

Factors affecting two- and five-year re-offence rates in Queensland drink drivers

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Abstract

Risk factors for repeat drink driving, an important road safety issue, are well known. However, apart from the findings of a recent New South Wales study, estimates of Australian recidivism rates by risk factors are not well known.

The driving records of a cohort of Queensland drink drivers participating in a drink driving rehabilitation program were matched by age, region, blood alcohol concentration (BAC) level and prior offence and used to estimate sex-specific two- and five-year re-offence rates overall. Estimates of the proportion of Queensland drink drivers with a prior drink driving (DD) offence in 2004 were used to standardise rates to the Queensland drink driving population. Rates were higher in remote areas, as were rates in males, young drivers, drivers with high BAC levels and drivers with prior DD convictions (this was especially true of drivers with at least two prior DD convictions). Five-year rates for Queensland were estimated as 21.8% in males and 16.4% in females, appreciably higher than in New South Wales.

Keywords

Drink driving, Drink driving risk factors, Recidivism, Repeat offenders

Introduction

Drink driving continues to be a major problem for law enforcement, frequently leading to death and injury among drivers, their passengers and other road users. Predictors of recidivist drink driving, defined usually as repeat apprehension for drink driving (DD), have been extensively studied; the results have been summarised in a recent paper from New South Wales, which also reported on the proportions of convicted drink drivers reconvicted for a DD offence within five years, by a number of characteristics [1]. These included demographic variables, characteristics of the index offence (including penalties), and number of prior traffic and DD offences, all from the database maintained by NSW Bureau of Crime Statistics and Research. The index year was 2002. Predictors identified in that study and in previous research were being young, male or indigenous; prior drink driving offences; a previous criminal conviction; an alcohol or other substance abuse problem; certain mental health disorders; and residence in a disadvantaged area [1, 2].

Unidentified data supplied by Queensland Transport on the characteristics of a cohort of drink drivers have provided the

opportunity to estimate drink driving recidivism rates in Queensland and identify its predictors. The resulting estimates constitute a baseline from which to assess impacts on drink driving recidivism which may arise from targeted interventions. Members of the Queensland magistracy have expressed interest in these results as an indication of the magnitude of the problem and to inform their sentencing policies. In general, understanding the extent and antecedents of a problem such as repeat drink driving is a prerequisite to devising strategies to combat it.

Method

Participants

As part of an outcome evaluation of a drink driving rehabilitation program undertaken by Queensland Transport and the Centre for Accident Research and Road Safety - Queensland (CARRS-Q), a comparison series of drink drivers who had not undertaken the program was selected. These were matched to those assigned to the program on a number of factors present at the index offence, i.e. the drink driving offence which occasioned their selection into the comparison sample: sex; age in five categories; a history of prior drink driving conviction(s) (within three years before the index offence); BAC level categorised less than 0.15 mg/100 ml, at least 0.15 mg/100 ml, failure to supply a specimen and other, as indicated by the offence code; and police division of residence, presented in the data file supplied only as a region classified into the five categories of the Accessibility/Remoteness Index of Australia (ARIA) [3]. For details see Table 2. Information on prior and subsequent DD offences, including BAC level if recorded and time since index offence, was provided. The period covered is 2001 to 2006, with some comparison drivers convicted in 2007 and 2008. These data have been edited to remove duplications and multiple offence codes and correct discrepancies between blood alcohol concentration and offence code.

Because of the matching process, the controls are not a representative sample of Queensland drink drivers as a whole, nor are they a random sample even within the categories of each matching variable. However, they were selected at random from the pool of drivers classified by the combination of these factors. With appropriate adjustment they can be used to estimate recidivism rates within these categories and for Queensland overall, in the present instance at two and five years. Cross-sectional information on the distribution of most of the matching variables in drink drivers in Queensland in 2004 is available for use in calculating the estimates of the recidivism rates in Queensland drink drivers as a whole [4].

Males and females are considered separately, since they differ markedly in their propensity to offend and re-offend. There were 20,681 drivers in the analysis, 87% male and 13% female. Median follow-up intervals were just over four years for males, slightly shorter for females.

Data analysis

Estimates were calculated by the Kaplan-Meier procedure, the failure-time variable being the number of days from the index offence to the first subsequent drink driving conviction, or to the end of follow-up if no subsequent drink driving conviction was reported. Two and five year re-offence rates were estimated, the latter interval chosen to be comparable to that used in the NSW study[1]. In practice, the estimates used were those given by the algorithm at 730 and 1825 days, or, if no estimate was provided at these points, the estimate at the closest prior point, provided this was no more than 50 days earlier. In that case, which occurred usually in categories containing relatively few drivers, linear interpolation was used to estimate the appropriate rate. Differences in recidivism rates between factor categories are assessed by the logrank test. Confidence intervals - the measure of variation employed when weighted estimates for Queensland drink drivers are calculated - are derived by assuming that the logarithms of the rates are approximately normally distributed.

Results for each matching factor are presented individually below. To apply to the Queensland population, each should in theory be adjusted for all the other matching factors. However, the necessary degree of cross-sectional distributional detail is unsurprisingly not available for the Queensland drink driving population. This level of adjustment turns out not to be needed, since as is shown below only one factor (number of prior drink driving offences) has sufficient between-category variability and a large enough difference in distribution from the Queensland drink driving population to affect the results.

Results

As expected, rates for males were considerably higher than for females (Table 1).

For individual factors, among males there is little difference in re-offence rates at two and five years between Brisbane and the Inner and Outer Regional areas, but rates are higher in Remote and Very Remote areas. Younger drivers have somewhat higher rates while drivers aged 50 years and over have markedly lower

rates, with those between 25 and 49 years of age intermediate at both time periods. Re-offence rates on a univariate basis by index offence code show little difference at two years where blood alcohol concentration is known, and are somewhat higher among the more serious offenders at five years; drivers without a reading, often because of failure to supply, have lower levels of re-offence. Where an actual BAC reading was available, five-year rates for (predominantly young) drivers in the lowest category (< 0.05 mg/100 mil.) are slightly higher than average, particularly at five years, but from the next category (0.05 – 0.99 mg/100 mil.) five year rates trend upward. In conformity with the results for offence code, drivers without a reading have the lowest rates at both time points. By far the largest differences are seen for the variable, number of prior offences, with drivers with two or more drink driving offences prior to their index offence having very high rates at both two and five years, despite the probable driving suspensions which most or all will have received (Table 2).

Rates for female drivers are far less stable in many of the categories due to much lower numbers. On the whole, results are in conformity with those for males with a few possible discrepancies, which could be largely due to the instability alluded to above (Table 3).

There is no evidence of effect modification on any of the other factors considered by the most influential factor on re-offence rates, namely prior offence history, at least among males. That is, within categories the ratios of five year rates among those with a prior offence history to those with no such history vary relatively little, and non-significantly, over categories of age, region, BAC level or index offence code (data not shown). These ratios fluctuate around 1.65, which is the ratio of the five-year re-offence rate among those with a prior offence history to that among those without (Table 2).

In order to obtain estimates of re-offence rates for all drink drivers in Queensland, it would- strictly speaking - be necessary to weight sample estimates to reflect the distribution in the population of Queensland drink drivers of the factors considered here. Distributions of some of these are found in the report mentioned previously which analysed records of all convicted drink drivers in Queensland for the year 2004, which is near the mid-point of the period studied here [4]. This report indicates that the age distributions in the 2004 cohort and the current sample are similar, with medians of 31.0 and 31.7 years respectively. There are a higher proportion of males, high level BAC offences and repeat offenders in the current sample, while

Table 1. Estimated two- and five-year re-offence rates and standard errors (s.e.), by sex.

Sex	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
Males	17,962	10.8	0.24	25.8	0.40
Females	2,719	7.8	0.52	18.2	0.91

Logrank χ^2 (1 d.f.) = 54.3, p < 0.0001

Table 2. Estimated two and five-year re-offence rates and standard errors (s.e.), by region, age, index offence code, BAC at index offence and number of prior drink driving offences - males

Region (ARIA classification)	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
Major City (Brisbane)	7776	10.8	0.36	26.3	0.60
Inner regional	5042	9.7	0.43	24.8	0.79
Outer regional	4155	10.8	0.49	25.3	0.78
Remote	517	12.4	1.47	29.7	2.38
Very remote	472	18.0	1.78	31.0	2.36
Logrank χ^2 (4 d.f.) = 18.1, p = 0.001					
Age (years)	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
17 – 24	5395	12.0	0.46	29.8	0.78
25 – 29	3130	10.3	0.56	25.6	0.95
30 – 39	4881	10.8	0.45	25.6	0.75
40 – 49	2989	10.6	0.57	24.6	0.94
≥ 50	1567	7.5	0.67	16.9	1.12
Logrank χ^2 (4 d.f.) = 85.7, p < 0.0001					
Index Offence Code	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
67 (Under influence liquor UIL)	488	7.6	1.19	18.7	2.07
2383 (Fail to supply specimen)	344	10.1	1.65	23.2	2.66
2381 (UIL PCA < 0.150)	8063	10.8	0.35	25.0	0.59
2380 (UIL PCA ≥ 0.150)	9067	10.9	0.34	27.2	0.57
Logrank χ^2 (3 d.f.) = 11.4, p = 0.010					
B.A.C. at Index Offence	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
< 0.05	537	11.3	1.39	29.3	2.43
0.05 – 0.099	4243	10.8	0.48	23.9	0.81
0.10 – 0.149	3297	10.9	0.55	25.8	0.92
0.150 – 0.199	6380	10.6	0.40	26.9	0.68
0.200 – 0.249	2129	10.8	0.69	27.1	1.15
≥ 0.250	544	13.4	1.48	29.6	2.28
No reading	832	8.7	0.98	20.4	1.61
Logrank χ^2 (6 d.f.) = 17.1, p = 0.009					
Number of Prior Offences	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
None	9167	7.9	0.29	19.8	0.50
1	7234	11.9	0.39	30.0	0.67
≥ 2	1561	23.2	1.12	44.6	1.67
Logrank χ^2 (2 d.f.) = 483, p < 0.0001					

Table 3. Estimated two- and five-year re-offence rates and standard errors (s.e.), by region, age, index offence code, BAC at index offence and number of prior drink driving offences - females

Region (ARIA classification)	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
Major City (Brisbane)	1073	7.0	0.79	17.8	1.46
Inner regional	711	8.1	1.05	22.9	2.02
Outer regional	808	7.3	0.93	14.2	1.39
Remote	67	11.9	3.98	27.5	6.83
Very remote	60	9.7	3.88	23.4	13.0
Logrank χ^2 (4 d.f.) = 10.6, p = 0.031					
Age (years)	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
17 – 24	568	8.0	1.15	17.0	1.92
25 – 29	337	9.4	1.63	17.9	2.51
30 – 39	940	8.0	0.90	21.0	1.65
40 – 49	679	6.6	0.97	16.1	1.70
≥ 50	195	8.0	2.02	17.0	4.19
Logrank χ^2 (4 d.f.) = 9.4, p = 0.053					
Index Offence Code	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
67 (Under influence liquor)	71	4.3	2.44	15.1	6.36
2383 (Fail to supply specimen)	77	12.4	4.06	31.3	7.37
2381 (UIL PCA < 0.150)	963	8.1	0.89	15.7	1.39
2380 (UIL PCA ≥ 0.150)	1608	7.5	0.67	19.3	1.22
Logrank χ^2 (3 d.f.) = 10.3, p = 0.016					
B.A.C. at Index Offence	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
< 0.05*	52	9.8	4.18	9.8	4.18
0.05 – 0.099	560	7.3	1.11	14.3	1.77
0.10 – 0.149	351	9.5	1.60	19.7	2.63
0.150 – 0.199	1090	7.4	0.81	18.9	1.48
0.200 – 0.249	413	7.9	1.35	21.3	2.49
≥ 0.250	105	8.8	2.82	16.6	4.33
No reading	148	8.3	2.29	22.3	4.65
Logrank χ^2 (6 d.f.) = 10.8, p = 0.096. *no re-offences beyond 16 months					
Number of Prior Offences	N	Two year		Five year	
		Rate (%)	s.e.	Rate (%)	s.e.
None	1884	5.5	0.53	14.7	1.01
1	787	12.8	1.23	25.8	1.91
≥ 2	48	20.5	6.25	37.9	9.79
Logrank χ^2 (2 d.f.) = 55.3, p < 0.0001					

Table 4. Estimates of two and five year re-offence rates with 95% confidence intervals (95% CI) for Queensland drink drivers derived by aggregating rates for those with and without prior offences with weights based on 2004 proportions - males

Region (ARIA classification)	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
Major City (Brisbane)	9.0	8.1 – 10.0	21.9	20.4 – 23.5
Inner regional	8.2	7.2 – 9.3	21.8	19.9 – 23.8
Outer regional	8.5	7.4 – 9.8	20.9	19.1 – 23.0
Remote	9.8	6.9 – 13.9	25.9	20.5 – 32.9
Very remote	14.7	10.9 – 19.7	25.9	20.7 – 32.4
Age (years)	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
17 – 24	9.5	8.4 – 10.8	24.4	22.3 – 26.7
25 – 29	9.2	7.8 – 10.8	21.9	19.6 – 24.4
30 – 39	9.0	7.9 – 10.1	21.8	20.0 – 23.8
40 – 49	8.0	7.1 – 9.8	21.6	19.4 – 24.1
≥ 50	6.8	5.3 – 8.7	15.3	12.8 – 18.3
Index Offence Code	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
67 (Under influence liquor)	7.2	4.8 – 11.0	18.6	14.1 – 24.7
2383 (Fail to supply specimen)	7.3	4.4 – 11.9	19.9	14.4 – 27.5
2381 (UIL PCA < 0.150)	8.4	7.5 – 9.4	18.6	17.1 – 20.3
2380 (UIL PCA ≥ 0.150)	9.3	8.5 – 10.1	24.0	22.6 – 25.4
B.A.C. at Index Offence	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
< 0.05	9.6	6.2 – 14.8	20.2	14.3 – 28.4
0.05 – 0.099	9.0	7.8 – 10.4	18.4	16.4 – 20.6
0.10 – 0.149	7.6	6.3 – 9.2	18.8	16.4 – 21.5
0.150 – 0.199	9.2	8.3 – 10.2	24.1	22.5 – 25.8
0.200 – 0.249	9.1	7.1 – 11.0	23.3	20.6 – 26.3
≥ 0.250	10.9	7.9 – 15.2	25.8	20.5 – 32.4
No reading	7.4	5.4 – 10.2	19.1	15.4 – 23.6

the regional distributions use different definitions and hence are not comparable. In addition, the report contains no detailed breakdown of BAC level.

Since in the current sample the re-offence rates at two and five years differ relatively little between drivers with offence codes defined by low and high BAC levels, the only two factors that have been used in the re-weighting are gender and offence history, dichotomised as none or at least one. (Reweightings using regional population estimates in ARIA categories hardly alters the overall sample estimates for either males or females.) In the report on the 2004 cohort, the proportion of females was 20%; 15.5% of males and 13% of females had a prior offence within the previous three years, so that 84.5% of males

and 87% of females were first offenders according to our definition. Population estimates overall and within categories of each factor are given by multiplying the applicable re-offence rate among male drivers with no prior offence by 0.845 and those among male drivers with at least one prior offence by 0.155 and summing. The same is done for females, using weights of 0.87 and 0.13 respectively. The resulting estimates of overall re-offence rate for males were 8.8% at two years with a 95% confidence interval (95% CI) of 8.3% to 9.4%, and 21.8 (95% CI 20.8% - 22.8%) at five years. Among females the estimates were 6.5% (95% CI 5.4% - 7.9%) and 16.4% (95% CI 14.4% - 18.8%) respectively. For Queensland as a whole the estimates are 8.4% (95% CI 7.7% - 9.2%) and 20.7% (95% CI 19.5% - 22.0%) respectively.

Table 5. Estimates of two and five year re-offence rates with 95% confidence intervals (95% CI) for Queensland drink drivers derived by aggregating rates for those with and without prior offences with weights based on 2004 proportions - females

Region (A.R.I.A. classification)	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
Major City (Brisbane)	5.7	4.1 – 7.9	16.7	13.3 – 21.0
Inner regional	8.1	5.8 – 11.3	21.2	16.8 – 26.8
Outer regional	5.8	4.0 – 8.3	12.4	9.5 – 16.3
Remote & very remote	10.3	5.2	18.6	10.6 – 32.8
Age (years)	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
17 – 24	6.5	4.3 – 10.0	14.7	10.7 – 20.4
25 – 29	8.3	5.2 – 13.4	17.3	11.8 – 25.3
30 – 39	6.3	4.6 – 8.7	18.1	14.6 – 22.6
≥ 40	6.2	4.4 – 8.7	15.4	12.1 – 19.7
Index Offence Code	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
2381 (UIL PCA < 0.150)	4.9	3.4 – 7.1	9.7	7.1 – 13.2
2380 (UIL PCA ≥ 0.150)	6.9	5.5 – 8.8	18.4	15.7 – 21.7
B.A.C. at Index Offence	Two year		Five year	
	Rate (%)	95% CI	Rate (%)	95% CI
0.05 – 0.099	4.7	2.8 – 7.7	9.5	6.1 – 15.0
0.10 – 0.149	6.3	3.6 – 11.1	13.7	8.6 – 21.8
0.150 – 0.199	7.0	5.2 – 9.3	17.9	14.7 – 21.9
≥ 0.200	6.9	4.5 – 10.4	19.3	14.7 – 25.5

The same sex-specific reweighting can be applied to re-offence rates by category for region, age, index offence code and BAC level after stratification by prior drink driving offence history. These are provided in Table 4, in all categories for males. Relativities between categories are on the whole unaltered, with the exception of the variable, index offence code, where rates in the more serious offence range (BAC ≥ 0.150) are now appreciably and significantly higher than those in the other categories, particularly at five years. In addition, the trend previously evident across the categories of index BAC is now essentially reduced to the dichotomy represented by the index offence code. Multivariate analysis using Cox proportional hazard modelling with all factors included confirms these relativities.

Weighted estimates are also provided for females for completeness, but only in selected or aggregated categories, depending on numbers (Table 5). In view of the much reduced sample size for women, the results - in particular those at five years - should be treated with caution.

Discussion

The above results indicate that almost 9% of Queensland male drivers and 6.5% of Queensland female drivers will have been convicted of a second drink driving offence within two years of a randomly chosen ('index') drink driving offence, despite the driving suspensions or disqualifications almost all will have received at a court hearing within a few months of that offence. At five years, the proportion re-offending will have increased to almost 22% in males and over 16% in females. Drivers of either sex with a history of previous drink driving within three years prior to the index offence have far higher re-offence rates at both two and five years, notably those who had more than one prior drink driving offence. Re-offence rates at both time periods tended to be higher in males living in remote or very remote regions of Queensland, and in male and female drivers with high-range blood alcohol concentrations (0.15 mg/100 ml or more) at the index offence. On the other hand, male drivers of at least 50 years of age had markedly lower re-offence rates at both two and five years. Young male drivers had the highest re-offence rates. The pattern in females was less clear, probably because they were far fewer in number.

Residence in remote and very remote areas has apparently not been recognised specifically as a risk factor for drink driving recidivism. However, levels of alcohol consumption are known to be very high in rural Queensland. [5]

The five-year re-offence estimates from the NSW series are 16.6% in males and 9.7% in females, compared with the higher rates in Queensland of 21.8% and 16.4% in males and females respectively [1]. In terms of the individual factors common to both datasets, rates in NSW are shown for both sexes combined as against the sex-specific results presented here, which complicates direct comparison. However, in both states females comprise a small %age of drink drivers. Ignoring this complication, the relativities are similar in the case of age, with highest rates among younger drivers and lowest in the oldest group. On the other hand, the NSW data do not show the striking difference in re-offence rates of Queensland male and female drivers with BAC level of 0.15 mg/100 ml or higher compared to those with lower levels greater than or equal to 0.05 mg/100 ml. Both sets of results show higher rates in drivers with BAC levels below 0.05 mg/100 ml, who are in Queensland at least mainly in the youngest age group. Nor do the NSW results indicate as large a difference among both males and females between Queensland drivers with no prior drink driving offences and those with at least one.

It should be noted that the follow-up intervals New South Wales start from the date of court appearance whereas the Queensland intervals start at the date of offence. However, the mean and median intervals from offence to court hearing in Queensland in a series of over 1000 drink driving offenders assigned to the rehabilitation program in 2009 were only 71 and 42 days, respectively. Although the intervals in Queensland could be over two years in a few instances, as a whole this difference between the study intervals in NSW and Queensland is inconsequential.

Imperfect re-weighting of the Queensland estimates is an unlikely explanation of these differences. Even the drivers in the joint category of risk factors with lowest re-offence rates (urban residence, no prior drink driving offences, low range BAC at index offence and aged between 25 and 49 years) have five year re-offence rates of 16.4% in males and 11.7% in females. Only 11% of the male sample and 16% of the female sample fall into this group, and re-offence rates among the remainder will in the main be much higher. Two-year recidivism rates are available for the entire 1993 Queensland cohort of convicted drink drivers with a follow-up interval of three years or less. These rates are, at 13.2% in males and 7.9% in females, appreciably larger than the estimates provided here [6]. A possible cause is the difference in overall drink driving offence rates in the two states as measured by the ratio of annual drink driving conviction to licensed drivers. In Queensland, these were 1.39% in males and 0.39% in females in 2004 [4], whereas in New South Wales they were 0.88% and 0.19% respectively in 2002 [1].

Comparable figures on police enforcement or court outcomes

in the two states are difficult to obtain, so the difference awaits explication.

Comparable rates for other jurisdictions both in Australia and abroad are difficult to come by. As Trimboli and Smith point out, previous estimates vary widely with differing lengths of follow-up periods.[1] Furthermore, policing methods and definitions of drink-driving vary across and within countries. A European Union report from 2008 claims that ‘research has demonstrated that between 20% and 30% of convicted drink drivers re-offend’without specifying the interval between offences [7]. A report of an interlock trial in Alberta, Canada, suggests a five year re-offence rate among control drink drivers of 17% [8], while control drink drivers from an interlock trial in Indiana, USA, appear to have had a 24% rate among first offenders and 32% among repeat offenders over a somewhat longer period [9].

Thus it is impossible to decide whether the Queensland estimates are unusually high or the NSW rates unusually low. What seems clear, however, is that greater efforts need to be made to reduce the prevalence of re-offence in Queensland drink drivers, particularly among repeat offenders.

As remarked earlier, the sample, while randomly selected, is not representative of all drink drivers in Queensland over the study period even within the categories of single factors on which the reference sample of drivers was matched. However, with appropriate adjustment, credible estimates of recidivism rates can be obtained based in most cases on large numbers, at least among males. These estimates are subject to the recognised imperfection of data collected for administrative rather than research purposes, but this is unlikely to have influenced the results to any appreciable degree. Since the sample contained far fewer females, estimates of their re-offence rates are not as reliable.

Conclusion

In practical terms, the results suggest several possible countermeasures. More severe or focused sanctions for multiple repeat drink driving offenders could be considered; these might include installation of alcohol ignition interlocks or an equivalent device, or even vehicle impoundment where no other users would be affected. Programs for beginning young drivers are in place and it is hard to imagine what further measures could be implemented. Better enforcement in remote areas is perhaps called for; however, given the sparseness of the population and the distances involved, this would be costly in terms of police resources. More fundamentally, the drinking culture of these regions needs changing, but the means to do so do not seem available as yet.

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Pavement markings should be visible in all driving conditions, not just during dry daytime conditions.

It's road safety basics, isn't it?



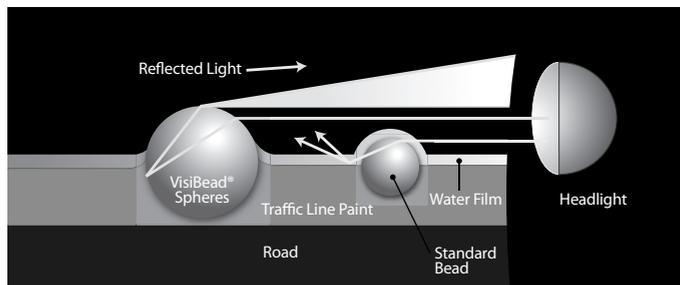
Dry night
Conventional painted pavement marking (left), and Visibead® pavement marking (right).



Wet night
Only the Visibead® painted pavement marking is visible when it starts to rain.

Under wet conditions, **Potters VisiBead®** offers far greater visibility than standard pavement marking beads.

*Specify: AS/NZS2009 Glass Beads for Pavement Marking Material, Type D-HR Wet-Night-Visible Glass Beads.



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