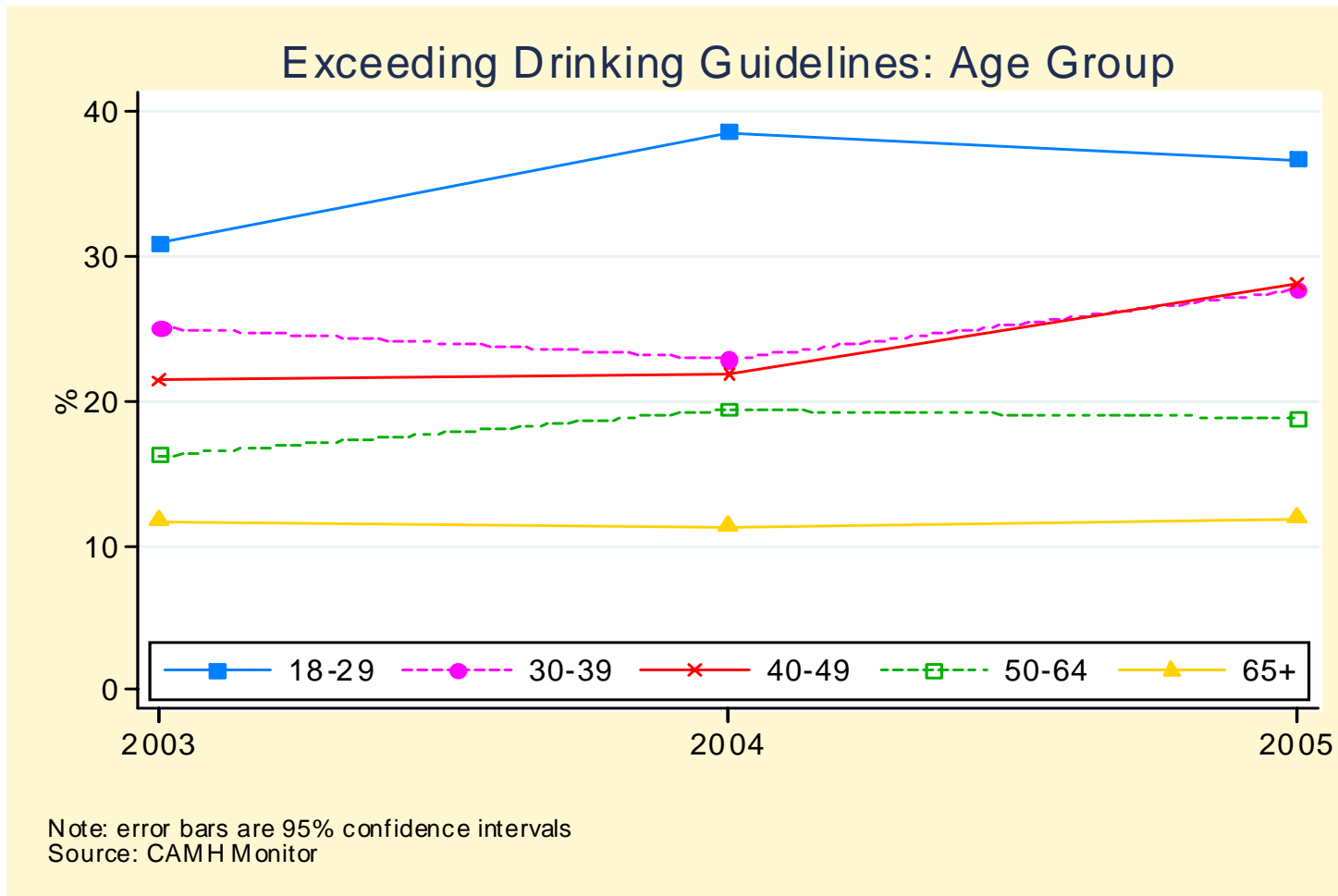
Note: error bars are 95% confidence intervals
 Source: CAMH Monitor

Percent Exceeding the Low Risk Drinking Guidelines in the Past 12 Months by Gender, Ontario Adults, 2003-2005



Source: CAMH Monitor

Percent Exceeding the Low Risk Drinking Guidelines in the Past 12 Months by Age Groups, Ontario Adults, 2003-2005



Alcohol Control & Marketing

EROSION OF ALCOHOL CONTROL

- Greater access: higher density of alcohol outlets, longer hours, more diversification
- 'Social responsibility' narrowly defined
- Goals of alcohol retailing – e.g., generate more revenue & serve 'best customers'
- The most effective interventions to manage alcohol problems are being devalued or eroded - such as price and outlet density controls

INCREASE IN ALCOHOL MARKETING

- Deregulation of advertising
- Voluntary guidelines have little or no impact in controlling inappropriate marketing of alcohol
- Extensive marketing at stores and beyond – media, internet
- A drug with significant contributions to disease and damage – about equal to tobacco globally – is increasingly and commonly treated like an ordinary commodity

Challenges of Public Health Responses

- Erosion of alcohol control systems
- Increase in alcohol marketing & promotion
- Major alcohol policy decisions are typically driven by market & retailing forces
- Increase in overall consumption & increase in high risk drinking
- Least effective interventions are often the most popular
- In light of evidence of burden from alcohol, current responses are far from adequate -- the large gap between evidence and prevention practice

Ratings of alcohol policy-relevant strategies & interventions

Policy - strategy	Effectiveness	Breadth of research support	Cross-cultural Testing	Cost to implement
Retail monopoly	+++	+++	++	Low
Restrict outlet density	++	+++	++	Low
Increase alcohol taxes	+++	+++	+++	Low
No service to intoxicated	+	+++	++	Moderate
Server liability	+++	+	+	Low
School programs	0	+++	++	High
Warning labels	0	+	+	Low
Min. legal purchase age	+++	+++	++	Low
Drivers <21 'zero tolerance'	+++	+++	++	Low
Brief intervention-at risk	++	+++	+++	Moderate

Source: Adapted from T. Babor et al, *Alcohol: No ordinary commodity* (Table 16.1), 2003, by T. Greenfield, et al. 2007

Best Practices & Practices with Good Support & Feasibility

- Alcohol taxes
- Minimum legal purchase age
- Government monopoly of retail sales
- Sobriety check points
- Lowered BAC limits
- Administrative license suspension
- Graduated licensing for novice drivers
- Restrictions on hours and days of sale
- Restrictions on outlet density
- Enforcement of on-premise regulations
- Brief interventions for high risk drinkers

Overview (1/3)

Since about 1995 there appears to be combination of:

- rising consumption,
- increasing % drinking in a high risk manner
- increase in average drinks,
- increase in alcohol marketing and promotion

Overview (2/3)

This combination will

- likely strengthen the demand for access to alcohol
- not provide a strong basis for public health advocacy for effective alcohol policies, and
- facilitate that alcohol marketing and trade perspectives continue to dominate the policy arena

On balance, current alcohol promotion & management is more likely, by default, to result in 'harm promotion' than in 'harm reduction'

Overview (3/3)

If this tendency is not reversed soon, we can very likely expect an increase in:

- Alcohol-related chronic disease
- Trauma and social problems related to alcohol
- Costs related to health care, social services, work place disruption, and law enforcement

An Effective Response

- Focus on the main contributors of damage from alcohol:
 - overall consumption
 - high risk drinking
- Implement both population level & focused interventions
 - Population level: policies, institutions, networks, structures
 - Focused interventions: high risk drinkers, problem drinkers, persons in treatment

An Effective Response (cont'd)

In addition to effective measures already in place, and currently being proposed, an alcohol control and harm reduction strategy should include, at a minimum, the following:

An Effective Response (cont'd)

- Monitoring: continued attention to monitoring trends and patterns in alcohol consumption, changes in availability, and implementation of controls and major prevention efforts.
- Evidence-based orientation which includes scope of impact in determining which policies & programs should receive the highest priority.

An Effective Response (cont'd)

- Awareness: Initiatives to increase public and policy-maker awareness of the risks associated with alcohol, range of problems, including cancers and other chronic diseases, and interventions that are most effective. Initiatives to counter the 'myths' about alcohol.
- Comprehensive: Promotion of a comprehensive approach that includes a range of strategies including effective health promotion, policies, better law enforcement and regulatory changes that promote harm reduction.

An Effective Response (cont'd)

- Increase 'real price': An increase in the 'real price' of alcoholic beverages and a discontinuation of discount pricing and sale pricing.
- Control Availability: A ceiling and status quo on other types of availability – hours and day of sale, density of on-premise and off-premise outlets.
- Reduction in alcohol marketing and promotion, and including marketing that is especially attractive to youth.

An Effective Response

- Brief interventions: Increased access to brief interventions so that all high risk drinkers potentially can benefit.
- Resources: Requires resources, broad base of support & sustainability
 - Have the resources to deliver sufficient prevention dose
 - NGO support and greater prominence to alcohol issues
 - Active participation, advocacy and leadership from public health community and partners

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