## HIGHLIGHTS

### Cancer incidence attributable to alcohol consumption

Alcohol consumption has been classified as a carcinogen for humans (Table 1), although the specific mechanism through which alcohol influences cancer risk remains unknown. This study estimated the proportion and total number of cancers attributable to alcohol consumption in Alberta in 2012, using survey and health services data. The proportions of men and women who exceeded cancer prevention guidelines (no more than 2 drinks per day for men and 1 per day for women) were similar, at 8.0% and 7.8%, respectively. In 2012, 247 cancer cases could be attributable to alcohol consumption, representing 4.8% of all alcohol-associated cancers and 1.6% of all cancers. Proportions of cancers attributable to alcohol consumption at individual cancer sites were estimated to be as low as 5.1% (liver) and as high as 19.9% (oral cavity/pharynx) among men and as low as 2.1% (liver) and as high as 7.6% (oral cavity/pharynx) among women in Alberta. Since alcohol consumption represents a modifiable cancer risk factor, strategies to reduce alcohol consumption have the potential to reduce Alberta's cancer burden, say the authors. ***CMAJ Open* 2016;4:E507-14.**

**Table 1:** Risk associated with 1 g/d of alcohol consumption for individual cancer sites

| Cancer site | Sex | Increase in risk per gram/d (95% CI*) |
|---|---|---|
| Breast | Women | 0.0071 (SE 0.0008) |
| Oral cavity and pharynx | Women and men | 0.0185 (0.0177–0.0200) |
| Larynx | Women and men | 0.0136 (0.0124–0.0148) |
| Esophagus | Women and men | 0.0129 (0.0121–0.0136) |
| Liver | Women and men | 0.0059 (0.0041–0.0079) |
| Colorectum | Women and men | 0.0058 (0.0033–0.0082) |

Note: CI = confidence interval, SE = standard error.
*Except where stated otherwise.

### Introducing pharmacogenetic testing with clinical decision support into primary care

Drug-related adverse events are an important and common cause of morbidity, with incidence rates as high as 25%. Pharmacogenetic testing is an effective method of reducing adverse drug events. This feasibility study looked at the ability to obtain and genotype saliva samples in 6 primary care settings (5 family practices and 1 pharmacy) and to determine the levels of use of a decision support tool that creates medication options adjusted for patient characteristics, drug–drug interactions and pharmacogenetics. A total of 191 adults with at least 1 of 10 common diseases had saliva samples obtained in the physician's office or pharmacy. Genotyping of these samples resulted in the linking of 189 patients (99%) with pharmacogenetic reports to the decision support program. A total of 96.8% samples had at least 1 actionable genotype for medications included in the decision support system (Table 2). The medication support system was used by the physicians and pharmacists 236 times over 3 months. This study showed that physicians and pharmacists can collect saliva samples of sufficient quantity and quality for DNA extraction, purification and genotyping. A clinical decision support system with integrated data from pharmacogenetic tests may enable personalized prescribing within primary care, conclude the authors. ***CMAJ Open* 2016;4:E528-34.**

**Table 2:** Population with actionable genotypes for drugs within medication decision support system

| Gene | Drug | No. (%) of participants ($n$ = 185) |
|---|---|---|
| *CYP2C19* | Citalopram, escitalopram, esomeprazole, lansoprazole, omeprazole, pantoprazole, sertraline | 50 (27.0) |
| *CYP2C19* | Clopidogrel | 63 (34.0) |
| *SLCO1B1* | Simvastatin | 53 (28.6) |
| *CYP2C9* | Celecoxib, flurbiprofen | 5 (2.7) |
| *CYP2C9* | Warfarin | 67 (36.2) |
| *VKORC1* | Warfarin | 147 (79.4) |
| *G6PD* | Sulfamethoxazole | 0 (0) |
| *HLA-B**58:01* | Allopurinol | 7 (3.8) |
| *CYP2D6* | Metoprolol, oxycodone, propafenone, tramadol, venlafaxine | 91 (49.2) |
| *CYP2D6* | Codeine | 18 (9.7) |

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