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Dr Nick Scott
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Hon. Ian Callinan AC
GPO Box 7060
Sydney NSW 2001

29/03/2016

**Re: Liquor law review**

Dear Mr Callinan,

Please find attached a submission from the Burnet Institute to the current review of the impact of liquor law reforms. The Burnet Institute is one of Australia's leading Public Health Research Institutes and is in a unique position to provide information relevant to the review.

We have recently constructed a computer-based simulation model of young, heavy alcohol drinkers to provide a means for conducting policy experiments to inform policy decisions. Our model has been designed to capture and quantify both the direct and indirect effects of changes to alcohol-related policies such as venue lockouts, venue closing times, transport availability, responsible service of alcohol and drink prices. **We are able to estimate and compare changes to the amount of verbal aggression, transport-related harms and consumption-related harms that people in the model experience under any alcohol policy that is tested**. These results are particularly timely and relevant given the current consideration of the effectiveness of lockout laws and other alcohol service laws.

The model is scientifically valid, and has been published in the International Journal of Drug Policy [1](http://dx.doi.org/10.1016/j.drugpo.2016.02.016) and the Journal of Artificial Societies and Social Simulation [2](http://jasss.soc.surrey.ac.uk/19/1/10.html), with recent work due to be presented internationally [3]. In this submission we have summarized our specific findings that relate to the current liquor law review, and would be happy to provide additional detail if required.

Yours sincerely

Nick Scott
*Econometrician, Centre for Population Health, Burnet Institute*

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*Background on the model*

A high proportion of young Australians regularly consume alcohol at levels that put them at increased risk of experiencing acute harms such as physical or verbal violence. This is of serious public health concern and great cost to the economy, yet few tools are available that can assess the likely impact of otherwise untested policies that aim to reduce harms.

We have recently constructed a computer-based simulation model of young, heavy alcohol drinkers to provide a means for conducting policy experiments to inform policy decisions. The model consists of individuals and their friendship groups moving between private, public-commercial (e.g. nightclub) and public-niche (e.g. bar, pub) venues while tracking their alcohol consumption, spending and whether or not they experience consumption-related harms (i.e. drink too much), are involved in verbal aggression, or have difficulty getting home. Importantly, individuals' behaviour and decisions will be setting dependent and allowed to vary as the night progresses, influenced by their own—and also their friends'—alcohol consumption, finances and harms experienced. A major strength of this model is that it is individual-based, meaning that each person is given unique characteristic to describe how they behave and interact with others. This is relevant because changes in alcohol policy have different effects upon people of different income, socioeconomic background, geographic place of residence, gender and so on. By including these differences our approach is able to produce realistic estimates of the effects of policy changes.

Below we have summarized two relevant studies for this submission.

*Study 1: Venue lockout and last-drink policies: Comparing licensee costs and the effects on drinking-related harms through simulation modelling [3].*

In this study we compared policies of 1am/2am/3am venue lockouts in conjunction with last-drinks zero/one/two hours later, or last-drinks at current closing times. We measured the number of incidents of verbal aggression in public venues, in the street or in private venues experienced by individuals in the model; the prevalence of consumption-related harms; and the lost revenue to public venues when each policy was implemented in the model.

*Results:*
The most effective policy in reducing overall verbal aggression was 1am lockouts with current closing times, which led to a 25% reduction in total incidents experienced by individuals in the model (including an 81% reduction in street-based incidents). All of the policies modelled produced substantial reductions in street-based incidents of verbal aggression (33–81%) due to the smoothing of taxi demand; however they also displaced inner city residents from public to private venues where they experienced greater consumption-related harms. The model estimated that the least loss of revenue to venue owners would occur with later lockout times and longer periods between lockout and last-drinks.

*Conclusions:*
**Including additional hours between lockout times and last-drinks could reduce aggression by easing transport demand and could minimize the loss of revenue to venue owners. Direct policies to reduce late-night transport-related disputes should also be considered.**

*Study 2: Comparing venue lockout policies to extended public transport operating hours [1].*

In this study we compared policies of a two-hour public transport extension/24-hour public transport; 1am/3am venue lockouts; and combinations of both. We again measured the number of incidents of verbal aggression inside public and private venues; the number of people ejected from public venues for being intoxicated; and the percentage of people experiencing verbal aggression, consumption-related harms and transport-related harms.

*Results:*
All-night public transport reduced verbal aggression in the model by 21% but displaced some incidents among outer urban residents from private to public settings. Comparatively, 1am lockouts reduced verbal aggression in the model by 19% but led to inner city residents spending more time in private rather than public venues where their consumption-related harms increased. Extending public transport by two hours had similar outcomes to 24-hour public transport except with fewer incidents of verbal aggression displaced. Although 3am lockouts were inferior to 1am lockouts, when modelled in combination with any extension of public transport both policies were similar.

*Conclusion:*
**A two-hour extension of public transport is likely to be more effective in reducing verbal aggression and consumption-related harms than venue lockouts.**

*Summary of findings*

1. Extending public transport is likely to be more effective in reducing aggression and drinking-related harms than venue lockout policies.
2. Venue lockout policies are likely to be more effective when there is longer between the lockout time and last-drink time.
   - However, these policies are effective because they spread the flow of people leaving entertainment precincts over a longer period, reducing surges in transport demand that could otherwise be achieved with alternate transport policies.

*References*

1. Scott N, Hart A, Wilson J, Livingston M, Moore D, Dietze P. The effects of extended public transport operating hours and venue lockout policies on drinking-related harms in Melbourne, Australia: Results from SimDrink, an agent-based simulation model. International Journal of Drug Policy. 2016. doi: http://dx.doi.org/10.1016/j.drugpo.2016.02.016.
2. Scott N, Livingston M, Hart A, Wilson J, Moore D, Dietze P. SimDrink: An agent-based NetLogo model of young, heavy drinkers for conducting alcohol policy experiments. Journal of Artificial Societies and Social Simulation. 2015;19(1):10.
3. Scott N, Livingston M, Moore D, Reporter I, Dietze P. Venue lockout and last-drink policies: Comparing licensee costs and the effects on drinking-related harms through simulation modelling. 42nd Annual Alcohol Epidemiology Symposium of the Kettil Bruun Society. 2016.