

Predicting the impacts of licensed outlet density changes on public health, safety and amenity in Australian communities: results from a feasibility study

Tanya Chikritzhs PhD  
Paul Catalano, Richard Pascal and Naomi Henrickson

# Plan

Background

Literature overview

Outlet density feasibility study

Aim

Methods

Results

To think about

Where to now?



# Background

- Liquor licensing legislation in Australia is determined by state/territory governments with substantial variation among individual Liquor Acts and their implementation.
- Commonwealth may indirectly influence state/territory liquor acts and their operation with over-riding national policy.

# Background

- National Competition Policy has encouraged states/territories to remove restrictions on granting new licenses (ie controls on outlet density) – unless evidence can be shown that such changes are not in the public interest.
- NCP has also encouraged state/territory adoption of social impact or public interest tests (WA, NSW).

# Background

- Dr Craik, NCC media release (2003):

*A 'public interest' test for licences that focuses on the social, community and health implications of a liquor licence application is consistent with NCP. A test that focuses merely on the competitive interests of existing licensees [ie needs-based test] is not... Under NCP, the public interest comes first. What is important is that the public interest is considered in terms of the whole community, rather than particular commercial interests.*

# Background: what is 'outlet density'?

- Number of hotels for every 1,000 residents in a region
- Number of packaged liquor licenses for every hectare in a region
- Number of restaurants per kilometre of roadway in a region

OR

- Amount (volume) of alcohol sold/supplied within a region



# Background: outlet density research

- Dominated by US studies that use count-based measures
- Assaults are highly positively correlated with outlet density (as one increases so does the other)
- Associations also demonstrated for road crashes and drink-driving but less consistent
- Other less well established associations; homicide, child abuse and neglect, self-inflicted injury, alcohol-related morbidity and mortality

# Background: Australian research

- Mapp consortium (1995); first to use sales data. WA per capita volume of consumption associated with night-time assaults, injuries, drink-driver crashes
- Stephenson et al (1999a); per capita volume of alcohol consumption associated with assault in metro but not country areas of NSW. (1999b); malicious damage, offensive behaviour metro and non-metro areas
- Donnelly et al (2006); residents living closest to licensed premises had higher levels of neighbourhood drunkenness and property damage



# Australian research evidence

- Livingston (2008a): increased outlets over time strongly related to increased violence in Victoria but varied by SES and licence type. Hotels problematic in inner-city entertainment precincts, off-premise outlets highly associated with violence in suburban areas.
- Livingston (2008b); explored non-linear relations between density and violence in Melbourne. Showed a 'critical threshold' for pubs, where bunching of 30-40 venues risk of violence in and around surrounding increased from 12 to 40 assaults per/yr.

# NDLERF funded feasibility study: predicting alcohol-related harms from changes in outlet density

- **Aim:** to progress the development of an Australian model sensitive to local risk factors to help authorities determine appropriate liquor outlet densities for minimising alcohol-related harms within communities.

# Feasibility study: predicting alcohol-related harms from changes in outlet density

Method in 3 parts:

- (i) literature review
- (ii) simple correlations between outlet density measures and harm indicators using 2000/01 WA data (police-reported assaults; drink-driving breath tests; alcohol-attributable hospitalisations; alcohol-attributable deaths)
- (iii) demonstration models for predicting impact of outlet density changes on police reported violent assaults.

## Method cont.

3 potential 'measures' of outlet density were examined:

- simple raw count of numbers of licensed outlets located within each LGA (count);
- number of licensed outlets divided by the total land area contained within the LGA (area); and
- the volume of wholesale alcohol purchases made by retail outlets located within the LGA (volume of alcohol by beverage type, e.g. spirits, regular strength beer, wine).

Data were further divided into:

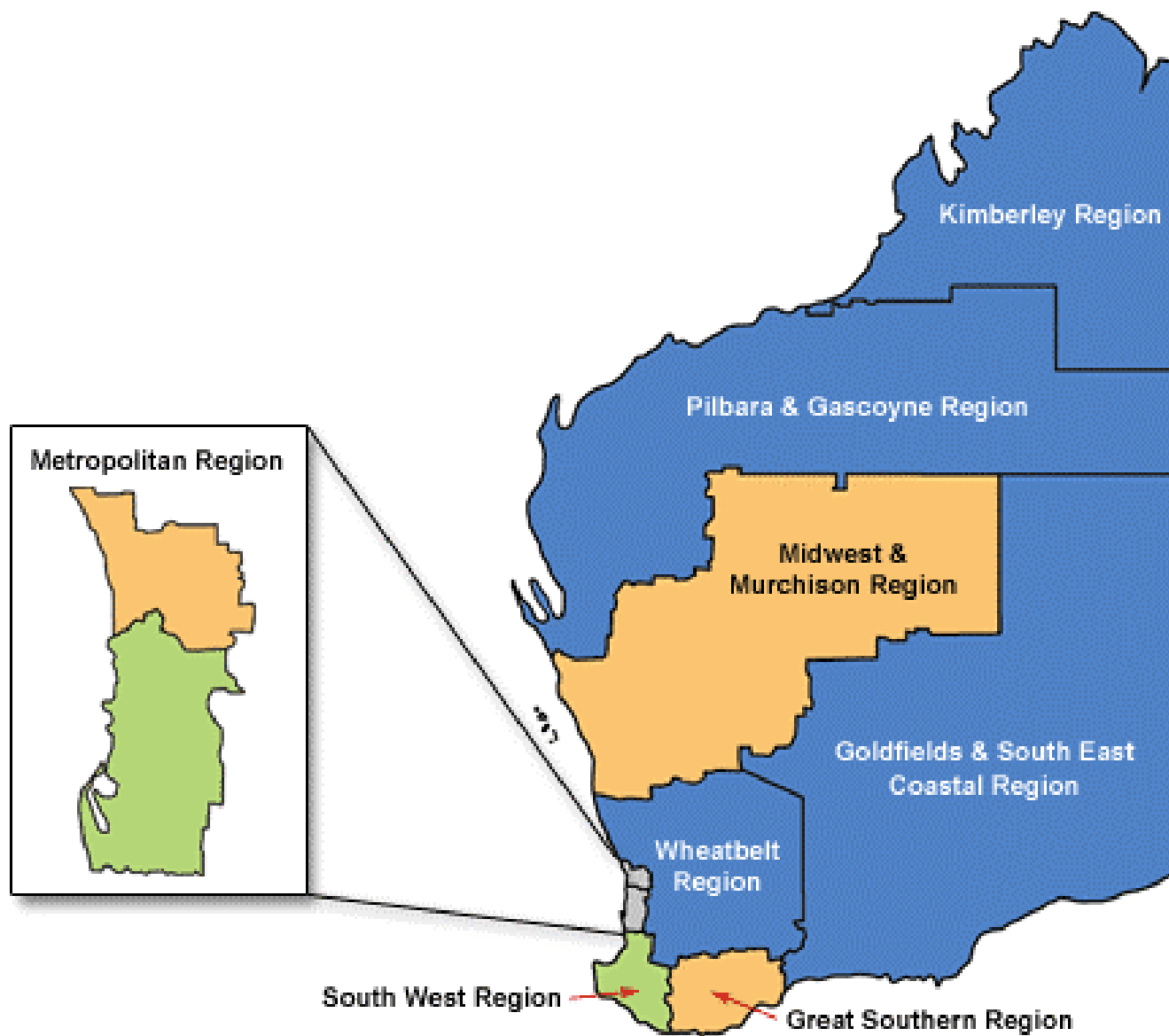
- type of licensed outlet (e.g. hotel/tavern, restaurant/café, liquor store) and
- location of offence (i.e. licensed or private)

## Method cont.

### Demonstration models

Using Local Government Areas (LGA) as the minimum geographic unit, we explored the relationship between assaults and outlet density on a:

- (i) state-wide basis, across all 140 LGAs; and
- (ii) a region-specific basis including:  
Metropolitan, Goldfields, Great Southern, Kimberley, Midwest and Murchison, Pilbara, South West and Wheatbelt.

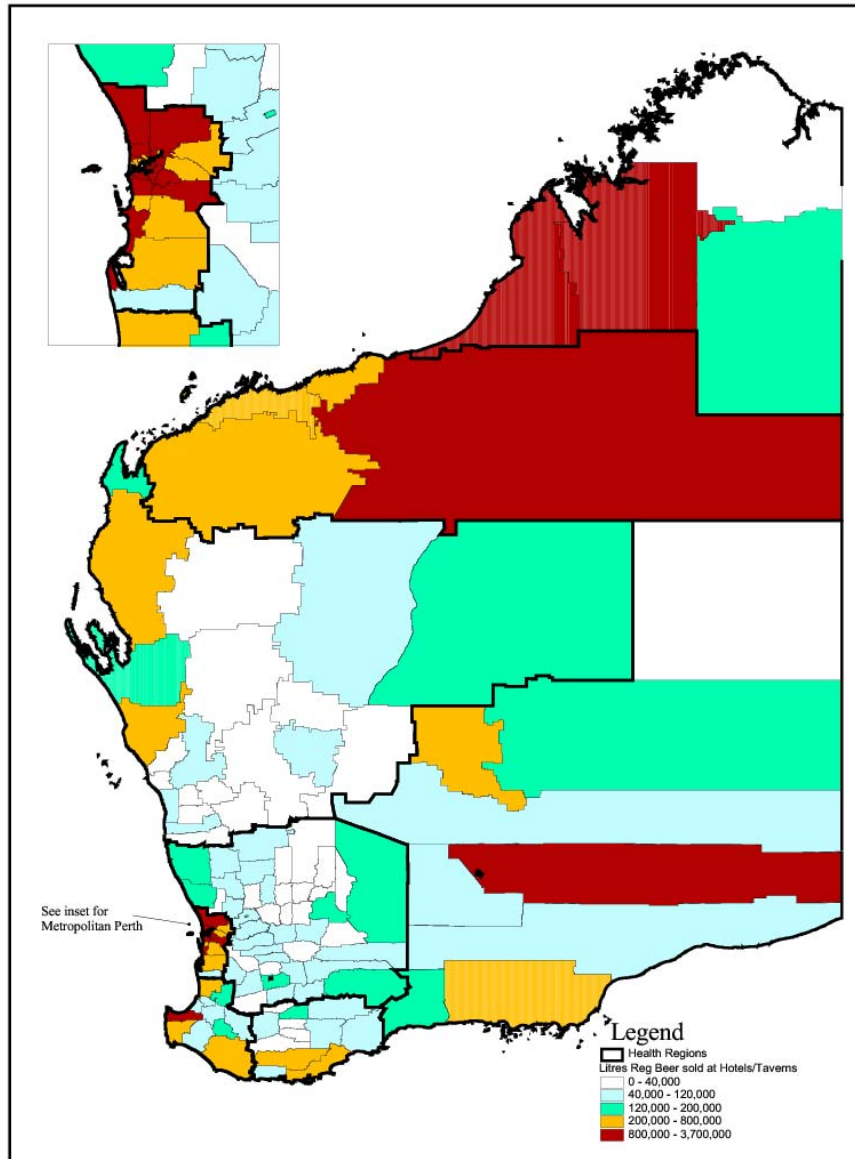


## Method cont.

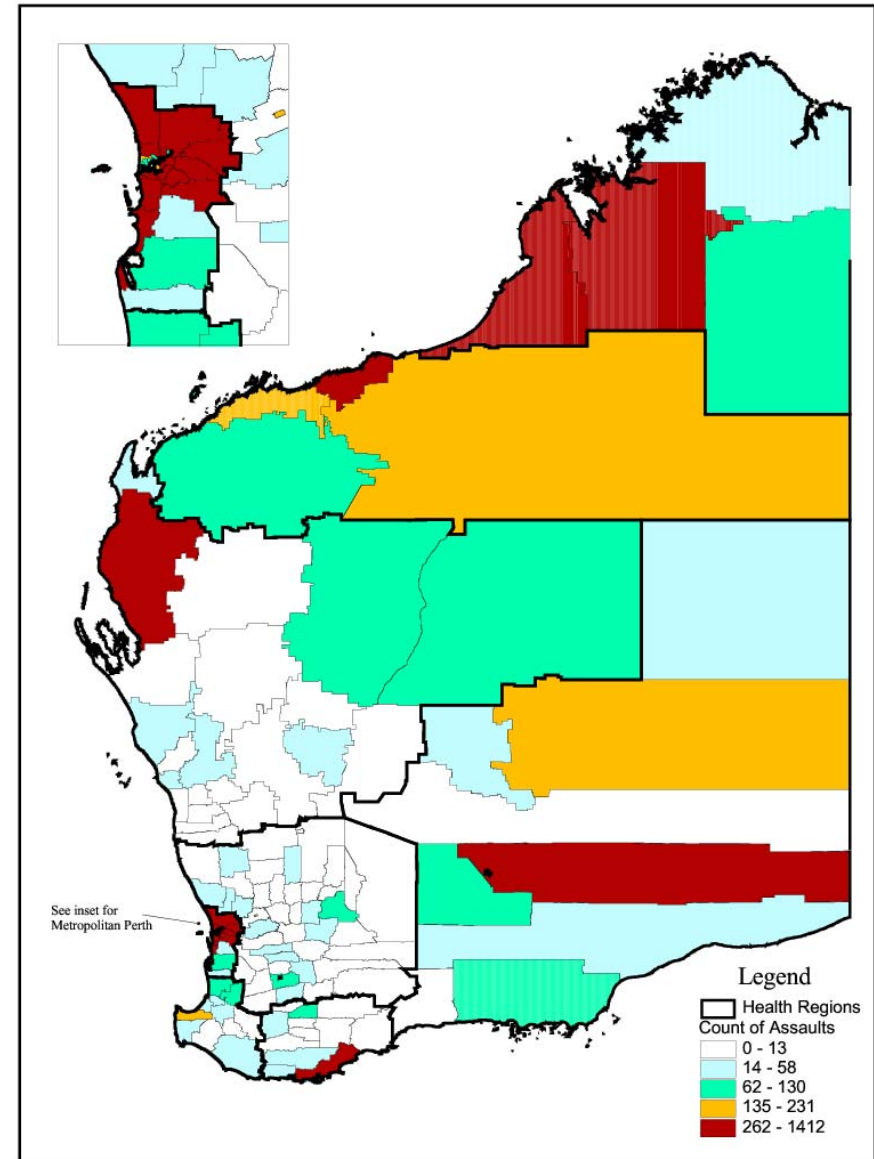
### Demonstration models

- Used multiple linear regression (MLR) – adjusted correlations
- Adjusted for demographic/socio-economic factors and spatial autocorrelation.





Outlet density (beer sales)



Number of Assaults

# Results

- The strongest most consistent relationships across all harm indicators tested (i.e. road crashes, assaults, hospitalisations, deaths) were found for volume of regular strength beer purchases.

## Correlations between outlet density beverage type (volume of sales)

	Count	Count by area	Alcohol sales (beer)
Assaults	0.72	0.91	0.95
Crashes	0.80	0.93	0.92
RBT	0.85	0.89	0.90
Hospt.	0.39	0.41	0.83
Deaths	0.32	0.20	0.82

## Correlations between outlet density measures and harms

	Spirits	Reg. wine	Low beer	Reg. beer
Assaults	0.54	0.17	0.75	0.89
Crashes	0.47	0.14	0.67	0.85
RBT	0.41	0.13	0.57	0.82
Acute hospt.	0.71	0.43	0.23	0.64
Chronic hospt.	0.48	0.23	0.11	0.40
Deaths	0.40	0.09	0.59	0.68

# Results

- The strongest most consistent relationships across all harm indicators tested (i.e. road crashes, assaults, hospitalisations, deaths) were found for volume of regular strength beer purchases.
- Other 'outlet density' measures which essentially rely on 'counts' of licensed premises necessarily assume that all licensed premises of a certain type, at all times and in all places are equivalent.
- In reality, this is not the case, size and capacity to influence overall consumption in a community differ markedly. Any model constructed around these assumptions will be ultimately flawed.

# Results

The strength of the relationship between assaults and outlet density varies by:

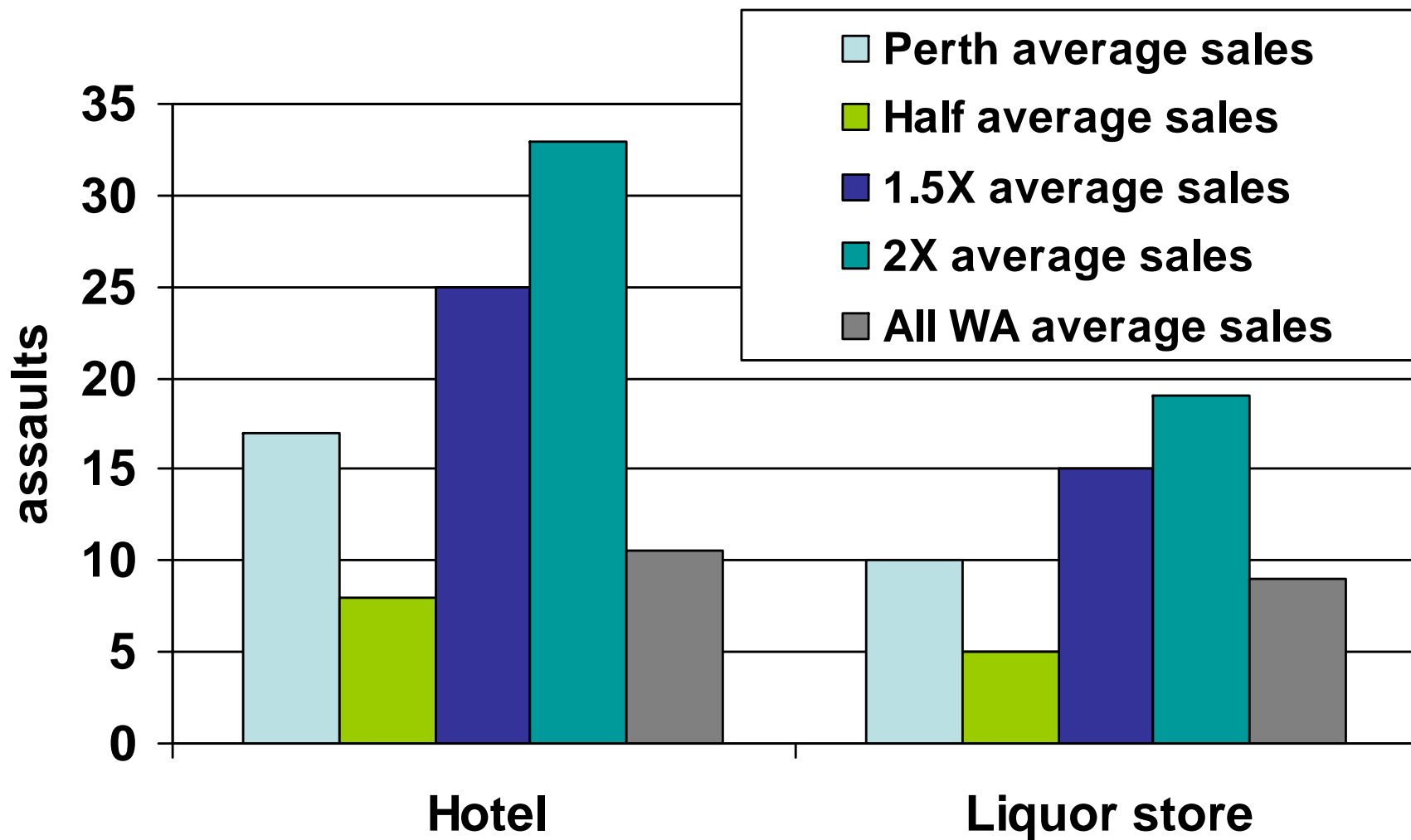
- the type of licensed outlet selling alcohol (e.g. hotel/tavern, liquor store) and
- whether incidents occurred on licensed or private premises
- geographic region and
- combinations of these

## State-wide correlations between harm indicators and beer purchases by licence type

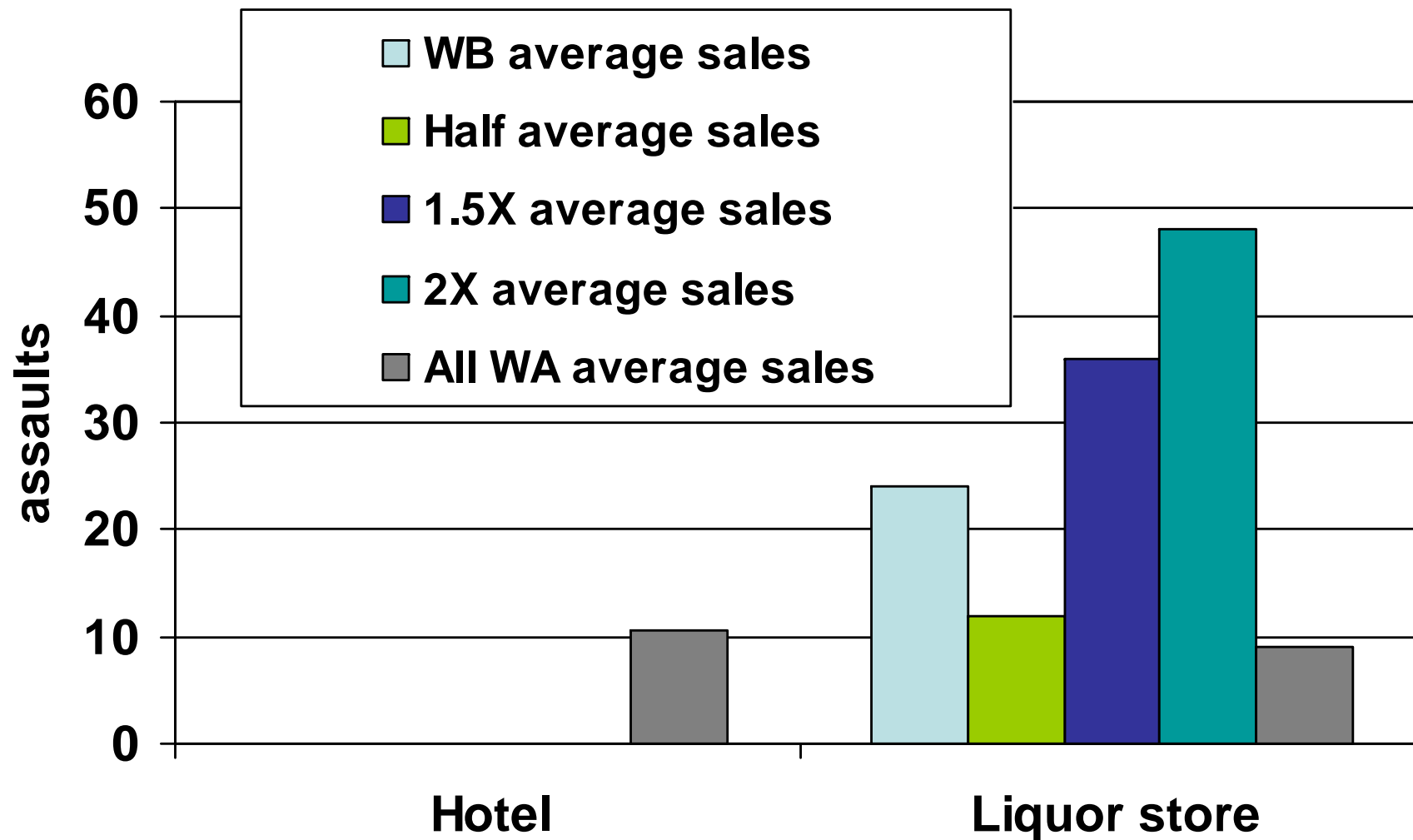
	Hotel	Liquor store	Club	Rest.	N/club	Other
Assaults	0.95	0.86	0.65	0.65	0.50	0.45
D-Driver road crashes	0.93	0.84	0.71	0.73	0.59	0.41
RBT offences	0.94	0.78	0.73	0.81	0.63	0.43
Hospt.	0.85	0.76	0.59	0.38	ns	0.41
Deaths	0.84	0.84	0.66	0.35	ns	0.23



## Estimated number of assaults per hotel or liquor store according to volume of beer sales in Perth



## Estimated number of assaults per hotel or liquor store according to volume of beer sales in the Wheatbelt



# To think about

- Demonstration models so far only estimate impact on *reported* assaults and do not include other harms such as road crashes, drink driving offences, hospitalisations and deaths, emergency department presentations'

# To think about

- Models are only as good as the quality and completeness of the underlying data – better the data, more reliable the estimates
- No one-size-fits-all, models need to be based on local data
- Need access to sales data

# Thankyou

**Download outlet density report from:**

**[www.ndlerf.gov.au](http://www.ndlerf.gov.au)**