ROADSIDE SURVEYS OF DRINKING AND DRIVING IN ENGLAND

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SUMMARY

For many years, no contemporary information was available in Britain from which estimates of drink/driving could be made. This paper describes the results of roadside surveys carried out on weekday nights in the early summer of 1988 which were designed to remedy this situation. Respondents (randomly chosen) were asked to reply to a questionnaire, and to give a sample of breath in order to establish their breath alcohol concentration. Although these surveys were successful, and were well received by the driving public, a more efficient experimental method was subsequently developed in 1989. The technique developed, and initial results obtained, are discussed.

1. INTRODUCTION

It is generally accepted that a substantial reduction in the incidence of drinking and driving requires a fundamental change in the way society views this form of behaviour and those who engage in it. In order to establish how the task of effecting such a change can best be tackled, a better understanding of the characteristics of drinking drivers is needed. There is clearly a need to relate driver characteristics and behaviour to drinking levels when on the road - in accident situations, and, for comparison, in general driving conditions.

Results from recent roadside surveys in which breath alcohol concentrations were measured are summarised in this paper. These pilot studies have led to the development of appropriate experimental methods which have been shown to be publicly acceptable and have contributed significantly to our understanding of the drink/driving problem in England. The conclusions drawn consider the background of the respondents and their general drinking and driving behaviour, and outline an experimental design likely to be adopted in future routine surveys.

2. SURVEYS CARRIED OUT IN SUMMER 1988

2.1 METHOD

The initial surveys in the present programme were carried out in two English counties (Sussex and Warwickshire) between the hours of 10pm and 3am on Thursday, Friday and Saturday nights for a period of 8 weeks between April and June 1988; 48 locations on well-trafficked roads were surveyed, in both rural and urban locations. Almost all surveys were carried out in segregated laybys or car parks, wherever possible out of the immediate sight of approaching drivers. Drivers of cars and light vans were randomly stopped by the police and guided to marked stopping bays, where an interviewer was ready to greet them. It having been explained that the survey was voluntary, drivers were encouraged to leave their vehicles to continue the interview in the relative comfort of the adjacent portacabin. In the vast majority of cases drivers agreed; however, when this was refused, an interview was offered at the car window.
The questionnaire was designed to establish the drivers' drinking behaviour and alcohol consumption on the day of the survey, together with details of their normal drinking habits and attitudes to drinking and driving. Additional information describing the driver's age, sex and occupation, driving experience and the origin and destination of his or her journey was also sought. Prior to leaving, all subjects were asked to provide a breath sample using a reliable alcolmeter (Lion SD2) which gave a digital readout of breath alcohol concentration (BrAC). Where subjects provided a sample with a breath alcohol concentration above the legal limit, they were advised of this fact. If the level was only slightly above the limit, drivers were advised to stay within the survey area until a satisfactory level was obtained on retest. Alternatively, where a passenger was present who could legally drive, this was encouraged. In cases where the breath alcohol level of a subject was very high and unlikely to achieve an acceptable value in the space of an hour or so, arrangements were made to take the car and its passengers home. Had a driver with excess alcohol insisted on continuing his or her journey, a police officer on the highway would have been asked to warn him or her of the consequences. This course of action did not prove to be necessary.

2.2 RESULTS

2.2.1 Breath Test Results

Of more than 2600 drivers approached, the vast majority co-operated readily; less than 2 per cent refused to take part, and a further 1 per cent declined to take a breath test. Overall, forty-two (1.7 per cent) were found to be over the legal limit of 35 g/100 ml BrAC, 0.2 per cent exceeding twice the legal limit, while 5.3 per cent exceeded half the legal limit. In 82.7 per cent of cases there was no evidence of alcohol having been consumed. Of the 17.3 per cent believed to have been drinking to some degree on the basis of their BrAC reading being greater than or equal to 3 g/100 ml, 9.8 per cent were found to be over the legal limit. Disaggregation of the data according to whether drivers were stopped at urban or rural sites demonstrated virtually no differences in alcohol concentrations.

2.2.2 Demographic and Personal Characteristics

Demographic characteristics of respondents who provided a valid breath sample are illustrated in Table 1, in relation to their BrAC level. It can be seen that the proportion of male drivers who had been drinking was significantly greater than among the surveyed population as a whole, the percentage increasing from 72.4 per cent in the general population to 83.3 per cent for those over half the legal limit. Drivers under 20 years of age and over 60 are proportionately underrepresented among those over the limit, while the relative incidence of drink/driving among those in the 25-29 age group, and to a lesser extent in the 30-39 age group, was high. There was also an indication of heavier drinking among 25-29 year olds, a quarter of those who were over the legal limit having a breath alcohol concentration in excess of 65 g/100 ml. Within the overall surveyed population, over half were drawn from socio-economic groups 3 and 4, while very few were from group 6 or were unemployed. Of those known to have been drinking, skilled manual workers (socio-economic group 4) were overrepresented in all quoted ranges of breath alcohol over 17 g/100 ml, the differences being particularly marked for breath alcohol concentrations above the legal limit.
2.3.3 Patterns of drinking during the twelve hours prior to being surveyed
Beer, cider or lager was the main drink of 52.3 per cent of those who had been
drinking, and of 75.6 per cent of those found to be over the legal limit. (see
Table 2). Wines and fortified wines were the main drink of 31.8 per cent of
the population, but only of 14.6 per cent of those over the limit. Only one
person who favoured spirits recorded a breath alcohol concentration in excess
of 17 g/100 ml. The most common second drink was a spirit (43.1 per cent),
followed by a wine or fortified wine (32.3 per cent), beer or cider (12.3 per
cent), and low alcohol drinks (9.2 per cent). The overall proportion of the
sample who had more than one type of alcoholic drink was 12.4 per cent.

In the majority of cases, drinking had been at only one location. However in
9.0 per cent of cases more than one location had been visited. Public houses
had been the most popular type of drinking location in the twelve hours before
the survey; of all drinking locations visited, 27.9 per cent had been public
houses. The popularity of pubs was also found to increase with recorded breath
alcohol concentration, and for respondents over the legal limit, 48.1 per cent
of drinking locations had been pubs. Although the sample size is small, the
fact that three quarters of all drivers with a breath alcohol concentration
above 65 g/100 ml had had a drink in a pub is also probably relevant. For
those drinking and driving to excess, 15.4 per cent of locations visited were
hotels or restaurants, and 9.6 per cent were nightclubs or discos. Among
drivers found to be over the legal limit, 7.9 per cent intended to make a
journey of over fifty miles, while 26.3 per cent were travelling in excess of
twenty miles; among drivers found to have a breath alcohol concentration above
65 g/100 ml, intended journey lengths were rather shorter.

2.3.4 Drinking habits

Reported drinking frequencies for all categories of drinking, and also for
drinking in public houses, are listed against recorded breath alcohol
concentrations in Table 3. Of the total sample, 7.0 per cent of respondents
stated that they never drank in a pub. Of those over the legal limit, 17.5 per
cent said that they drank every day, compared with 5.8 per cent in the general
population, while 52.5 per cent of offenders drank one or two times a week as
against 39.3 per cent for the latter group. No one found to be over the limit
reported drinking at a frequency of less than once a week; in contrast, in the
general population, 30.3 per cent were in this category. For drivers found to
be over the legal limit, the reported frequencies of general drinking and of
drinking in public houses had much in common. While 55.6 per cent of the
general population drank at pubs less than one day a week, this was only true
of 22.5 per cent of those over the legal limit, and of none with a breath
alcohol concentration greater than 65 g/100 ml. The association of
drink/drive offenders with public houses is obvious.
3. SURVEYS MOUNTED IN 1989

3.1 Revised Experimental Approach

In an effort to improve productivity and increase flexibility of operation, a revised experimental method was developed in further pilot surveys carried out in Wiltshire, principally between July and October 1989. At an early stage it had been recognised that if interviewing and breath testing could be satisfactorily carried out at the car door (without causing annoyance or lowering the response rate), significant economies could be made. During initial trials using this approach, the breath test was requested at the end of the interview; no adverse reactions were observed, and the refusal rate remained low. Subsequently, drivers were asked to take a (voluntary) breath test as soon as they stopped at the interview location; this worked well, and has enabled a high breath test screening rate to be successfully achieved. Using this method, subjects can be selected for more detailed interviewing according to a pre-determined plan, allowing greater emphasis to be placed on those drivers who had been drinking, particularly those found to be over the legal limit. It also minimises the inconvenience to non-drinking drivers. However, this simplification results in some background information not being available for drivers with a zero or low BrAC reading. Use has therefore been made of (reply-paid) self-completion questionnaires; these are distributed at the survey point to those not interviewed at length. Using this approach, response rates approaching 65 per cent have been achieved; investigation of any response bias will be explored.

As a consequence of these revised procedures, it has been possible to dispense with much of the heavy equipment employed in 1988. In 1989, the survey team and all necessary gear (including battery lighting, road signs and traffic cones) have been accommodated in a medium size Transit van; provision has been made to interview subjects, or to enable them to rest in this vehicle should the need arise. (In addition, an estate car was employed to transport erring drivers home.) As a consequence, the flexibility and mobility of the survey team has been markedly increased. Not only can surveys be safely carried out in lay-bys of modest proportions or on lightly-trafficked roads without lay-bys, but movement between sites can be readily effected during a typical survey night, so minimising survey conspicuity. However a balance has to be achieved between the productivity lost in moving location, and the (unquantifiable) benefit of avoiding an extended survey at a given site. In practice, moves were made after approximately ninety minutes. A significant advantage of the increased flexibility is that while suitable survey locations were difficult to define in 1988, the revised procedures have enabled survey sites to be established in most cases within a mile or so of a chosen map reference.

Regarding site selection, two different approaches have been adopted. In one, a random choice of locations within the more major roads (principally A and B classification) in Wiltshire was adopted. In the other, the choice was based on an appreciation of where alcohol related injury accidents had occurred in the previous three years, taking account of the time of day and direction of travel of the offending drivers. As far as possible a balance has been sought between the characteristics of sites selected according to the two criteria. In view of evidence that drink/driving was taking place early in the evening, and of the low traffic flows in the early hours of the morning, the surveys were carried out somewhat earlier than in 1988 i.e. between 7 pm and 2 am on
Thursday, Friday and Saturday nights.

3.2 Preliminary results
The acceptability to the public of the revised survey has been demonstrated, response rates for breath testing (98 per cent) being higher in 1989 than in 1988. Unfortunately, a full analysis of the data has not so far been possible, but of approximately 3000 drivers breath tested, 1.6 per cent were found to be over the legal limit of 35 g/100 ml BrAC, while 2.5 per cent were in the range 18-35 g/100 ml BrAC. Although the times at which the surveys were carried out differed, the principal results obtained in 1989 are broadly similar to those obtained in 1988. As anticipated, within the 1989 data set, marked differences are evident in the distribution of BrAC readings obtained with time of day, with the highest proportion of drivers being found over the legal limit (2.1 per cent) in the period 10.30 pm to midnight. Some evidence of seasonal factors is also evident in the data, the proportion over the legal limit falling in the August holiday period.

4. CONCLUDING REMARKS
For the most part, the driving public has been found to be most co-operative, and readily accepted the principle of roadside surveys; no road accidents have occurred at or near survey sites. Aspects which limited the flexibility of operation in 1988 were largely overcome in 1989, and productivity was markedly improved. As a consequence it is likely that extended surveys designed to establish long term trends in drinking and driving will be established in 1990.

5. REFERENCE

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### TABLE 1

**Personal Characteristics of Respondents with Breath Alcohol Concentrations in Each of the following Ranges**

<table>
<thead>
<tr>
<th>BrAC (mg/100 ml)</th>
<th>BELOW LEGAL LIMIT</th>
<th>ABOVE LEGAL LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 2</td>
<td>Above 2</td>
<td>Below 2</td>
</tr>
<tr>
<td></td>
<td>No %</td>
<td>No %</td>
</tr>
<tr>
<td>0-2</td>
<td>215 (8.7)</td>
<td>-</td>
</tr>
<tr>
<td>3-17</td>
<td>20,490 (95.8)</td>
<td>17,860 (72.4)</td>
</tr>
</tbody>
</table>

**Note:** In this and all tabulations which follow, missing or invalid responses have been omitted. Where data are missing, column percentages have been calculated on the basis of valid returns.

### TABLE 2

**Numbers and Percentage of Respondents who had a Drink in the 12 hours before the Interview, Main Type of Drink Consumed, Drinking Locations and Intended Journey Lengths for Respondents with BrACs in each of the following Ranges, who reported having had Alcohol**

<table>
<thead>
<tr>
<th>Frequency of Drinking and of Drinking in a Public House for respondents with BrACs in each of the following Ranges</th>
<th>Below 2</th>
<th>Above 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 2</td>
<td>No %</td>
<td>No %</td>
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</table>

**Note:** The number of locations visited add to more than the number of respondents having had a drink owing to the following Ranges, who reported having had Alcohol.

### TABLE 3

**Frequency of Drinking and of Drinking in a Public House for respondents with BrACs in each of the following Ranges**

<table>
<thead>
<tr>
<th>Frequency of Drinking and of Drinking in a Public House for respondents with BrACs in each of the following Ranges</th>
<th>Below legal limit</th>
<th>Above legal limit</th>
</tr>
</thead>
<tbody>
<tr>
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<td>No %</td>
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