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## Random Breath Tests (RBT): A call for national thresholds in RBT to driver ratios

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Australia should adopt a National Threshold in RBT to driver ratios – 1 RBT test per 1 registered driver (1:1)

Changing the ratio from 1:3 to 1:1 in Western Australia could half the rate of alcohol-related vehicle accidents, saving at least 23 lives and \$10 million dollars in alcohol-related traffic fatalities

The time taken to conduct an RBT should be increased from 20 seconds (costing \$6 per RBT) to 40 seconds (costing 50 cents more per RBT) but change 24% of driver attitudes towards drink driving

RBTs are a significant component of drink-driving management programs in Australia and have been for almost 30 years. In 1976 Victoria (Vic) launched Australia's first RBT program. Other jurisdictions introduced RBTs (partially or fully) soon after:

- Western Australia (WA, 1980)
- Northern Territory (NT, 1980)
- South Australia (SA, 1981)
- New South Wales (NSW, 1982)
- Australian Capital Territory (ACT, 1982)
- Tasmania (Tas, 1983)
- Queensland (QLD, 1988)

Three key elements comprise an effective RBT program:

1. Supportive legislation that identifies strong enforcement of the program with strict and definite penalties,
2. Strong and ongoing public education to raise awareness of the program,
3. Public perception that alcohol-related breath testing is truly random and ubiquitous; that vehicles are stopped randomly without a preliminary suspicion of alcohol use.

The main goals of RBTs are to deter individual drivers from drink driving, reduce the number of alcohol-related traffic accidents, and apprehend drink driving offenders.

***Deterrence: to deter the general driving population from drink driving***

During the late 1980's early 1990's Professor Ross Homel published a number of seminal works examining the effectiveness of RBTs (Homel, 1988, 1994). International research supports the robust Australian findings: RBTs elsewhere in the world have led to astounding decreases in alcohol-attributed motor vehicle crashes and associated fatalities (Erke, Goldenbeld, & Vaa, 2009; Peek-Asa, 1999; Shults et al., 2001).

In 1989 Homel (1989) asserted that police should conduct *at least* one RBT for every three drivers each year.

***The current, ad hoc ratio of RBT tests per licensed driver is 1:3 per annum***

This ratio of 1:3 has become doctrine in most jurisdictions including NSW (Grabosky & James, 1995), SA (Baldock & White, 1997) and Victoria (Harrison, Newman, Baldock, & McLean, 2003). We note that Tasmania complies with

a 2:1 ratio (that is, double the number of RBTs per licensed driver). Some states, such as WA, do not set an annual quota for RBTs (personal communication, Minister for Police; Road Safety Liza Harvey (MLA), 2012) but attempts a 1:3 ratio (Stockwell, Maisey, & Smith, 1991). By contrast, in 1996 the QLD Parliamentary Travelsafe Committee (1996) recommended that best practice requires an RBT to licensed drivers ratio of 1:1 each year. To date this still remains the QLD annual target.

The National Safety Council (2012) calculates the economic cost of a motor vehicle related accident as follows:

- One death is worth \$1.4 million.<sup>1</sup>
- One non-fatal disabling injury is \$70,200.
- Property damage from one crash (including non-disabling injuries) is \$8,900.

- ***In WA 29% of all fatal crashes (n=176<sup>2</sup>) attended by police in 2010 involved a driver with a BAC 0.05g/dL or greater***

A recent NDLERF report (Papafotiou-Owens & Boorman, 2011) shows that there are approximately 12 million random breath tests conducted across Australia each year. The annual cost of conducting random breath testing in Australia is \$71 million dollars (Vos et al., 2010), suggesting that the average cost to conduct one RBT test is approximately \$6.00. This takes into account police officer time (both to conduct and process drivers), police vehicle costs for attending RBT operations, and the cost of operating the equipment.

In 2010, the Queensland Police Service (QPS) and a UQ-based CEPS research team, led by Professor Lorraine Mazerolle, conducted the Queensland Community Engagement Trial (QCET) to test the impact of police approaching routine Random Breath Testing (RBT) encounters using principles of Procedural Justice (PJ; see Mazerolle, Bennett, Antrobus, & Eggins, 2012). One finding from QCET shows positive benefits of increasing the current 20 second RBT encounter to a more engaging 40 second PJ-scripted approach. In Queensland, QCET shows that 24% of drivers receiving the PJ-engaging, 40 second script change their attitude towards drink-driving. In real terms, an additional 100,000 Queensland drivers are likely to change their attitude to drink driving if police use the 40 second, PJ-scripted script. The QCET PJ script includes police treating all drivers with dignity & respect, letting drivers know they are being pulled over at random, and communicating to drivers that the police care about saving lives. Spending at least a few moments engaging the driver in talk about crime prevention was also part of the QCET-PJ script that help change citizen attitudes.

The cost of increasing the a single RBT encounter from 20 seconds to 40 seconds is about 50 cents: that is, given that \$5.50 of the \$6.00 of a standard 20 second RBT encounter are fixed costs, varying officer time by 20 seconds per RBT encounter would only increase the cost by 50 cents per encounter. For a state like Queensland that conducts nearly 4 million RBTs per year, the additional cost of increasing the encounter length from 20 seconds to 40 seconds translates to about \$2 million in officer time spent conducting RBTs.

Using state based crash data for cases registering breath alcohol levels of 0.05 g/dL (grams per decilitre) or greater, we compare QLD's 1:1 ratio against the WA 1:3 ratio. Our analysis shows that a 1:3 ratio is inadequate by comparison to QLD's 1:1 ratio when it comes to modelling the number of alcohol-related crashes across the two states.

Figure 1 below presents the absolute number of alcohol related crashes (with BAC at least 0.05g/dL) and the number of RBTs (per 1000) conducted annually. Data for QLD alcohol-related crashes is only available for the period July 2004 to June 2009. In absolute terms the number of alcohol-related crashes in QLD is roughly twice that of WA; however the number of licensed drivers in QLD is more than double that of WA.

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<sup>1</sup> In US dollars as at 2010

<sup>2</sup> (Western Australia Police, 2011)

Figure 1: Absolute number of crashes and RBTs for WA and QLD

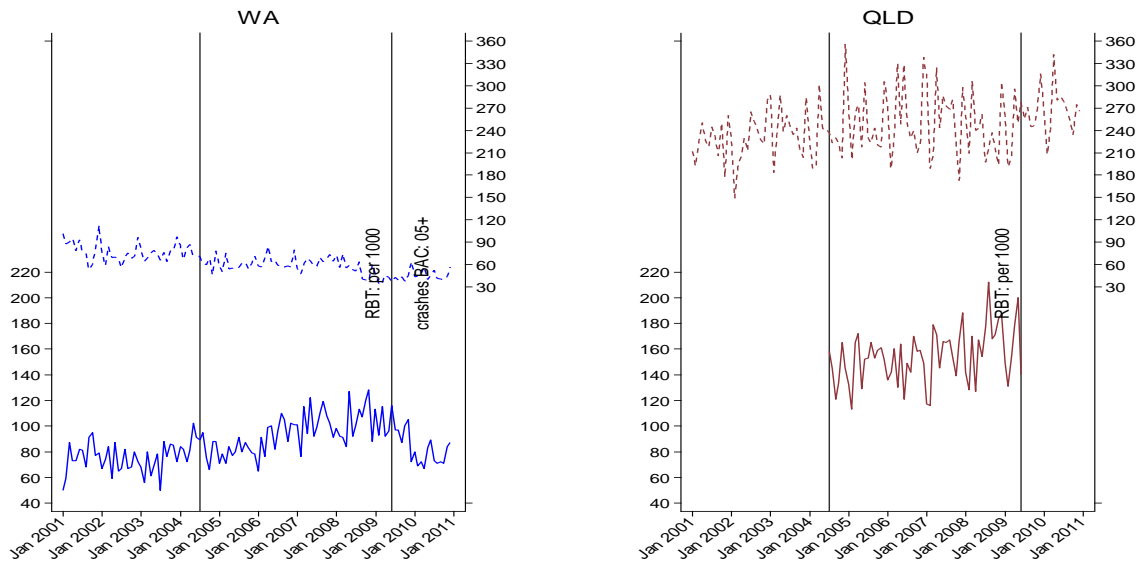


Figure 2 highlights that after adjusting for the number of RBTs conducted per month (which are based on a proportion of licensed drivers) the number of alcohol-related crashes in QLD (with a testing ratio 1:1) is half that of WA (with a testing ratio of 1:3). Moreover, the crash rate is substantially increasing in WA while it is moderately stable in QLD.

Figure 2: Number of crashes after adjusting for the number of RBTs

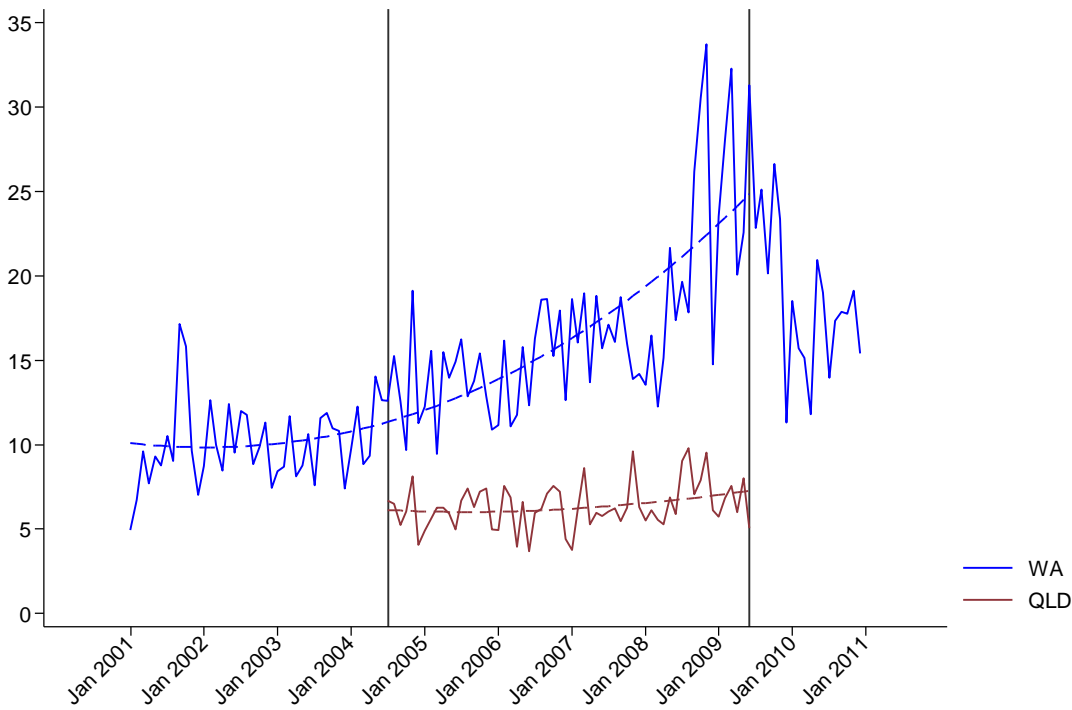
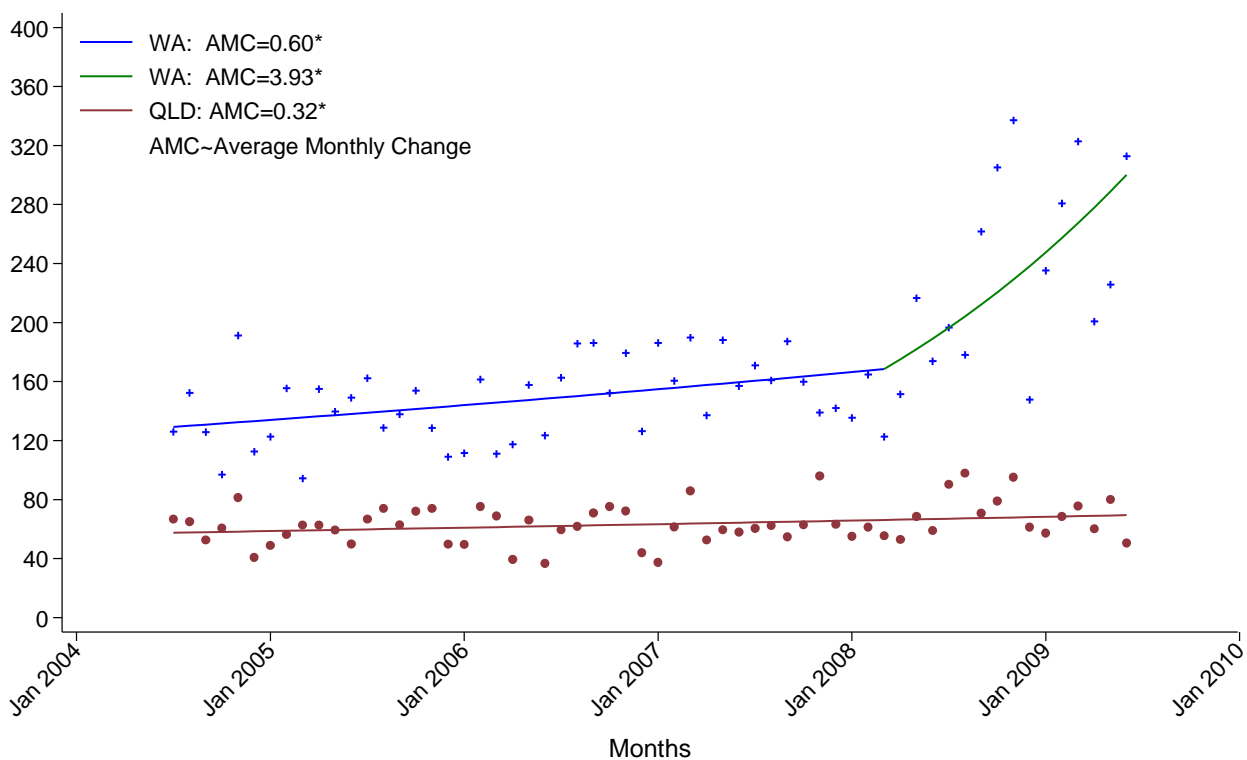


Figure 3: Joinpoint regression demonstrating the differences in the ratios presenting in figure 2



The data in Figure 3 highlights that the ratio of alcohol-related crash data to RBTs for QLD is significantly different to that of WA. The slope of QLD suggests that whilst there has been a slight monthly increases (AMC = 0.32) in crashes (after accounting for the number of RBTs) this is half the slope of WA for the period of July 2004 to March 2008; at this stage (March 2008) there is a substantial increase in the crash data of WA (after adjusting for the number of RBTs). The slope is over 10 fold that of the QLD data.

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