



Ontario

Cancer Care Ontario

Action Cancer Ontario



Cancer Risk Factors in Ontario

Alcohol – proportion of cancers in Ontario attributable to consumption



2. WHAT PROPORTION OF CANCERS IN ONTARIO CAN BE ATTRIBUTED TO ALCOHOL CONSUMPTION?

An estimate of population prevalence of alcohol consumption is required in order to calculate the proportion of cancers in Ontario that can be attributed to alcohol consumption (see **Appendix C**). While self-reported consumption data are available from population surveys, these tend to underestimate alcohol use when compared with per capita consumption based on sales data.²⁹ For other surveys of alcohol use in Canada—depending on design, sampling and type of measure used—the magnitude of undercoverage has been estimated at 60% to over 70% of adult per capita consumption.^{30,31}

Despite this limitation, population survey data are needed for calculating the alcohol-attributable cancer burden because per capita consumption based primarily on sales data is an aggregate statistic that cannot be disaggregated by sex and age group. Survey data can be adjusted for undercoverage of per capita consumption and unrecorded consumption (e.g., from home production of alcohol). Both unadjusted and adjusted estimates of the number and proportion of cancer cases attributable to alcohol consumption are presented in this report (**Figure 1** and **Table 1**). Adjustment and calculation methods are described in detail in **Appendix C: Analytic Methods**, and in a more detailed technical appendix available at the internet address listed on the inside cover of this report.

- **Overall proportion of cancers.** An estimated 1,000 new cases of cancer diagnosed in Ontario during 2010 (equivalent to about 2% of all new cancer cases) can be attributed to alcohol consumption (**Table 1**). If alcohol exposure is adjusted to account for undercoverage, almost 3,000 new cases of cancer for that year (equivalent to about 4% of all new cancer cases) may be attributed to alcohol consumption.
- **Cancers with the highest proportions attributable to alcohol consumption.** Because of their relatively high risk associated with alcohol, cancers of the upper aero-digestive tract have the highest percentages of cases attributable to alcohol consumption in Ontario (**Figure 1a** and **Table 1**). Alcohol accounted for an estimated 19% of oral cavity and pharyngeal cancers, and 14% of laryngeal cancers diagnosed in males during 2010, although these percentages may be as high as 56% and 40%, respectively, depending on the calculation method (see **Appendix C** and **Technical Appendix**). Among females, alcohol accounted for an estimated 7%–23% of oral cavity and pharyngeal cancers, and 5%–15% of laryngeal cancers. Cancers of the esophagus are another group with a substantial alcohol-attributed proportion — an estimated 13%–37% of esophageal cancers in males and 4%–13% in females.
- **Differences by sex.** A larger proportion of cancer cases in males are attributable to alcohol consumption (10%–29% of alcohol-related cancers) than in females (3%–8% of alcohol-related cancers). This is primarily because alcohol consumption has historically been higher among males.
- **Female breast cancer.** Among Ontario females, 2%–7% of breast cancer cases can be attributed to alcohol consumption. Although this proportion is lower than for some other alcohol-related cancers, it represents a substantial number of avoidable new cancer cases (about 200–600 in 2010; **Figure 1b** and **Table 1**) because of the high numbers of breast cancers

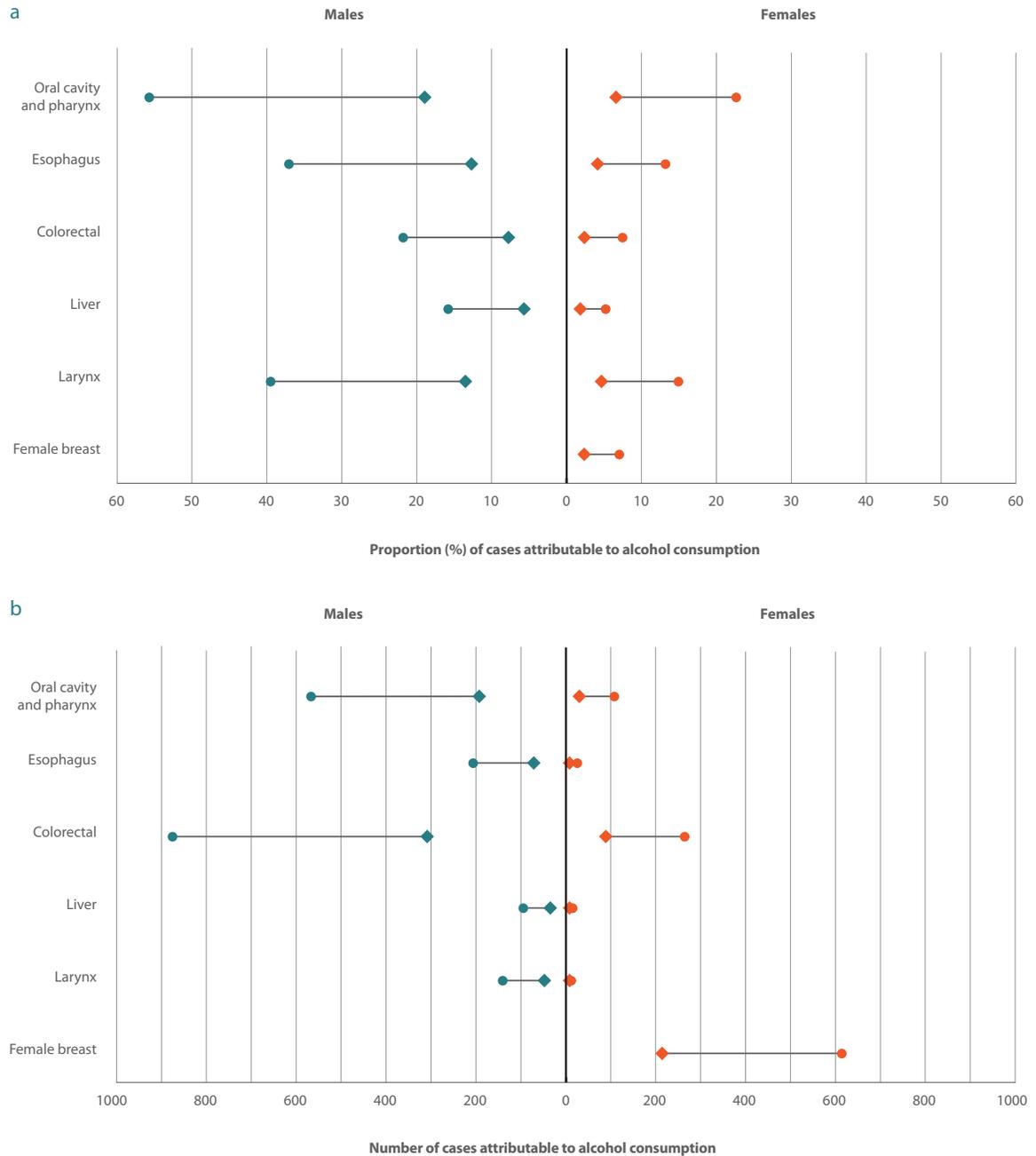


relative to other types of cancer. Breast cancer is the most commonly diagnosed cancer and the second most common cause of cancer death in Ontario females.³²

- **Colorectal cancer.** About 400–1,100 new cases of colorectal cancer diagnosed in Ontario during 2010 can be attributed to alcohol consumption (Figure 1b and Table 1). Because of the high numbers of colorectal cancers relative to other types of cancer, this represents as much as 40% of all alcohol-attributable cancer cases. Colorectal cancer is the third most commonly diagnosed cancer in Ontario males and females.³²
- **International comparison.** The proportion of Ontario cancer cases attributed to alcohol consumption in this report is lower than estimates previously reported in other countries (see Technical Appendix).^{33,34} This is primarily because levels of alcohol consumption in Ontario are lower than in the United Kingdom and other European countries where these studies were conducted.^{33,34}
- **Alcohol and tobacco.** Despite adjusting for survey undercoverage, these estimates may be conservative estimates of the population cancer burden attributable to alcohol because of the synergistic relationship between tobacco and alcohol in causing some types of cancer.



FIGURE 1.
Proportion (a) and number (b) of cancer cases attributable to alcohol consumption, by sex and cancer type, Ontario, 2010



Notes: Diamonds (◆) represent unadjusted estimates while circles (●) represent estimates adjusted for survey undercoverage of alcohol consumption.
Sources: Ontario Cancer Registry, 2013 (Cancer Care Ontario); Canadian Community Health Survey, 2000/01 (Statistics Canada) (see Appendix A)



TABLE 1.

Proportion and number of cancer cases attributable to alcohol consumption, by sex and cancer type, Ontario, 2010

PROPORTION (%) OF CANCER CASES ATTRIBUTABLE TO ALCOHOL CONSUMPTION						
Cancer type	Both sexes		Males		Females	
	Unadjusted	Adjusted*	Unadjusted	Adjusted*	Unadjusted	Adjusted*
Oral cavity and pharynx	14.9	45.2	18.8	55.8	6.6	22.8
Esophagus	10.4	30.7	12.7	37.1	4.2	13.2
Colorectal	5.3	15.1	7.7	21.8	2.5	7.5
Liver	4.6	13.0	5.7	15.8	1.9	5.3
Larynx	12.3	36.2	13.5	39.5	4.7	15.0
Female breast	2.4	7.0	–	–	2.4	7.0
All alcohol-related cancers†	5.0	14.7	10.0	28.8	2.6	7.8

NUMBER OF CANCER CASES ATTRIBUTABLE TO ALCOHOL CONSUMPTION						
Cancer type	Both sexes		Males		Females	
	Unadjusted	Adjusted*	Unadjusted	Adjusted*	Unadjusted	Adjusted*
Oral cavity and pharynx	222	676	191	567	31	109
Esophagus	79	233	71	206	8	27
Colorectal	399	1,141	309	875	90	266
Liver	38	108	34	96	4	12
Larynx	51	148	48	140	3	8
Female breast	214	617	–	–	214	617
All alcohol-related cancers	1,003	2,923	653	1,884	350	1,039

Notes: *Adjusted for survey undercoverage of alcohol consumption

†These proportions are calculated by dividing the number of alcohol-attributable cancer cases by the total number of cases diagnosed within the six alcohol-related cancer types.

Sources: Ontario Cancer Registry, 2013 (Cancer Care Ontario); Canadian Community Health Survey, 2000/01 (Statistics Canada) (see Appendix A)