**Title:** Assessment of the Burden of Alcohol-Related Acute Admissions to Christchurch Hospital and the Source (Off-License vs On-Licensed Premises) of the Alcohol

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Alcohol is an important part of social life for most New Zealanders, but as the most commonly used recreational drug, it also causes a great deal of harm. Alcohol is responsible for over 1000 deaths each year in New Zealand, has known contribution to 60 medical conditions, is implicated in a great deal of violent offending, and plays a part in many other social ills. The harms that arise from alcohol relate to the pattern (amount and frequency) of consumption. These patterns are partially shaped by the political climate of the nation. Years of deregulation since 1989 have resulted in cheap, readily-available alcohol, and a culture that condones its excessive use, with over 25% of NZ adults drinking hazardously. The Sale and Supply of Alcohol Act 2012 was passed to moderate the nation’s drinking behaviours and limit the harm caused by alcohol. Among other measures, it gave Territorial Authorities the power to construct Local Alcohol Policies (LAP) to control licensing and restrict access to and availability of alcohol. The Christchurch City Council’s proposed LAP includes restrictions to trading hours, and is due to be implemented in 2014 or later. We took this opportunity to explore the drinking behaviours of patients affected by alcohol at the Christchurch Hospital Emergency Department (ED) in November-December 2013, and intend to repeat the study following implementation of the LAP to gauge the effect of the policy and inform further policy decisions.

Data was collected over a sample time equivalent to two full weeks (24 hrs/day, 7 days/week) in the ED. All patients triaged (n=3,619) were asked whether they had consumed alcohol in the past 4 hours, and whether their ED attendance was related to their use of alcohol; staff opinion also contributed to informing the latter. People with positive answers to either or both of these (n=267) had demographic data and their observed level of intoxication noted, and were invited to answer questions about their most recent/implicated drinking session, including the amounts, types, and sources of alcohol consumed. 169 patients (63%) consented to answering these questions; six were later excluded due to consumption of large amounts of methylated spirits (very strong alcohol which is usually associated with heavy alcohol dependence, which if included, could overestimate binge drinking behaviours in our study). The data from 163 patients fell into two groups: those who were “alcohol-affected” (not sober and/or at ED because of alcohol-related problem, n=113), and those who were “alcohol-unaffected” (had alcohol in 4 hours prior to triage but sober and at ED because of alcohol-unrelated problem, n=50). Data was analysed using Microsoft Excel.

The age and gender structure of the alcohol-affected group was not surprising. Males outnumbered females 1.8 to 1, consistent with previous evidence that males tend to drink more frequently and in larger amounts than females. A high proportion of the group (40% vs. ~15% of the general Christchurch population) were aged 16-25 years old, consistent with evidence that people of this age group tend to drink larger amounts per drinking session and experience more harm from a given amount of alcohol compared with older adults.

Alcohol-affected patients had generally consumed dangerous amounts of alcohol in the drinking session prior to or implicated in their ED presentation. A “standard drink” (SD) refers to the volume of an alcoholic beverage which has 10g of pure alcohol in it, allowing comparison between beverages of different alcoholic strength. A 330mL can of 5% Alcohol By Volume (ABV) beer has 1.3 SD, a bottle of 13% ABV wine 7 to 8 SD, and a shot of 40% ABV spirits 1 SD. Consumption of >4 SD in one session doubles the risk of injury within the following 6 hours, and risk increases with further consumption. 7+ SD/session is considered a binge. We found that over 80% of the alcohol-affected group had binged in their last/implicated drinking session, compared with 10% of the alcohol-unaffected group. The median alcohol consumption was 14 SD for alcohol-affected patients, compared with 2.5 SD for the alcohol-unaffected group. While most members of the alcohol-affected group had consumed alcohol beyond recommended amounts, a small proportion had not, demonstrating that harm can still occur within apparently “safe” limits of alcohol consumption.

We found that alcohol much more commonly came from an off-licence source compared with an on-licence source in the alcohol-affected group. Off-licence retailers (such as supermarkets and liquor stores) sell alcohol for consumption away from the premise, while on-licence premises (such as bars, pubs, night-clubs and taverns) sell alcohol for consumption on site. 88% of patients in the alcohol-affected group had consumed off-licence alcohol, while only 12% had exclusively on-licence consumption. 19% had consumed both off- and on-licence alcohol. The most popular on-licence venues were bars and pubs. The dominance of off-licence sourced alcohol consumption echoes findings from a 2009 study looking at drinking behavior in a busy entertainment district in Christchurch. The study found that over 80% of people in the area had come straight into the city centre without attending a licensed premise first, instead favouring consumption of off-licence sourced alcohol (“pre-loading”). Price is an influential factor in this pre-loading phenomenon, as off-licence alcohol is usually cheaper. Pre-loading behavior is associated with harmful outcomes.

All the major types of alcohol had a stake in the total number of SD consumed by alcohol-affected patients. Beer was the most popular choice, making up 32% of SD; the remainder was accounted for by spirits (24%), ready-to-drinks (RTDs) (22%), wine (20%), and energy-mixers (2%). Supermarket-bought beer and wine accounted for at least 20% (compared to off-licence RTDs accounting for 17%) of all alcohol consumed preceding alcohol-affected presentations. This data refutes claims made by supermarkets that it is mainly RTDs that are responsible for alcohol-related harm, and supports similar findings in the aforementioned study in 2009. Furthermore, we found that supermarkets accounted for 67% of all off-licence beer and wine (which are the main types of alcohol supermarkets are permitted to sell, and also the most popular alcoholic drinks in New Zealand) from a known source, and 28% of all off-licence alcohol from a known source consumed by the alcohol-affected group. Supermarkets do contribute to harmful drinking.

This study has a number of limitations. Firstly, the timing of the study may not be representative of drinking behaviours throughout the year (for example, alcohol consumption would be expected to rise over the Christmas/New Year period). A number of events traditionally involving heavy alcohol consumption (such as Cup and Show Days and Food and Wine Festival) fell within the sampling period, so recorded drinking behavior may not be typical. However, these accounted for a small portion of the two week sample time. Secondly, 66% of those not consenting were not sober. The people with the highest levels of intoxication were unable to consent (for example, due to coma, critical state, safety concerns etc.), and level of intoxication is also associated with memory-loss which limits patients’ ability to answer questions about their drinking accurately. This has likely led to underestimation of the true level of drinking. Thirdly, while most patients seemed happy to answer questions about their drinking, there may have been a degree of stigma (or conversely, pride) attached with alcohol consumption for some, which may have led to an under- or over-estimation, respectively, of alcohol consumption. Fourthly, the time of observation of patients’ level of intoxication varied according to waiting room times and the workload within the ED. Some patients may have sobered up in this time and been categorised inappropriately. Finally, 29 patients who were missed and retrospectively tracked through notes may or may not have been eligible to consent – there was reasonable but unconfirmed suspicion of alcohol involvement or intoxication. These patients were not included in the study; it is likely that some of them would have been suitable to consent and therefore there has probably been an underestimation of the number of alcohol-affected patients.

This study shows that alcohol-affected patients were more likely to be young and/or male, and generally had dangerously high levels of alcohol consumption. Most of this group had bought alcohol from an off-licence source, and supermarkets contributed to the majority of off-licence beer and wine consumption. Overall, the study design is likely to have underestimated drinking behaviours of this group. We hope to repeat this study and analyse changes in drinking behaviours following implementation of the LAP.